Emotional Fabric of Society: Emotional Environments, Congruence, and Discrepancies from a Macro Perspective

a Doctoral dissertation based on a series of articles

prepared under the supervision of
prof. dr hab. Kazimierz M. Słomczyński

to obtain the Doctor of Philosophy in Psychology
from the Institute of Psychology
Polish Academy of Sciences

by

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Warsaw, Poland, 2025

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General Abstract

Emotional life involves not only how individuals feel and express emotions, but also how they think about emotions and perceive what is socially expected of them. While previous research has extensively examined the intrapersonal and interpersonal effects of emotions, less is known about how macro-level emotional environments and societal norms are structured across cultures and how they relate to social structures and well-being outcomes. This dissertation takes a macro perspective, integrating four empirical studies to examine emotional environments, emotional congruence, and discrepancies among emotional experience, expression, and expectations.

The first paper introduces the concept of societal emotional environments (SEE), capturing the extent to which positive and negative emotions are expressed within a society. Using data from 49 countries, this study finds a double-edged sword effect of negative emotion expression: while expressing negative emotions—controlling for emotional experience—is associated with benefits at the individual level, societies with high levels of negative emotion expression tend to show lower levels of individual life satisfaction among their members.

The second paper investigates discrepancies between how frequently individuals experience and express specific emotions, focusing on frequency-based patterns across societies. Analyses of two large-scale multinational datasets reveal that negative emotions—such as anger and sadness—tend to be under-expressed relative to how often they are experienced. This under-expression is especially pronounced in highly developed societies, where structural factors such as rule of law and civic cooperation are associated with more restrained expression of negative emotions. These findings suggest that emotional expressivity is related to and potentially shaped by macro-level social structures, beyond traditional frameworks like individualism–collectivism.

The third and fourth papers explore experience–expectation congruence and incongruence, focusing on how the match or mismatch between emotional experiences and perceived societal expectations is associated with well-being. Paper 3 uses polynomial regression with response surface analysis to examine this relation and finds

no general benefit of emotional congruence. Instead, the direction of mismatch plays a critical role. Individuals who frequently experience negative emotions but perceive low societal expectations (stigmatised mismatch) report the lowest life satisfaction, while those who rarely experience such emotions but perceive high societal expectations (protected mismatch) report the highest. These findings suggest that perceived societal acceptance of negative emotions, rather than simple congruence, may be key to well-being. Paper 4 deepens this by distinguishing between direction-sensitive mismatches (stigmatised mismatch vs. protected mismatch) and showing that their well-being outcomes vary by societal emotional climate. In societies where negative emotions are less expressed (low-NSEE), mismatches are more strongly linked to reduced well-being, while in high-expression cultures, these effects are attenuated. Together, these studies show that emotional fit is a culturally embedded, norm-evaluative process.

Together, these findings underscore the importance of examining emotions from a macro-level perspective. Emotional norms, expressiveness, and incongruence between emotional experiences and societal expectations are systematically associated with both individual well-being and broader societal patterns. By integrating multilevel modeling and response surface analysis across four empirical studies, this dissertation advances our understanding of how emotional regulation and expressive norms interact across cultural contexts. It contributes to broader theoretical discussions on the social and structural dimensions of emotion.

Keywords: emotion, well-being, culture, societal emotional environment

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'But I don't want comfort. I want God, I want poetry, I want real danger, I want freedom, I want goodness, I want sin.'

'In fact,' said Mustapha Mond, 'you're claiming the right to be unhappy.'

'All right then,' said the Savage defiantly, 'I'm claiming the right to be unhappy.'

– Aldous Huxley (1932), *Brave New World.* Chapter 17.

Chapter 1. General Introduction

In Aldous Huxley's Brave New World (1932), Mustapha Mond cast a vision of a society that maximizes happiness and eliminates suffering—a world where emotions are carefully managed for the sake of collective stability. The Savage, however, famously pushes back, insisting on his right not only to happiness, but also to discomfort, uncertainty, and even despair. Their exchange raises a question that is as psychological as it is philosophical: is well-being simply about maximising positive emotions and minimising negative ones, or is there more to what it means to feel human?

This question is not confined to fiction. In psychological research, Diener's conceptualisation of subjective well-being (SWB) defines well-being as high frequencies of positive emotions and low frequencies of negative ones (Diener et al., 2002). But the pursuit of emotional positivity is more than a matter of individual regulation; it reflects deeper social beliefs about what emotions should look like, and when (Ford & Gross, 2019).

The belief that 'we all want to be happy' is often taken for granted, yet it is culturally situated. One influential example is the United States' Declaration of Independence, which enshrines the 'pursuit of happiness' as a foundational right (United States, 1776). It is particularly prominent in WEIRD (Western, Educated, Industrialised, Rich, and Democratic) societies (Krys et al., 2024), where happiness is often framed as a personal responsibility and moral goal. Yet cross-cultural research increasingly shows that how emotions are processed (Mesquita & Frijda, 1992), expressed (Matsumoto, Seung Hee Yoo, & Fontaine, 2008), valued (Tsai, 2007), interpreted (Barrett, 2018), and regulated (Butler et al., 2007), varies dramatically across societies—and so does the very meaning of happiness.

Over the past decade, emotions have come to be understood not just as internal experiences, but as inherently social phenomena (Keltner et al., 2022; Niedenthal & Brauer, 2012). Early psychological work focused on emotions as drivers of individual well-being and cognition, but more recent syntheses have highlighted their social effects: emotions act as signals, shaping how people interact, how they are perceived, and how

social norms are maintained. This shift is documented in recent *Annual Review* syntheses (Niedenthal & Brauer, 2012; Van Kleef & Côté, 2022). Niedenthal and Brauer (2012) illustrated how emotional expression and perception regulate interactions and reinforce social roles. A decade later, Van Kleef and Côté (2022) extended this to show how emotions systematically influence others' judgments, decisions, and behaviors—especially in domains such as leadership, negotiations, and collective behavior.

Beyond face-to-face interaction, emotions shape and are shaped by cultural expectations. Societies implicitly teach which emotions are appropriate, desirable, or to be suppressed (Van Kleef, 2017). While much research has examined how individuals navigate these norms in dyads or groups, less attention has been paid to the macro-level emotional patterns that characterize entire societies. For example, although discrepancies between emotional experience and expression are well-studied at the interpersonal level, we know surprisingly little about how such discrepancies are culturally constructed and whether they support or hinder well-being (Greenaway et al., 2018).

To address this gap, the dissertation examines how emotional experiences relate to broader emotional patterns and social structures in society. It focuses on the following three research questions, each of which is examined in a dedicated empirical chapter:

1. How do individual and collective emotions relate to well-being?
2. Why do people experience discrepancies between how they feel and how they express emotions? How do societal structures relate to these discrepancies?
3. What happens when individuals' emotional experiences clash with societal expectations? And how do collective norms interact with this incongruence, especially for negative emotions?

The dissertation addresses these questions using a cross-cultural, multilevel approach based on large-scale datasets from multiple countries. It combines methods such as multilevel modelling, cross-cultural meta-analysis, and response surface analysis

to examine how emotional experiences, expression norms, and societal contexts are associated with subjective well-being.

Key Concepts and Theoretical Foundations

This section outlines the conceptual foundations of the thesis, starting from the premise that emotions are socially situated and culturally shaped. It reviews perspectives on the social and normative dimensions of emotion, the distinction between affect and belief, and the discrepancies between them, concluding with a multilevel framework linking individual emotions to broader emotional environments.

Emotions as socially situated and normatively structured

The word *emotion* stems from the Latin *emovere-e* (out) + *movere* (to move)-meaning 'to move out, remove, or agitate'. In its earliest English and French usages, *emotion* denoted public agitation and social disturbance, not inner states of feeling. As both the etymological record (Onions et al., 1966, p. 310) and the *Oxford English Dictionary* (Simpson & Weiner, 1989, p. 183) attest, it once referred to the movement of bodies, crowds, or political conditions. The semantic trajectory-from outward motion to inward emotion-unfolded gradually over the eighteenth and nineteenth centuries (Simpson & Weiner, 1989), as the concept was internalised and reframed as a personal, affective state (James, 1884).

Contemporary emotion research repositions emotion as a social phenomenon—co-constructed through interaction, shaped by cultural expectations, and embedded in institutions (Mesquita & Boiger, 2014; Van Kleef & Côté, 2022). Rather than private reactions, emotions also serve as public signals, cultural performances, and normative acts regulating social life.

Sociodynamic model of emotion emphasise that emotions emerge from relational and institutional contexts, not as isolated intrapersonal reactions but as dynamic outcomes of patterned social environments (Mesquita & Boiger, 2014). Boiger and Mesquita's (2012) framework shows how affective dynamics take shape through everyday interactions—such as caregiving, workplace hierarchies, and media portrayals—that normalise certain emotions as socially expected and normatively

appropriate. These norms define not only which emotions are anticipated or valued, but also the conditions under which they are expressed, reinforced, or suppressed. Over time, these norms consolidate into culturally shared expectations, or the *feeling rules* (Hochschild, 1983), that govern both expression and internal appraisal.

This perspective provides a foundation for analysing how personal emotional experiences diverge from collective emotional expectations. It highlights how emotion norms function as regulatory constraints and moral guidelines, shaping not only which emotions are expressed but also how individuals evaluate their own affective lives. The following sections build on this framework by distinguishing actual from normative emotions, examining the consequences of emotional misalignment, and proposing a multilevel model of emotion in society.

What do we talk about when we talk about emotions?

Emotions and beliefs about emotions refer to related but distinct psychological constructs. Emotions describe affective states such as happiness, anger, or sadness, typically in response to internal or external stimuli. Beliefs about emotions, by contrast, concern how individuals evaluate or position these states—whether they are desirable, expected, or personally meaningful. These beliefs may take multiple forms, including ideal emotions (what one wants to feel; Tsai, 2007), socially expected emotions (what one believes one should feel; Bastian et al., 2012), or aspirations and concerns linked to emotional identity (such as feeling happy is important, or that something is wrong if one does not; Zerwas et al., 2024).

Although analytically distinct, emotional states and emotion-related beliefs often interact. For instance, valuing happiness may shape how individuals monitor and interpret their affective states (Zerwas et al., 2024), while the recurrence of specific emotions over time may shift what a person comes to see as appropriate or expected. This reciprocal relation is central to how emotions are experienced, expressed, and regulated in everyday contexts.

The distinction between types of emotion-related beliefs has been theorised in different literatures. One influential framework is Tsai's concept of ideal affect, which

refers to the emotional states that individuals want to feel, often shaped by cultural values and individual goals (Tsai, 2007). For example, some cultures place greater emphasis on high-arousal positive states like excitement, while others prioritise calm or contentment. These preferences guide how people interpret their emotions, what they seek out, and how they evaluate affective experiences.

Emotion-related beliefs can be organised along different types of self-guides. One such distinction is between *ideal affect*—the states individuals want to feel—and *ought affect*—the states they believe they should feel in order to meet social expectations. While ideal affects reflect affective goals shaped by personal or cultural values (Tsai, 2007), ought affects are linked to perceived obligations or norms, such as the expectation to feel proud, grateful, or motivated in specific roles (Bastian et al., 2012). This distinction parallels broader theories of self-regulation that differentiate between ideal and ought standards as separate reference points for evaluation (Higgins, 1987), and the term "ought emotions" has been used in cultural psychology to describe emotions prescribed by injunctive norms (Mesquita et al., 2014, p. 285).

While ideal and ought emotions provide distinct normative anchors, emotional experiences do not always align with these standards. Such mismatches are common—for example, when one feels detached in a situation that calls for enthusiasm, or angry despite believing that one should stay calm. These discrepancies between actual affect and internalised emotion standards may arise across different social settings and self-guides.

Another relevant construct is emotional expression. Although often linked to internal experience, emotional expression constitutes a distinct dimension (Gross, 1998b). Individuals may express emotions that differ from what they feel, depending on situational demands, display rules, or interpersonal goals (Hochschild, 1983; Van Kleef et al., 2004). Emotional expression serves multiple social functions, including signalling intentions, managing impressions, or coordinating interaction (Van Kleef & Côté, 2022). Across repeated interactions, such expressions may become patterned in ways that reflect cultural norms or shared expectations. In turn, these expression patterns may

also contribute to the broader emotional environment in which individuals are embedded. While this section focuses on the relation between emotional experience and internalised expectations, the alignment between emotional expression and experience is likewise not always straightforward. Their potential misalignment—what people show versus what they feel—raises further questions about how emotional life is regulated, interpreted, and evaluated across contexts.

Integrated theoretical framework for Emotional Normativity

As introduced in the earlier section about the social nature of emotions using the sociodynamic model of emotion (Mesquita & Boiger, 2014), it asserts that emotions are inherently social, arising from and being shaped by interpersonal interactions and relationships. Rather than being isolated reactions, emotions are dynamic processes co-constructed through social exchanges. For example, the anger felt during a disagreement is not just an individual response but is influenced by the relational context and history between the parties involved. This model emphasizes the role of feedback loops in social systems, where emotions both influence and are influenced by ongoing interactions.

Additionally, emotions are governed by normative structures, often termed "feeling rules" (Hochschild, 1983). These cultural guidelines dictate which emotions are appropriate, in what contexts. For instance, in some societies, public displays of sadness may be encouraged as a sign of empathy, while in others, they may be suppressed to maintain social order. This normative regulation illustrates that emotions are not purely spontaneous but are socially negotiated and constrained.

When people experience a mismatch among what they feel, what they want to express, and what they believe they should feel, this can generate psychological discomfort. Such emotional incongruence has been discussed in models of self-regulation, including self-discrepancy theory (Higgins, 1987). A complementary account comes from cognitive dissonance theory (Festinger, 1957), which originally described the discomfort caused by holding conflicting beliefs or behaviours. More recent formulations extend this framework to the domain of emotion, highlighting how

affective experiences can challenge internalised beliefs or social standards (Harmon-Jones & Mills, 2019). This mismatch resembles what previous studies on self-conscious emotions have identified as dissonance between actual feelings and normative emotional standards (Frijda et al., 2000; Mesquita et al., 2014), and can be described as a form of *cognitive-affective dissonance*.

Cognitive dissonance theory (Festinger, 1957) posits that individuals are motivated to maintain coherence among their cognitions—including beliefs, attitudes, and self-concepts—and that inconsistencies among these elements evoke a state of psychological discomfort. This discomfort, in turn, motivates regulatory strategies aimed at reducing the dissonance, either by changing beliefs, reinterpreting the situation, or modifying behavior (Higgins, 1987). When applied to emotion, this suggests that experiencing an emotion that violates one's normative beliefs about what one should feel involves a conflict distinct from standard models of emotion regulation. This discomfort does not arise from the intensity of the emotion itself, nor from difficulty in expressing it, but from the perceived mismatch between one's feelings and internalised normative expectations.

For example, a person who feels intense anger after a conflict with a close friend may simultaneously hold the belief that "a good friend should be understanding and calm." The resulting dissonance—between the actual affective experience and the internalised norm—may lead to suppression of the emotion, retrospective justification ("I was just tired"), or even changes in belief ("Maybe it's okay to be angry sometimes"). Importantly, this dissonance is not reducible to emotion regulation per se; rather, it stems from a conflict between emotional experience and internalised evaluative standards, such as what one believes a morally adequate person ought to feel in a given context (Frijda et al., 2000; Mesquita & Karasawa, 2004). The emotion becomes problematic not because of its intensity, but because it violates what the person believes they should have felt.

A further contribution to this integrative framework comes from the Emotions as Social Information (EASI) model (Van Kleef, 2009), which highlights how emotional

expressions regulate interpersonal behaviour through two distinct mechanisms: inferential processes and affective reactions. According to this model, emotional displays are not simply reflections of internal states but function as communicative signals that shape how others think, feel, and act. Observers may interpret these signals to draw inferences about the expresser's goals, intentions, or appraisals, or they may respond affectively—mirroring the emotion, forming impressions, or altering their own motivational states. For example, an angry expression may elicit compliance if the observer infers assertiveness and high goal commitment, but provoke retaliation if judged as normatively inappropriate. In this way, emotions exert interpersonal influence not only through content but also through form, timing, and perceived legitimacy.

While the EASI model illuminates how emotional expressions shape interpersonal dynamics through immediate affective or inferential pathways, its focus remains largely at the dyadic or situational level. To connect these micro-interactional processes to broader socio-cultural and structural forces, it is necessary to locate emotion within a more expansive contextual ecology.

Synthesising prior contributions by Greenaway and colleagues Greenaway et al. (2018), they summarised the multilevel framework by theorising emotion as shaped by nested contextual levels: personal, situational, and cultural. This multilevel contextualisation of emotion enables a cross-scale understanding of emotional normativity. For instance, the perceived appropriateness of an emotional expression in a given situation (Level 2) may hinge on cultural display rules (Level 3), while also interacting with individual regulatory tendencies or identities (Level 1). These interdependencies suggest that emotional incongruence—such as the misfit between felt and expected emotions—is not merely a function of internal conflict, but often emerges from misalignments between layers of context: what is felt (personal), what is allowed (situational), and what is expected (cultural). Such mismatches may be experienced as violations of normativity not because they are inherently dysregulating, but because they disrupt culturally embedded expectations for emotional coordination.

The person–situation–culture framework (Greenaway et al., 2018) suggests the

necessity of integrating cross-level interactions in emotion research. This perspective supports the present dissertation's methodological approach, which operationalises emotion not only as an individual psychological construct but also as a culturally situated and socially regulated phenomenon.

Toward a contextualised science of emotion

By integrating micro-level experiences with macro-level structures, this multilevel approach helps clarify how emotional life is organised across scales. It extends existing research that focuses narrowly on individual traits or cultural averages by emphasising the cross-level interaction between internal emotion regulation and external emotional norms. In doing so, it provides a framework for analysing how psychological adjustment is not only a matter of internal coherence, but also of external fit within specific emotional environments.

Guided by this framework, the dissertation investigates how emotions relate to well-being not only through what individuals feel, but also through how these feelings align—or misalign—with broader social expectations. It poses four interrelated research questions, each addressed in a separate empirical chapter:

1. **How does the societal visibility of emotional expression shape individual psychological functioning across cultures?** – This question examines macro-level emotional climates, focusing on how the normative salience of emotional expression within societies relates to individual well-being. It theorises visible emotion norms as contextual affordances that structure lived experience.
2. **To what extent do individuals' emotional expressions reflect their internal experiences, and how are these patterns structured by societal conditions?** – This investigation addresses the experience–expression gap, exploring whether emotional expressions align with felt experience, and how this expressive congruence varies across societies with differing levels of structural development and institutional openness.
3. **Does the congruence or incongruence between emotional experience**

and perceived emotional expectations predict individual well-being? – This question shifts to a normative dimension, focusing on the fit between what individuals feel and what they believe they ought to feel. Emotional fit is conceptualised here as a form of normative congruence with affective expectations, with potential implications for psychological functioning.

4. **Do societal emotional environments moderate the relationship between personal emotional (in)congruence and well-being?** – Building on RQ3, this final question adopts a cross-level perspective, asking whether the broader emotional culture—particularly the normative visibility of negative emotion—conditions the effects of emotional fit or misfit on well-being.

Together, these investigations map out how emotional congruence and discrepancy are socially situated and context-sensitive. This approach articulates how emotion norms—both descriptive and injunctive—structure personal emotional life across levels of analysis and cultural settings.

Methodological Approach

As outlined above, understanding emotional phenomena at the societal level benefits not only from cross-cultural comparisons, but also from an analytic lens that considers how individual and societal emotional processes interact. To address this need, the present dissertation adopts a cross-national, multilevel approach that brings together individual-level emotional experiences and expressions with societal-level norms and expectations. Mainly drawing on two large-scale, multi-country datasets, the analyses explore how these different layers of emotional life relate to subjective well-being across diverse cultural contexts.

The next sections introduce the data sources and sampling procedures used in the empirical studies, followed by a detailed description of the analytical strategies employed to examine emotional congruence, discrepancies, and cross-level interactions.

Samples and Methods of Data Collection

Except for the preliminary single-nation study that generated Paper 3, the current thesis primarily draws on data from two cross-national surveys: the *Happiness*

Meanders (used in Papers 1 and 2) and the *Live Better* projects (used in Papers 2 and 4). These two surveys were designed by Krys and his collaborators, covering topics such as self-construals, societal development goals, and well-being; the author of this thesis was involved in the implementation of the *Happiness Meanders* and provided input during the development of the *Live Better* projects. The *Happiness Meanders* project was conducted between 2016 and 2018 with 13,353 individuals from 49 countries (Krys et al., 2025), while the *Live Better* project was conducted between 2022 and 2024 with 24,053 individuals from 70 countries.

The original study materials for both the *Happiness Meanders* and *Live Better* projects were prepared by Krys and subsequently adapted by the author and collaborators in each country. An English template was distributed via Qualtrics and Google Forms for online administration, with a separate version for paper-based use. Collaborators translated the materials using the back-translation method and administered them to convenience samples, ensuring informed consent. In countries with multiple samples, collaborators jointly adapted the materials but collected data independently; these were later aggregated at the cultural level.

A pilot study in 2022 was designed and conducted by the author of this thesis as a preliminary step toward the development of the analytical model used in Paper 4. The scales used in the pilot study were largely similar to those later employed in the *Live Better* survey, though some differences were present (e.g., a larger set of emotion items).

While the data collection was coordinated across countries by Krys and collaborators, the analytical decisions in this thesis—including variable selection, operationalisation, and modeling strategies—were independently developed by the author. Each paper used a different set of focal variables and followed distinct data preprocessing procedures (e.g., data coding, quality control, and filtering). Due to model complexity, some analyses required a larger minimum sample size per country to ensure convergence. An overview of the datasets used in each paper, including sample sizes and the number of countries, is provided in Table 1. For details on paper-specific filtering and preprocessing, please refer to the Method section of each respective paper.

Table 1
An overview of datasets used in each paper of the current thesis

Paper	Dataset with Original N & k		
	Happiness Meander $N = 13,353, k = 50$	Pilot $N = 301, k = 1$	*Live Better* $N = 24,053, k = 71$
1. Krys et al., 2022	Main Study $N = 12,888, k = 48$		
2. Yeung et al., 2025	Study 1 $N = 12,549, k = 48$		Study 2 $N = 19,690, k = 65$
3. Yeung et al., 2024		Main Study $N = 301, k = 1$	
4. Yeung et el., in prep			Main Study $N = 14,823, k = 48$

Note. N = sample size, k = number of nation

Common Variables and Shared Operationalisations

The four empirical papers address distinct research questions but are grounded in a common set of conceptual variables, ensuring analytic continuity. Across studies, three categories of emotional indicators were examined: emotional experiences (self-perceived frequency of specific emotions; Papers 1–4), emotional expressions (perceived frequency of expressing those emotions; Papers 1, 2, and 4), and emotional expectations (beliefs about how often one is expected to feel those emotions; Papers 3 and 4).

All emotional items were measured on 9-point frequency-based Likert-type scales anchored to concrete temporal markers (e.g., 1 = “never”, 5 = “once a day”, 9 = “all the time”). This approach was adapted from the Affect Valuation Index (Tsai et al., 2006) and extended to include culturally relevant additions (e.g., pride, shame, gratitude) to enhance cross-cultural comparability. To capture emotional climates in Papers 1 and 4, experience and expression scores were aggregated at the national level to create indicators such as Positive and Negative Societal Emotional Environments (PSEE, NSEE), enabling analyses at both individual and country levels.

This consistency in both measurement strategy and construct definition allows for meaningful comparisons across empirical studies and supports the broader objective of the dissertation: to trace patterns of emotional congruence and discrepancy across personal and societal levels, in ways that are both methodologically rigorous and sensitive to cultural context.

Overview of the Analytical Strategies

This dissertation approaches emotions as both psychological constructs and sociocultural contexts, and builds its analytic strategy around their interaction. While each empirical paper addresses a distinct research question, they share a common methodological foundation: to examine the alignment and misalignment between emotional experiences, expressions, and expectations across individual and societal levels, and to understand how these patterns relate to well-being.

Across studies, the analyses combined psychometric validation with statistical models suited for multilevel and cross-cultural data. Common procedures included scale evaluation (e.g., internal consistency checks and confirmatory factor analysis) to ensure measurement equivalence, followed by statistical modelling tailored to each paper's analytical aims.

As the project developed, the analytic strategy evolved from descriptive and linear models to more complex multilevel and nonlinear approaches. This progression was necessary to model the layered and context-dependent nature of emotional life. The specifics of each analytic design are introduced in the respective chapters.

Dissertation Objectives and Structure

This dissertation aims to develop a macro-level understanding of emotion in society by examining how emotional experiences, expressions, and expectations relate to individual well-being and societal structures. It conceptualises emotion not only as a personal psychological phenomenon but also as a cultural and normative construct embedded in social environments. Specifically, it investigates how emotional congruence and discrepancy operate across different societal contexts, and how emotional norms—both descriptive and injunctive—structure well-being.

These aims are addressed through four interrelated empirical studies, each corresponding to one of the four articles that comprise this dissertation. Paper 1 investigates how societal patterns of emotional expression relate to individual well-being, highlighting the role of macro-level emotional climates. Paper 2 examines the alignment between individuals' emotional expressions and internal experiences, and

how this alignment is structured by societal development indicators. Paper 3 explores the psychological consequences of congruence and incongruence between emotional experience and perceived emotional expectations. Finally, Paper 4 adopts a cross-level perspective to assess whether broader societal emotional environments moderate the effects of emotional (in)congruence. The following chapters address these questions as follows:

Chapter 2 presents Paper 1, which introduces the concept of *Societal Emotional Environments* (SEE). Using data from 49 countries, this chapter examines how patterns of emotion expression at the societal level relate to collective well-being. A 'double-edged sword' effect is observed: while expressing negative emotions may be individually adaptive, it appears to come with broader societal costs.

Chapter 3 presents Paper 2, which investigates discrepancies between emotional experience and expression. Drawing on two large-scale cross-national datasets, the chapter explores how indicators such as societal trust, fairness, and the Human Development Index are linked to the tendency to under-express negative emotions.

Chapter 4 brings together Papers 3 and 4. Paper 3 uses U.S. data to test whether alignment between people's emotional experiences and their perceptions of what is expected by society predicts individual well-being. Paper 4 extends this analysis across 48 countries, examining whether SEE shapes the relation between emotional (in)congruence and life satisfaction, using multilevel response surface analysis.

Chapter 5 synthesises findings from all four papers. It revisits the central questions, discusses theoretical and methodological contributions, and outlines directions for future research on how emotions are shaped by and situated within social contexts.

Chapter 2. Societal Emotional Environments (Paper 1)

This chapter is based on the following published article in the *Journal of Positive Psychology*, which has been integrated into and adapted for the format of this thesis. The originally published version papers, without the adaptations and integrations for this thesis, is available in the Appendix.

As the first paper in the dissertation, it introduces the central concept of *societal emotional environments* and establishes the macro-level framework that guides the subsequent studies. The study was conducted as part of a large-scale international collaboration and represents the starting point for the macro-level framework developed across the dissertation.

Detailed power analysis, sample characteristics, measurement model testing, questionnaire description, and strategy discussions are available online on the publisher's website.

Citation:

Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M. C., Torres, C., van Tilburg, W. A., ... & Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *Journal of Positive Psychology*, *17*(1), 117–130. https://doi.org/10.1080/17439760.2020.1858332

Author contribution note:

I originated the research idea, designed the analytical framework, programmed the models, conducted the analyses, interpreted the results, and prepared the manuscript and figures. CRediT roles: *Conceptualisation, Methodology, Software, Formal analysis, Writing – original draft, Investigation, and Visualisation.*

Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study

Abstract

Using data collected from 12,888 participants across 49 countries, we show how societal emotional environments vary across countries and cultural clusters, and we consider the potential importance of these differences for well-being. Multilevel analyses supported a 'double-edged sword' model of negative emotion expression, where expression of negative emotions predicted higher life satisfaction for the expresser but lower life satisfaction for society. In contrast, partial support was found for higher societal life satisfaction in positive societal emotional environments. Our study highlights the potential utility and importance of distinguishing between positive and negative emotion expression, and adopting both individual and societal perspectives in well-being research. Individual pathways to happiness may not necessarily promote the happiness of others.

Keywords: Societal emotional environment, societal well-being, emotion regulation, emotion expression, life satisfaction, culture

Introduction

The emotions people express around us influence our well-being. If people around us frequently express joy and gratitude, or anger and anxiety, then these emotions create our 'emotional environment'. Up to now, emotion regulation research has largely focused on the *intrapersonal* and *interpersonal* effects of emotion expression, attempting to answer questions about the *well-being of people who express emotions* and the *quality of interactions of people who express emotions*, respectively. Here, we seek to further the understanding of the consequences of emotion expression by examining the possible *extrapersonal* effects of emotional expression: we ask *how the expression of emotions might affect the well-being of people around the expresser*. In order to do so, we take a cross-cultural approach and introduce the concept of a 'societal emotional environment' (SEE). With data collected from 12,888 participants in 49 countries, we investigate how the SEE varies across countries and cultural clusters. We test a 'double-edged sword' model of negative emotion expression, where the expression of negative emotions is predicted to be beneficial for the well-being of the individual expressing negative emotions but detrimental to the well-being of the broader society. We also examine whether those who inhabit SEEs high in positive emotion expression tend to have higher levels of well-being.

Societal emotional environment

People across cultures differ in their overall emotional expressivity (Matsumoto, Yoo, et al., 2008) and in their valuation of emotions of different intensity (Tsai et al., 2006). For instance, Confucian Asians tend to prefer low arousal positive emotions (e.g., serenity, calmness; Tsai et al., 2006) and are more likely to inhibit their expression of emotions (Matsumoto, Yoo, et al., 2008; Nam et al., 2018; Potter, 1988). Latin Americans, in contrast, tend to prefer high arousal positive emotions (e.g., excitement, elatedness; Ruby et al., 2012), and free, frequent, and intensive emotional expression is considered a constitutive feature of Latin American cultures (Garza, 1978; Triandis et al., 1984). These cultural differences in emotion expression are particularly interesting when one considers societal rankings of life satisfaction: Confucian countries

tend to occupy lower positions of these rankings, whereas Latin Americans are typically near the top (Diener et al., 1995; Krys, Uchida, et al., 2019; cf. Helliwell et al., 2019).

We propose that in order to better comprehend societal and individual well-being, positive psychologists may need to study the SEE: the emotional climate in a given society that is constituted by the frequency of expressed positive emotions (what we refer to as the positive societal emotional environment; PSEE) and the frequency of expressed negative emotions (what we refer to as the negative societal emotional environment; NSEE). While various forms of emotional climates have been investigated in positive psychology (e.g., group positive affect; Peñalver et al., 2019), organisational psychology (e.g., organisation climate; Bennett, 2011), sociology (e.g., cultures of negativity; Wojciszke, 2004), education (e.g., emotional environment in a class; Harvey et al., 2012), etc., we take a uniquely cross-cultural approach in the current paper and apply the idea of emotional climates to entire societies. Differing emotional climates across societies may help explain why some countries have higher life satisfaction on average compared to other countries.

Individual subjective well-being is typically thought of as involving three components: cognitive evaluations of one's life (most often life satisfaction), frequent positive emotions, and infrequent negative emotions. In studies on individuals, these three components are recognised as distinct, but mutually reinforcing factors (Busseri, 2018). Following this at the cultural level of analysis, we propose that SEE and societal life satisfaction (understood as the average sense of life satisfaction in a given society) constitute non-orthogonal but distinct constructs.[1] Although causality is probably bidirectional, we posit that SEE might influence societal life satisfaction more than societal life satisfaction might influence SEE. Because the expression of emotions is directly observable, it can have a direct impact on the sense of life satisfaction of people around the expresser. In contrast, one's sense of life satisfaction is not as easily perceptible and may have a more limited impact on the affect of people around (and on

[1] Previous large cross-cultural studies have reported country-level averaged frequencies of positive or negative affect, but have treated them as dependent variables (i.e., instances of well-being; Diener et al., 2013) or approached them as person-level variables only (e.g., Kuppens et al., 2008).

affect expression in particular).

Next, we theorise that even though PSEE and NSEE might be related (i.e., some cultures are generally more expressive emotionally than others; Matsumoto, Yoo, et al., 2008), they are two distinct phenomena. Various studies suggest that some societies are governed by positivity norms; cultures of indulgence (Hofstede, 2010), cultures of affirmation (Wojciszke, 2004), cultures of smiling (Krys et al., 2016) and cultures of maximisation (Hornsey et al., 2018) may serve as examples. Studies also document that other cultures – cultures of complaining (Wojciszke, 2004), cultures of restraint (Hofstede, 2010), and cultures where smiling is perceived less favorably (Krys et al., 2016) – are governed by negativity norms. Importantly, PSEE and NSEE seem to carry divergent consequences for the well-being of people living in them. Previous studies on emotional climate provide evidence that living in a PSEE may facilitate well-being (Bennett, 2011), and living in an NSEE may have detrimental effects for well-being (Wojciszke, 2004). Research on emotional contagion (Hatfield et al., 1993), and on the consequences of positive and negative social interactions (Berry & Hansen, 1996; Lincoln, 2000) may further support our theorising that SEE may carry consequences for well-being. However, the emotion regulation literature appears to offer a more nuanced perspective when it comes to the consequences of emotion expression for well-being (particularly when it comes to the expression of negative emotions). We provide a brief review of this body of research below.

The intrapersonal and interpersonal consequences of emotion expression

Studies on emotion regulation show that emotion expression in general (without distinguishing between positive and negative emotions) enhances affective, cognitive, and social functioning (e.g., Chervonsky and Hunt, 2017; Gross, 2014). Research that takes the valence of emotions into account has found positive intrapersonal and interpersonal consequences for positive emotion expression as well (e.g., Chervonsky and Hunt, 2017; Nezlek and Kuppens, 2008). Expression of negative emotions also appears to have positive intrapersonal effects for the expresser: negative emotional expression helps coping with stressful life-events (Stanton & Low, 2012), decreases

sympathetic activation of the cardiovascular system (Gross, 2014), and improves memory (Johns et al., 2008; Richards & Gross, 2000). Negative emotion expression may have these benefits for the expresser by reducing distress and facilitating insight (Kennedy-Moore & Watson, 2001).

The consequences of expressing negative emotions, however, are more mixed in the interpersonal context. On the one hand, expression of negative emotions solicits support, expands social networks, facilitates intimacy (Graham et al., 2008), and, in effect, leads to closer relationships with others (Baker et al., 2014; Srivastava et al., 2009). On the other hand, expressers of negative emotions are judged as less social, less popular (Sommers, 1984), and are liked less (Gross & John, 2003). A meta-analysis on the interpersonal effects of emotion expression (Chervonsky & Hunt, 2017) confirmed that the expression of negative emotions brings mixed interpersonal consequences (but the overall effect size indicated poor social outcomes in general of small magnitude, $d = -0.08$; in contrast, $d = 0.17$ was found for the interpersonal consequences of positive emotion expression).

Taken together, emotion regulation researchers tend to conclude that the advantages of negative emotion expression outweigh its disadvantages (Graham et al., 2008; Gross, 2014). This reasoning is also popular in folk (Rodriguez, 2013) and clinical (Kennedy-Moore & Watson, 2001) discourse. Here, we suggest that the picture remains incomplete without also considering the consequences of negative emotion expression for the wider society of the expresser. Surprisingly, these extrapersonal consequences of negative emotion expression have received limited empirical attention in the emotion regulation literature (cf. Locke and Horowitz, 1990).

The double-edged sword of negative emotion expression

By adopting a multilevel approach, two seemingly contradictory effects of negative emotion expression on well-being – one from the emotion regulation literature, and the second from studies on cultures and emotional climates – can be combined into a single comprehensive model. We predict that the expression of negative emotions may simultaneously be associated with positive and negative consequences: positive for the

expresser, but negative for society. Separating out the individual and societal (or the intrapersonal and extrapersonal, respectively) consequences of negative emotion expression allows for an examination of its potential 'double-edged' nature.

At least three other lines of research lend some initial support for our prediction that living in an NSEE may be associated with lower life satisfaction. First, research on emotional contagion documents that the expression of emotional states can lead others to experience the same emotions (Hatfield et al., 1993; Kramer et al., 2014). Therefore, living in an NSEE may foster negative emotions and impoverish life satisfaction, while living in a PSEE may foster positive emotions and promote life satisfaction. Second, expressed negative emotions can induce stress in observers and stressful stimuli have been shown to lower life satisfaction (Lazarus & Folkman, 1984). Third, research indicates that negative social interactions have a potent detrimental effect on well-being (Lincoln, 2000); these types of social interactions may be more common in NSEEs, which may lead to lower overall levels of life satisfaction.

The present study

The first goal of the current paper is to describe how the SEE varies across countries and cultural clusters. We attempt to replicate previous research that has found that some cultures are more emotionally expressive than others (e.g., Matsumoto, Yoo, et al., 2008), albeit we do so with data from a larger number of countries, and an expanded list of positive and negative emotions. The second goal is to investigate whether individual and societal differences in the degree to which positive and negative emotions are expressed matter for the well-being of individuals and societies. We hypothesize that even if negative emotion expressivity is good for the expresser, being a member of a society where negative emotions are frequently expressed will be associated with lower well-being. To test this hypothesis, we used two-level modelling to compare associations of negative emotion expression with life satisfaction at individual and societal levels of analysis (while also simultaneously comparing associations of positive emotion expression with life satisfaction at both levels of analysis). The two-level modelling let us also explore the cross-level interactions between SEE and expression of

emotions on life satisfaction (we had no a priori formulated hypotheses on cross-level interactions).

Method

The current study was part of a larger cross-cultural investigation, which was approved by research ethics committees, of the cultural antecedents of happiness, family well-being, and the valuation of different types of well-being (see also Krys, Park, et al., 2021). Measures of frequency of experience and frequency of expression of 30 different emotions were included to study a society's 'emotional environment' – we used these data to investigate our current research questions.

Participants and countries

We aimed to collect data in at least 40 countries. At the time of writing, our data set contained 12,888 participants from 49 countries from 10 cultural clusters (Gupta et al., 2002; House et al., 2004; Mensah & Chen, 2013): (1) Anglo (Australia, Canada, Ireland, United Kingdom, USA), (2) Latin Europe (France, Italy, Portugal, Romania), (3) Nordic Europe (Estonia, Iceland, Lithuania, Norway), (4) Germanic Europe (Austria, Germany, Luxembourg, Netherlands, Switzerland), (5) Eastern Europe (Croatia, Czech Republic, Georgia, Greece, Hungary, Poland, Russia, Serbia, Slovakia, Ukraine), (6) Latin America (Argentina, Brazil, Chile, Colombia, El Salvador, Guatemala, Mexico), (7) Sub-Saharan Africa (Ghana, Nigeria), (8) Middle East (Saudi Arabia, Turkey), (9) Southern Asia (Bhutan, Indonesia, Iran, Malaysia, Pakistan), and (10) Confucian Asia (China, Hong Kong, Japan, South Korea, Taiwan).[2]

As a rule of thumb, we aimed to recruit 200 individuals in each country (some authors, however, collected more and others collected fewer). A power analysis revealed that a total of 4,201 participants would have been sufficient in this research to obtain a desired power of .80 (for more details, see supplemental online material S1). Overall, 59.6% of participants identified as female, 39.3% as male, 0.4% as other, and 0.7% left the question about gender blank; the mean age of participants was 25.18 years

[2] Additional data from a Bulgarian sample were excluded from the current analyses as emotion measures were not administered in that sample. Also see supplemental online material S5 for exclusion criteria used in data screening.

($SD = 9.51$). Due to convenience and budgetary restrictions, we mainly collected samples of post-secondary students, but some authors managed to complement their student sample with a general population sample. Table in the supplemental online material S2 contains demographic characteristics by country.

Measures

Participants separately assessed two characteristics of their emotions: frequency of experience and frequency of expression. Distinguishing between emotional experience and expression let us estimate the effect of emotional expression while controlling for emotional experience. Furthermore, because cultures vary in their intensity of emotion suppression/expression (Butler et al., 2007; Matsumoto, Yoo, et al., 2008; Wong et al., 2008), we could use the explicit judgments of emotional expression – averaged for each society separately – to estimate the actual characteristics of a society's 'emotional environment'.

The list of emotions we assessed was partially based on Tsai and collaborators' (2006) Affect Valuation Index (AVI). Eleven items from the AVI were excluded because they were more related to affective arousal and less to emotional valence per se (i.e., strong, idle, aroused, rested, astonished, quiet, surprised, lonely, still, passive, and inactive). Another four items from the AVI that were directly associated with (un)happiness (i.e., content, happy, satisfied, and unhappy) were excluded as they were confounded with other measures that we included that were the main interest in this project (i.e., various forms of well-being). Thus, 15 AVI items were retained (i.e., calm, dull, elated, enthusiastic, euphoric, excited, fearful, hostile, nervous, peaceful, relaxed, sad, serene, sleepy, and sluggish). Next, we added 12 emotional feelings that are not listed in the AVI questionnaire, but which are commonly recognised and/or experienced across cultures: proud, in love, hopeful, respectful, grateful, depressed, bored, embarrassed, ashamed, hateful, angry, and disgusted (some of these feelings are recognised as basic emotions; Ekman, 1992). Because we incorporated emotional feelings described in the literature as being especially important in non-Western cultures (e.g., the Confucian triad: proud, embarrassed, respectful), we also included

three feelings that are potentially important in dignity cultures (i.e., amused [Krys, 2010; Krys et al., 2017], self-confident [Scherer et al., 1973], and authentic [Smallenbroek et al., 2017]) to maintain a balanced approach. Thus, we formed a list of 30 emotional feelings that were sensitive to various cultural contexts and reflected the palette of important feelings for each contemporary society.

Participants rated the frequency of experiencing and expressing these emotions on a 1–9 Likert-type scale. We modified the approach of Kuppens et al. (2008), whose emotion frequency scale ranged from 1 (*not at all*), through 5 (*half the time*), to 9 (*all the time*). Instead, we included the following response options as they refer to exact time periods and leave less room for ambiguity when responding: 1 (*never*), 2 (*a couple of times a year*), 3 (*a couple of times a month*), 4 (*a couple of times a week*), 5 (*once a day*), 6 (*a couple of times a day*), 7 (*almost every single hour*), 8 (*a couple of times an hour*), and 9 (*all the time*).

We grouped the emotion items into those of positive valence (i.e., enthusiastic, excited, elated, euphoric, calm, relaxed, peaceful, serene, amused, proud, in love, hopeful, respectful, grateful, self-confident, and authentic; average Cronbach's alpha for experience = .90 and expression = .90; reliabilities in each country $\geq$ .75; see Table S1), and those of negative valence (i.e., sleepy, dull, sad, sluggish, fearful, nervous, hostile, depressed, bored, embarrassed, ashamed, hateful, angry, and disgusted; Cronbach's alpha for experience = .91 and expression = .89; reliabilities in each country $\geq$ .81; see Table S1). All four emotion measures showed acceptable evidence of metric invariance across cultural clusters and metric isomorphism across levels of analysis in multilevel confirmatory factor analyses (see supplemental online material S3).

To assess potential consequences of emotional expression, we asked participants to report their subjective well-being. We used the Satisfaction With Life Scale (Diener et al., 1985; if available we relied on its previously validated translations; Cronbach's alpha = .86; reliabilities in each country $\geq$ .71; see Table S1). Following Vignoles et al.'s (2016) approach, participants rated items on a nine-point Likert-type scale with five labelled points: 1 (*doesn't describe me at all*), 3 (*describes me a little*), 5 (*describes*

me moderately), 7 (*describes me very well*), 9 (*describes me exactly*). Multilevel confirmatory factor analyses revealed acceptable evidence of metric invariance across cultural clusters and metric isomorphism across levels of analysis (see supplemental online material S3).

At the end of the questionnaire, we collected information on participants' sociodemographic background (e.g., parental education, age, and gender); we control for these three sociodemographic variables in some analyses to test the robustness of our findings. Please see supplemental online materials S4 and S5 for a more detailed description of, and a link to, the full questionnaire.

Results

Mapping SEE across countries and cultural clusters

PSEE and NSEE scores were calculated by taking the average self-reported frequency of positive emotion expression and the average self-reported frequency of negative emotion expression, respectively, for each country. PSEE and NSEE scores for all 49 sampled countries are visualised in Figure 1. Positive emotions appeared to be expressed more frequently than negative emotions across all countries, although this difference seemed to be smaller in some countries than others. There also appeared to be considerable variability in the degree to which positive and negative emotions were expressed across countries. For instance, those in countries with the lowest PSEE scores (e.g., United Kingdom, Hong Kong, Japan) reported expressing positive emotions only around 'a couple of times a week' on average, while those in countries with the highest PSEE scores (e.g., Ghana, El Salvador, Italy) reported expressing positive emotions around 'a couple of times a day' on average. Moreover, those in countries with the lowest NSEE scores (e.g., Iceland, Norway, Switzerland) reported expressing negative emotions only around 'a couple of times a month' on average, while those in countries with the highest NSEE scores (e.g., Pakistan, Bhutan, Guatemala) reported expressing negative emotions around 'a couple of times a week' on average. The Indonesian sample had an especially high NSEE scores that was more than four standard deviations from the mean of the rest of the countries. Because it was an extreme outlier, we excluded

the Indonesian sample from all subsequent analyses in this paper.[3] Lastly, there are hints in Figure 1 that the SEE might be more similar in countries that belong to the same cultural cluster. For instance, all the Latin American countries that we sampled were on the right side of Figure 1 (i.e., they had relatively high PSEE scores), while all the Confucian countries that we sampled were on the left side (i.e., they had relatively low PSEE scores).

To more formally test the veracity of the observations in the previous paragraph, we conducted a mixed-design ANOVA. Cultural cluster (Anglo vs. Latin Europe vs. Nordic Europe vs. Germanic Europe vs. Eastern Europe vs. Latin America vs. Sub-Saharan Africa vs. Middle East vs. Southern Asia vs. Confucian Asia) was included as the between-country factor and valence of emotion expression (positive vs. negative) was included as the within-country factor (see Table 2 for descriptive statistics). Results revealed a significant effect of cultural cluster, $F(9, 38) = 3.88, p = .001, \eta_p^2 = .479$. Countries in the Latin America, Sub-Saharan Africa, and Southern Asia cultural clusters tended to be significantly more emotionally expressive than countries in the Anglo, Nordic Europe, Germanic Europe, Eastern Europe, and Confucian Asia cultural clusters ($ps < .05$). No other significant differences between cultural clusters were observed. Results also revealed a significant effect of the valence of emotion expression, $F(1, 38) = 987.31, p < .001, \eta_p^2 = .963$, with positive emotions being more frequently expressed in general ($M = 5.12, SD = 0.48$) than negative emotions ($M = 3.62, SD = 0.39$). Finally, a significant interaction between cultural cluster and valence of emotion expression was found as well, $F(9, 38) = 4.60, p < .001, \eta_p^2 = .521$. To help unpack this interaction, we calculated the difference between the PSEE and NSEE scores for each country so that we could compare the relative positivity of SEEs across cultural clusters (higher relative SEE scores represent more frequent expression of positive emotions compared to negative emotions; see column 4 of Table 2). In general, the least relatively positive SEEs tended to be in countries in the Confucian Asia, Southern Asia, and Anglo cultural clusters,

[3] When we re-ran analyses with Indonesian data included, the picture of results remained substantially the same.

while the most relatively positive SEEs tended to be in countries in the Latin America, Nordic Europe, Germanic Europe, Latin Europe, Middle East, and Sub-Saharan Africa cultural clusters.

Table 2

Comparing cultural clusters on PSEE, NSEE, relative SEE, and societal life satisfaction

Cultural Cluster	k	PSEE $M(SD)$	NSEE $M(SD)$	Relative SEE $M(SD)$	Societal life satisfaction $M(SD)$
Anglo	5	4.84 (0.42)	3.66 (0.26)	1.18 (0.28)	5.38 (0.37)
Latin Europe	4	5.39 (0.55)	3.54 (0.45)	1.86 (0.18)	5.76 (0.20)
Nordic Europe	4	4.86 (0.49)	3.22 (0.44)	1.64 (0.11)	5.97 (0.12)
Germanic Europe	5	4.97 (0.30)	3.23 (0.21)	1.73 (0.27)	6.13 (0.22)
Eastern Europe	10	4.99 (0.34)	3.54 (0.23)	1.46 (0.27)	5.38 (0.70)
Latin America	7	5.55 (0.24)	3.90 (0.31)	1.64 (0.23)	5.85 (0.34)
Sub-Saharan Africa	2	5.92 (0.48)	3.93 (0.16)	1.99 (0.65)	4.70 (0.46)
Middle East	2	5.36 (0.35)	3.46 (0.25)	1.90 (0.10)	5.65 (0.10)
Southern Asia	4	5.29 (0.37)	4.15 (0.39)	1.14 (0.42)	5.13 (0.31)
Confucian Asia	5	4.63 (0.35)	3.60 (0.36)	1.03 (0.49)	4.66 (0.42)

Note. k = number of countries; PSEE, positive societal emotional environment; NSEE, negative societal emotional environment; Relative SEE = PSEE – NSEE (relative positivity of social emotional environment).

SEE and life satisfaction

Main analyses

To comprehensively investigate the potential effect of emotion expression at both the individual and societal levels while controlling for emotional experience (and sociodemographic characteristics), we conducted multilevel modeling. This allowed us to formally test our hypothesis that the individual-level benefit of expressing negative emotions would be reversed at the societal level. We were also able to examine how emotion expression at the societal level may moderate the effect of individual-level emotion expression through cross-level interaction. Life satisfaction was the criterion variable. Frequency of positive and negative emotion expression, and frequency of positive and negative emotion experience, were included as individual-level predictors and were grand-mean centered. Country-level averages of the frequency of positive emotion expression (PSEE scores) and negative emotion expression (NSEE scores) were centered by the mean of the country-level averages and were included as country-level

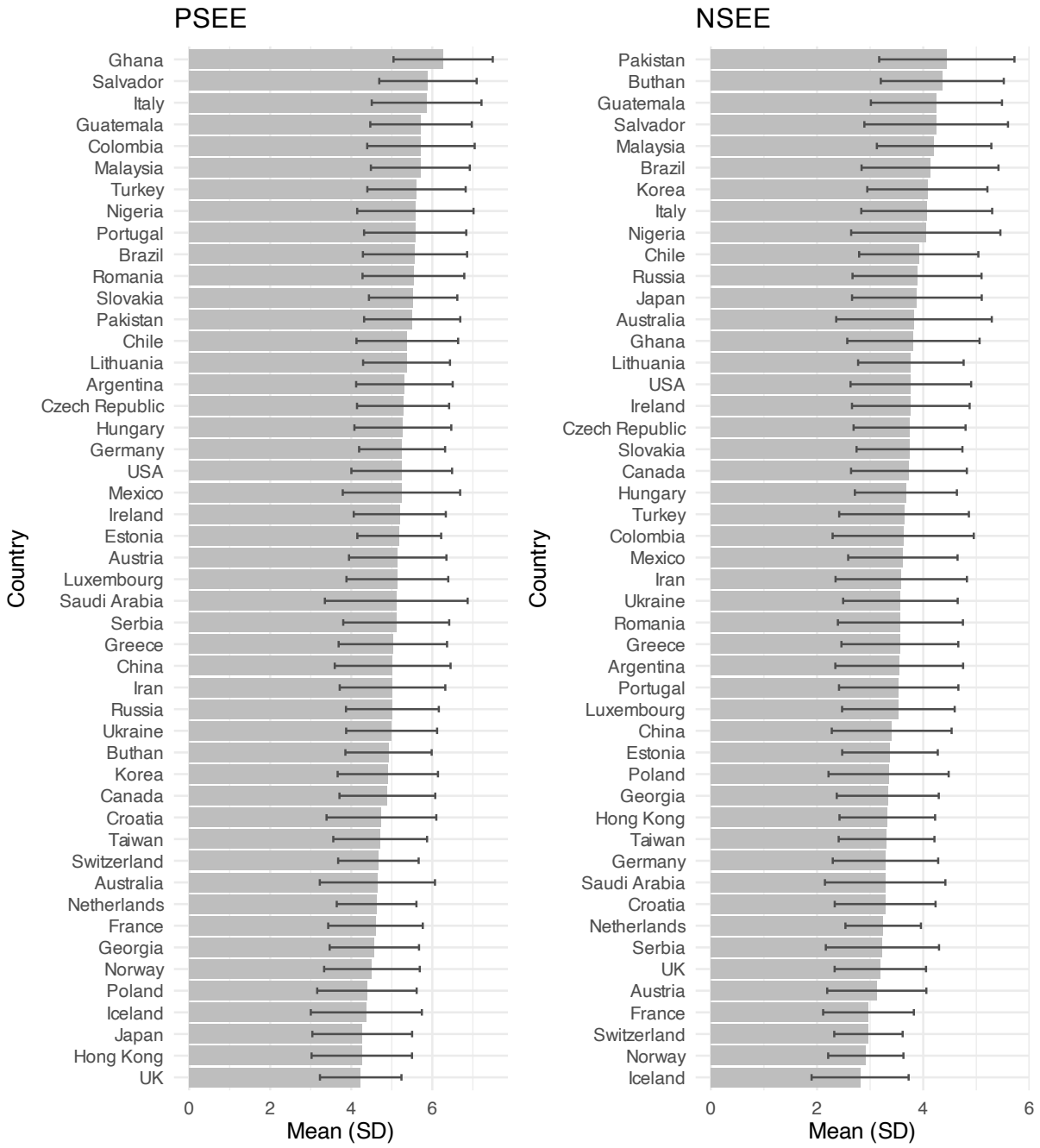
predictors.[4] The multilevel model was tested following the procedures recommended by Aguinis, Gottfredson and Culpepper (2013). Table 3 summarizes the results pertaining to all four steps in the model-testing, namely, null model, random intercept and fixed slope model, random intercept and random slope model, and cross-level interaction model. In the null model, the intra-class correlation (ICC) of life satisfaction was .124, meaning that cross-country differences account for about 12.4% of the variability in individuals' life satisfaction. This value is comparable to those reported in other multilevel studies (see Aguinis et al., 2013).

Following the suggestion by Aguinis et al. (2013), we used full information maximum likelihood (FIML) in the estimation so we could compare the relative fit between the *random intercept and fixed slope model* and the *random intercept and random slope model* (i.e., Step 2 and Step 3). As shown in Table 3, the model in Step 3 fits the data significantly better than the model in Step 2 (deviance of 43,385–43,314 = 71, $p < .001$), suggesting that there is significant variation in the relations between emotional expression and life satisfaction. In Step 4, we tested the *cross-level interaction model*, which showed that the interaction effects NSEE × individual-level negative emotion expression and PSEE × individual-level positive emotion expression are significant. These results indicated that at least some of the variation in the relations between individual emotional expression and life satisfaction is influenced by the societal emotional environment.

[4] Our reasoning behind centering decisions is described in the supplemental online material (S6). In supplementary analyses using alternative centering decisions, NSEE remained a significant negative predictor of life satisfaction in every model tested (see Tables S4 to S7 and S9 to S12).

Figure 1

Positive and negative societal emotional environment scores across countries



Note. Positive (PSEE, left) and negative (NSEE, right) societal emotional environment scores across countries. PSEE and NSEE are operationalised as the national mean frequencies of individual-level emotional expression. Error bars represent ±1 standard deviation.

We also conducted a second analysis where we controlled for sociodemographics. Specifically, we included log transformed GDP per capita (centered by the mean of the country-level averages) as a country-level predictor, and age (grand-mean centered), gender (female = -0.5, male = 0.5), and parental education (both parents having higher education = 1, one parent only = 0, none = -1) as individual-level predictors. Results from these multilevel models are reported in Table 4. A slight difference in the null models in Table 3 and 3 was noted because the model in Table 4 excluded the sample from China as not all sociodemographic questions were administered to the Chinese participants. Nevertheless, the ICC of life satisfaction in this model was .127, which was highly similar to that in the first multilevel model.

Results from both models supported previous findings on the intrapersonal benefits of expressing negative emotions. At the individual level of analysis, expression of negative emotions predicted higher life satisfaction, ps$<$ .001. However, at the societal level, both models showed that living in a society where negative emotions are expressed more often predicted lower life satisfaction, ps$<$ .01. Meanwhile, expressing positive emotions did not predict individuals' life satisfaction in either model, ps$>$ .10. Living in a society where positive emotions are expressed predicted higher life satisfaction, but this effect appeared stronger when sociodemographics were controlled for in the analysis.

As shown in Tables 3 and 4, the results of both models are similar. The interaction effects between societal emotional environment and individual emotion expression on life satisfaction are plotted in Figure 2 based on the model that controls for sociodemographic variables. As shown in these figures, positive emotion expression became negatively related to life satisfaction in societies with high PSEE, whereas the positive association of negative emotion expression with life satisfaction became significantly stronger in societies with high NSEE.

Table 3

Multilevel model predicting life satisfaction from emotional experience and expression at the individual level, and societal emotional environment at the country level

	Null (Step 1)			Random Intercept Fixed Slope (Step 2)			Random Intercept Random Slope (Step 3)			Cross-Level Interaction (Step 4)		
Level Variable	Estimate		*SE*	Estimate		*SE*	Estimate		*SE*	Estimate		*SE*
Level 1 - Individual Level												
Intercept	5.494	***	0.085	5.467	***	0.068	5.470	***	0.068	5.461	***	0.067
PXperi				0.601	***	0.021	0.595	***	0.021	0.593	***	0.021
NXperi				-0.422	***	0.017	-0.424	***	0.018	-0.423	***	0.018
PXpres				-0.031		0.020	-0.023		0.024	-0.022		0.024
NXpres				0.099	***	0.019	0.083	***	0.023	0.082	***	0.022
Level 2 - Country Level												
PSEE				0.308	†	0.176	0.408	*	0.171	0.388	*	0.169
PSEE				-0.771	***	0.215	-0.702	**	0.210	-0.823	***	0.211
Cross-level interaction												
PXpres × PSEE										-0.084	*	0.032
NXpres × NSEE										0.136	**	0.043
Variance Components												
Within-country variance	2.388			1.783			1.761			1.761		
Intercept variance	0.337			0.208			0.212			0.203		
Slope variance (PXpres)							0.008			0.006		
Slope variance (NXpres)							0.007			0.006		
Intercept-slope covariance (PXpres)							0.004			0.002		
Intercept-slope covariance (NXpres)							-0.014			-0.011		
-2 log likelihood (FIML)	47094			43385	***		43314	***		43298	***	

Note. FIML, full information maximum likelihood estimation. Analysis based on data from 12,654 participants and 48 countries.
*** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$

Table 4

Multilevel model predicting life satisfaction from emotional experience and expression at the individual level, and societal emotional environment at the country level, controlling for sociodemographics

	Null (Step 1)		Random Intercept Fixed Slope (Step 2)		Random Intercept Random Slope (Step 3)		Cross-Level Interaction (Step 4)	
Level Variable	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Level 1 - Individual Level								
Intercept	5.507 ***	0.087	5.471 ***	0.064	5.470 ***	0.063	5.465 ***	0.063
PXperi			0.601 ***	0.021	0.595 ***	0.021	0.593 ***	0.021
NXperi			-0.424 ***	0.018	-0.425 ***	0.018	-0.423 ***	0.018
PXpres			-0.029	0.021	-0.022	0.024	-0.020	0.024
NXpres			0.097 ***	0.019	0.082 ***	0.023	0.080 ***	0.022
Parents' education level			0.149 ***	0.016	0.142 ***	0.016	0.142 ***	0.016
Gender			-0.118 ***	0.026	-0.115 ***	0.026	-0.111 ***	0.026
Age			0.000	0.002	0.000	0.002	0.000	0.002
Level 2 - Country Level								
PSEE			0.463 *	0.173	0.507 **	0.170	0.486 **	0.168
PSEE			-0.645 **	0.213	-0.628 **	0.210	-0.663 **	0.207
GDP			0.175 *	0.070	0.174 *	0.069	0.173 *	0.068
Cross-level interaction								
PXpres × PSEE							-0.080 *	0.032
NXpres × NSEE							0.140 **	0.044
Variance Components								
Within-country variance	2.377		1.757		1.737		1.737	
Intercept variance	0.346		0.181		0.178		0.172	
Slope variance (PXpres)					0.007		0.006	
Slope variance (NXpres)					0.007		0.006	
Intercept-slope covariance (PXpres)					0.004		0.004	
Intercept-slope covariance (NXpres)					-0.004		-0.003	
-2 log likelihood (FIML)	45073		41395 ***		41335 ***		41319 ***	

Note. FIML, full information maximum likelihood estimation. 12,126 participants and 47 countries. GDP = log transformed GDP per capita.
*** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$

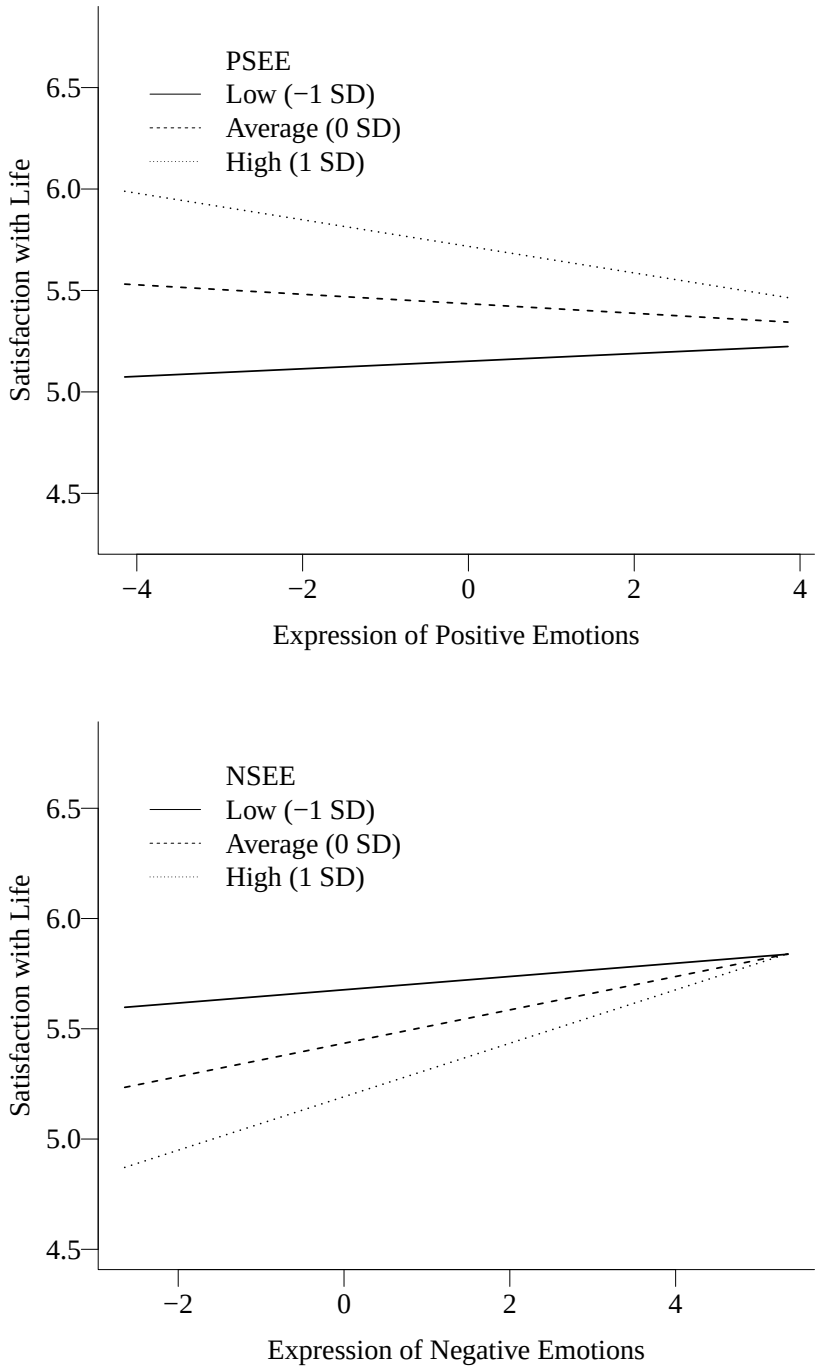


Figure 2

Interactions between emotion expression and societal emotional environment: positive (up) and negative (down) emotions.

Additional analyses

We construe the SEE as the average frequency of expression of positive and negative emotions in a given society. However, one may have concerns that country-level experience of emotions may need to be controlled for in the model. In other words, what is the effect of living in a societal environment where others experience more or less frequent positive or negative emotions, even if they do not express these emotions? For our main analyses, we assume that emotions need to be expressed to create a SEE, but in order to test this alternative reasoning we also carried out additional analyses with country-level frequency of emotional experience included in the models as Level 2 predictors. Although these additional analyses were burdened by problems with multicollinearity and therefore their results should be treated with caution, they still supported our hypotheses about negative emotion expression.[5] Specifically, NSEE remained a significant predictor of lower life satisfaction and negative emotion expression at the individual level also remained a significant predictor of higher life satisfaction. PSEE, however, was not a significant predictor of higher life satisfaction in these additional analyses. For a full discussion on additional analyses, see supplemental online material S6.

Discussion

This paper introduces the concept of 'societal emotional environment' (SEE), and it describes the first large-scale study – involving participants from 49 countries – exploring the potential utility of the SEE in well-being studies. The current study hints that the examination of the SEE and its potential societal consequences may be a promising new area of well-being research. Up to now, positive psychologists have mainly studied positive and negative emotions as antecedents of life satisfaction for individuals (e.g., Chang et al., 2019; Kuppens et al., 2008). Although positive psychology and other fields recognise the concepts of emotional climate (e.g., of organisations, in a classroom) and group-level emotions, country-level characteristics of

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[5] Correlations between expression and experience of emotions reached $r = .96$ for positive emotions, and $r = .92$ for negative emotions at the country-level of analysis.

positive and negative emotionality have not been commonly considered as possible antecedents of societal or individual satisfaction. Our results suggest that the emotions people in our society frequently express, especially negative emotions, might matter for our sense of satisfaction. In the remainder of the discussion section we consider how a PSEE may help explain high levels of life satisfaction in Latin America, and how an NSEE may help us understand the complexity of how emotion regulation influences well-being.

PSEE may help explain high levels of satisfaction in Latin America

Top positions in various rankings of life satisfaction tend to be occupied by Western European and Latin American societies (e.g., Jasielska et al., 2018; Minkov, 2009; Veenhoven, 2009; also current study), but in contrast to Western European societies, Latin American societies tend to score low to moderate on major country-level predictors of societal well-being. In particular, Latin American countries are in the middle of the open society ranking (Krys, Uchida, et al., 2019), they are more collectivistic than individualistic (Minkov, Minkov et al., 2017), and they are not the richest societies (World Bank, 2017). Thus, none of the important qualities that are typically thought to facilitate societal well-being characterise Latin America.

What Latin American societies are known for, however, is their frequent and free expression of positive emotions (Ruby et al., 2012) Some describe high emotional expression, and in particular the expression of positive emotions, as a constitutive feature of Latin American cultures; through vibrant positive emotions Latin Americans connect and reinforce their social connections (Triandis et al., 1984). Our study confirmed that Latin American countries rank high on PSEE (see Figure 1 and Table 2). Vibrant, intensive, and expressed positive emotions may make life in Latin America exceptionally satisfactory, and our study lends initial support to this explanation (although PSEE was admittedly not a significant predictor of life satisfaction in every model like NSEE was).

NSEE may bring a new perspective on emotion regulation processes

We replicated previous findings from emotion regulation literature that expressing negative emotions may improve the well-being of the expresser. Crucially, however, we also documented that negative emotion expression by others in one's societal environment is associated with significantly lower well-being. By expanding our focus beyond the intra- and interpersonal consequences to the extra-personal consequences of emotion expression, we were able to test and find support for our proposed 'double-edged sword' model of negative emotion regulation. Depending on the level of analysis, negative emotion expression is simultaneously associated with positives (for the individual) and negatives (for others in society).

Our findings question the idea that expression of emotions is unambiguously beneficial; we show that (negative) emotion expression may carry more than minor negative consequences (c.f., Chervonsky and Hunt, 2017). We hope that this nuanced perspective on emotion expression finds its way into the emotion regulation literature, as well as in discourse in clinical, positive, and popular psychology more broadly. Moreover, while some research combines positive and negative emotion expression into one general factor of emotional expressivity (Gross & John, 2003; Srivastava et al., 2009), our results suggest that there is utility in studying the unique consequences of positive and negative emotion expression as PSEE and NSEE seem to carry different consequences for well-being.

Such complexity is highlighted by the significant cross-level interaction effects between individual emotion expression and SEE on life satisfaction. In particular, we note that in high SEE cultures, individual positive emotion expression is associated with decreased life satisfaction, while individual negative emotion expression is related to increased life satisfaction. These effects were observed when individual emotion experiences were kept statistically constant. SEEs suggest the display rules of emotion, which individuals living in that environment would learn through socialisation. In high PSEE cultures, individuals are expected to express positive emotion regardless of their actual emotional experience, so the expression of positive emotion more likely represents

an individual's compliance to the display rule rather than their actual experience. In high NSEE cultures, the expression of negative emotion is more likely to be accepted as a norm, rather than a signal of norm violation (e.g., Hareli et al., 2015); consistency between emotional experience and response is likely to benefit an individual's well-being (e.g., Brown et al., 2020).

Discussions on individual-group discontinuity of well-being

Lastly, this paper may contribute to discussions in positive psychology on individual-group discontinuity in predictors of well-being (Oishi, 2011; Steel et al., 2018), and to discussions in cross-cultural psychology on cultural isomorphism or homology (Alessandri et al., 2017; Fischer et al., 2010). For example, although Veenhoven 2009 concluded that individual and societal values regarding well-being tend to be in harmony, other studies show that predictors of country-level life satisfaction and individual-level life satisfaction are different (Krys, Uchida, et al., 2019; Okulicz-Kozaryn et al., 2014). The current study provides a new example of individual-group discontinuity, with the opposite direction of associations (between well-being and a potential antecedent [i.e., negative emotion expression]) for individual and for country levels of analysis.

Limitations and future research

The current research increases understanding of the potential consequences of the emotional environment on well-being, but we must acknowledge its limitations and the need for further studies. Our findings rely on participants' self-ratings of their emotion expression (and experience) and well-being; participants were asked to indicate the frequency with which they experience and express specific emotional states over time. Future research that includes different methods of recording such variables (e.g., other-ratings, experience sampling) could potentially strengthen conclusions about the relations found and minimize concerns about the (in)accuracy of retrospective judgments. Other discrete emotions not assessed in the current study (e.g., awe; Koh et al., 2019), and/or other aspects of emotional experience/expression beyond emotional valence (e.g., arousal) may lead to novel predictions and could be an important task for

future research, as would examining emotional suppression in addition to emotional expression (Cameron & Overall, 2018). More refined conceptualisation of the emotion measures would be desirable in future research too. Further research is also required to establish the causal role that positive and negative emotional environments may have on life satisfaction; the current research is only correlational. Our research is also limited by the fact that most of the samples consisted mainly of college/university students. Future studies need to cover more countries from regions that were underrepresented in our study (e.g., Africa and the Middle East). Finally, investigating the effect of PSEE and NSEE on other types of well-being (e.g., meaning in life, family well-being; Krys et al., 2021, 2019) could be another fruitful avenue for future research.

Final remarks

Our own happiness, fulfillment, and flourishing sometimes enhance and sometimes oppose the happiness, fulfillment, and flourishing of the people around us. With the current paper, we find partial evidence that the expression of positive emotions may enhance the life satisfaction of people around, with Latin American societies serving as an exemplar. In contrast, we show the 'transactional' nature between the well-being of 'me' and the well-being of others when negative emotions are expressed. Expression of negative emotions appears to benefit the expresser, but the NSEE it contributes to may detract from the happiness of people around.

Our study is another important argument (Krys, Uchida, et al., 2019; Radkiewicz & Skarżyńska, 2019) for the utility of adopting a societal (or more generally communal) perspective in the study of well-being. If we want to live in happy societies, in happy local communities, and in happy families, individuals might want to consider how their pathway to happiness impacts the people around them.

Chapter 3. Experience-Expression Discrepancy (Paper 2)

This chapter is based on a manuscript that was under review at the time this dissertation was drafted. It has received a **minor revision** decision from the *Journal of Cross-Cultural Psychology*, and has also been published as a pre-print on *PsyArXiv*. The manuscript has been integrated into and adapted for the format of this thesis. The originally published version paper and its supplementary materials, without the adaptations and integrations for this thesis, is available in the Appendix.

As the second paper in the dissertation, it examines the discrepancy between emotional experience and expression, investigating how societal development is associated with emotional under-expression across cultures. This study builds on the macro-level framework established in Chapter 2, extending the inquiry into emotional norms by focusing on expressivity and structural influences.

Citation:

Yeung, J. C., Lun, V. M.-C., Li, L. M. W., Bond, M. H., Joshanloo, M., Górski, M. R., Kalinowski, M., Yeung, V. W. L., Yau, E. K., ..., & Krys, K. (2025). Is societal progress muting the expression of negative emotions? Evidence from two multinational studies [pre-print]. *PsyArXiv*. https://doi.org/10.31234/osf.io/ab5p6_v1

Author contribution note:

I contributed to the conceptualisation, methodology, programming, data collection, statistical analysis, interpretation of results, manuscript drafting, and visualisation. CRediT roles: *Conceptualisation, Methodology, Software, Investigation, Formal analysis, Writing – original draft, and Visualisation.*

Is Societal Progress Muting the Expression of Negative Emotions? Evidence from Two Multinational Studies

Abstract

Contemporary theories of emotion emphasize the dual role of emotions as both personal experiences and communicative signals during social interactions. However, the impact of macro-level societal structures on emotional expression remains underexplored. This study investigates the experience-expression discrepancy for self-reported emotions across nations, focusing on how societal development influences this discrepancy, which captures expressivity. Using meta-analysis and multilevel modelling with a multinational sample ($N_{sample} = 12,549, k_{nation} = 48$, Study 1), we assessed the directions and variabilities in the frequency of expression of both positive and negative emotions, relative to the frequency of experiencing them. Negative emotions were more likely to be under-expressed. Further analyses revealed that societal trust, system quality and fairness, and the human development index significantly predicted the size of these discrepancies. Surprisingly, these effects were not associated with traditional cultural dimensions such as individualism versus collectivism, providing new insights into the social functionality of emotions from a macro perspective. These findings were replicated in an extended multinational sample ($N = 19,690, k = 65$, Study 2). Our findings highlight the importance of considering structural and societal factors in emotion research and provide a foundation for future explorations into the relations between cultural contexts and the expression of emotions.

Keywords: emotional expression, emotional experience, social norms, societal development, culture

Introduction

The social-functional approach to emotions considers that the social context guides people to the affective reactions needed to function in their world (Haidt & Keltner, 1999). Emotional expression is integral to human interaction, functioning as a complex communicative system that conveys information beyond the capacity of words. The emotions-as-social-information model posits that observers can infer emotions' the expresser's intentions from the emotions expressed, and subsequently use this information to guide their own behavior in response (Van Kleef & Dreu, 2010). Emotions, therefore, serve a dual role: they are both experienced by individuals and perceived by others, acting as a social signal that can influence interpersonal interactions and group processes (Haidt & Keltner, 1999; Van Kleef, 2017).

The expression of emotions is often seen as an essential element of communication to facilitate attaining one's social needs (Keltner & Kring, 1998). Specifically, emotional expressions evoke complementary responses, including the observers' feelings and actions (Keltner et al., 2022). For instance, positive emotions such as happiness and gratitude are often used to build and maintain interpersonal relationships, fostering cooperation and a sense of trust (Fredrickson, 2001; Sauter, 2017). Conversely, negative emotions such as anger and sadness can serve to express dissatisfaction or alert others to potential social issues of concern, thereby prompting collective action or eliciting support from others (Tiedens, 2001; Van Kleef & Côté, 2022).

Cultural background significantly influences the social function of emotional expression. Different cultural logics guide varying interpretations, modes of expression, and evaluations of emotions, thereby affecting their role in social interactions (Matsumoto, Seung Hee Yoo, & Fontaine, 2008; Mesquita & Frijda, 1992). For example, a smile symbolizes competence in some countries while being perceived as a signal of lower intelligence in others (Krys et al., 2016); expressing negative emotions might be seen as a sign of weakness in some countries (Gross et al., 2006), whereas doing so may be viewed as an expression of sympathy in others (Koopmann-Holm & Tsai, 2014).

Researchers in emotion and cultural psychology are aware of the distinct social effects of positive and negative emotional expressions, and how these effects are influenced by macro-level contexts, such as culture (Greenaway et al., 2018). However, the macro-level emotional expressivity and the impact of cultural factors have rarely been addressed. Assuming a social functionalist perspective, emotional expression is more than a reflection of personal experience; it also serves as a tool for social communication, designed to facilitate and meet social needs among individuals (Keltner & Haidt, 1999). This perspective suggests that, if a well-developed society is to effectively meet its needs, its emotional expressivity might reflect or be associated with its level of societal development. Our study aims to explore this potential association, examining how societal development might influence the ways emotions are expressed. By investigating this relation, we seek to offer new insights into the role emotions and their expression play in human societies.

Emotion Expressiveness and Societal Development

As argued by Putnam and colleagues (1993), "... features of social organisation, such as trust, norms and networks ... can improve the efficiency of society by facilitating coordinated actions." (p. 167). According to Knack and Keefer (1997), a developed society is synonymous with a trusting society. In close relationships, trust has been shown to be negatively associated with emotional suppression; to avoid conflict, people with low trust in their partners suppress emotions, whereas those with high trust expect constructive feedback and are more emotionally expressive (Righetti et al., 2015). Although individual-level phenomena often cannot transfer to the macro-level (Lavrakas, 2008), the research on trust may provide insights into the possible mechanism by which a trusting and efficient society might facilitate the alignment of individuals' emotional expressions with their emotional experiences.

However, an alternative perspective suggests that, in a trusting and efficient society, individuals' expression of experienced emotion might instead be suppressed. Emotional expressions, especially negative ones, function as a signal for social concerns (Van Kleef & Côté, 2022). For instance, expressions of sadness could be a plea for

assistance (Fridlund, 1994), and expression of anger could denote a determination to counter injustice (Sinaceur & Tiedens, 2006). In societies where the system operates efficiently, injustice is minimal and reliance on institutional support is prevalent, so that the necessity for emotional signaling may be reduced. This reduction can be attributed to individuals in such societies favoring problem-focused coping strategies, as outlined by Lazarus and Folkman's (1987) transaction model on emotion and coping.

These strategies, employed when individuals perceive a higher degree of control over their circumstances, involve tackling problems directly instead of expressing negative emotions. For example, in a society with a responsive system, a person mistreated at a public service facility might opt to report the issue rather than emotionally expressing their discontent. By contrast, in less efficient societies, emotional expressions might be more commonly used to signal unresolved issues. Furthermore, in light of the transaction model on emotion and coping, individuals in more developed societies might not need to rely on emotional coping strategies but instead adopt problem-focused coping (Lazarus & Folkman, 1987). Hence, under-expression of negative emotions results.

This study considers two competing hypotheses regarding the societal impact on emotional expression. The first hypothesis posits that societal development may not influence or could even increase emotional expressivity due to enhanced trust and openness among its members. Conversely, the second hypothesis suggests that a well-developed society decreases the need for negative emotional expression by providing systematic support and problem-solving mechanisms. This contrast also raises the question of how positive emotions are handled in such societies—whether similar mechanisms also shape the expression of positive emotions, fostering an environment where these are more freely expressed or differently regulated.

In the context of emotional functions and their societal roles, the expression of emotions serves multiple purposes. Expressing negative emotions can be a way for individuals to signal social concerns, calling for attention to potential problems (Van Kleef & Dreu, 2010). On the other hand, positive emotions such as happiness or

gratitude act as signals of a favorable condition and engagement with the surrounding environment (Shiota et al., 2021). These expressions are not merely responses to immediate stimuli but are deeply embedded within the societal context, influenced by developmental factors that either constrain or encourage various forms of emotional display. According to the emotion family approach (Sauter, 2017), specific positive emotions also carry distinct prosocial functions; for example, love promotes commitment to intimate relationships (Campos et al., 2013), while gratitude is seen as a mechanism that fosters social bonds (Algoe & Haidt, 2009).

However, it is unclear how societal development is associated with the expression of positive emotions. As discussed by Matsumoto and colleagues (2008), the cultural influences on positive expression are generally weaker compared to negative expression. Additionally, Manokara et al. (2023) found that cultural norms shape the display rules for the expression of specific positive emotions. These norms vary significantly based on the social context; for instance, the acceptability of expressing certain positive emotions is influenced by the physical setting or social environment in which they are expressed, as well as the nature of the relationship between the expresser and the perceiver. Thus, the direction of the relation between societal development and expression of positive emotions may not be straightforward and needs further exploration.

While it is important to understand how societal development influences the expression of emotions, it is crucial to differentiate between mere expression and expressivity. In various cultures, emotions might be expressed to different extents (Krys et al., 2022), but this does not necessarily indicate whether these emotions are genuinely felt or are being over-expressed or under-expressed (Matsumoto, Seung Hee Yoo, & Fontaine, 2008). For instance, a society that frequently displays positive emotions might not necessarily experience these emotions to the same extent, which could indicate a cultural norm of masking true feelings with positive displays.

Therefore, our study extends beyond examining mere expressions to exploring expressivity—how much of the experienced emotion is actually expressed, adjusted for the actual emotional experience. This approach allows us to dissect to what extent

emotional expressions in different societies are reflections of personal experience and are shaped by societal expectations and norms.

The Present Study

The present study investigates emotional expressivity, manifested by the discrepancy between the self-perceived experience and the expression of emotions. First, it aims to determine whether individuals in different cultural contexts over-express, under-express, or align their perceived emotional expressions with their experiences. Importantly, as we expect to find variance in the emotion-expression discrepancy, this study explores societal development and possible cultural indicators to explain this variance. Based on the exploratory results we obtained from cross-national Study 1, we tested the hypothesis that well-developed societies tend to under-express negative emotions more in Study 2.

Study 1

Method

Participants

The current dataset was part of a cross-cultural study on happiness (Krys et al., 2022). The final dataset consisted of 12,549 individuals with valid responses (M_{age} = 24.84; SD_{age} = 4.19; Female% = 60.38%) from 48 nations and regions[6]. For simplicity, the term 'nation' used throughout this document refers to both nations and regions. The data collection was conducted from 2016 to 2018. The average national sample size was $M_n = 261$, $SD_n = 131$, varying between 101 (Germany) and 831 (Hungary). The study was performed in accordance with the ethical standards of the institutional and/or national research committees concerned. Table S1 in supplementary materials shows the brief and detailed descriptive statistics of the demographic and focal variables used in the present study.

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[6] The term 'nations and regions' is used to acknowledge the inclusion of distinct cultural and administrative entities such as Hong Kong, which are considered separate for the purpose of this cross-cultural analysis. The current paper excluded one nation (Indonesia) from the data source due to the emotional norms for negative emotions being more than 4 SD from the means of the rest of the nations, as described in Krys et al. (2022)

Measures

Frequency of Negative Emotional Experiences and Expressions. Participants rated their perceived frequency of emotional experiences and expressions of 30 emotions on a 9-point Likert scale with time periods specified (Krys et al., 2022: 1 = *never*; 2 = *a couple of times a year*; 3 = *a couple of times a month*; 4 = *a couple of times a week*; 5 = *once a day*; 6 = *a couple of times a day*; 7 = *almost every single hour*; 8 = *a couple of times an hour*; and 9 = *all the time*). The positive emotions rated were *amused, authentic, calm, elated, enthusiastic, euphoric, excited, grateful, hopeful, in love, peaceful, proud, relaxed, respectful, self-confident*, and *serene*. The negative emotions rated were *angry, ashamed, bored, depressed, disgusted, dull, embarrassed, fearful, hateful, hostile, nervous, sad, sleepy*, and *sluggish*. The average reliabilities for the emotional expressions and experiences were high, αs $> .81$. In the original study, Krys et al. (2022) found support for metric invariance across cultural clusters (e.g., Anglo, Latin Europe, Confucian Asia, etc.) and weak metric isomorphism (high congruence of the loadings between individual and national levels), following Tay et al. (2014) approach.

Societal Development. To capture societal development, we evaluate three primary indicators: Societal Trust, Societal System Quality and Fairness, and the Human Development Index.

Societal Trust. Social trust captures an intangible facet of society. The focus of this assessment is to measure the level of perceived trustworthiness among members of the community. In order to assess this societal feature, data were obtained from two primary sources, namely the World Value Survey (WVS, Haerpfer et al., 2022) and the Human Understanding Measured Across National (HUMAN) Surveys (Klassen, 2018).

The WVS captured general trust as reported by individuals across different countries. The present study primarily employed data from wave 7 in the year 2022, as reported by Haerpfer et al. (2022). In instances where data were unavailable for certain nations in the current wave, we resorted to utilising data from WVS, wave 6. The nation's trust was assessed by the percentage of participants who expressed agreement

with the statement that "most people can be trusted," providing a brief representation of the prevalent level of trust throughout these communities. The HUMAN Surveys, conducted by Klassen (2018), provides a metric of social trust that distinguishes between a broad trust in individuals and a tendency towards caution in interpersonal interactions. Trust is measured using a numerical scale ranging from 0, representing the minimum amount of trust, to 100, indicating the maximum level of trust.

Both sources assess the attitude of participants regarding their level of confidence in others, specifically examining their belief in the trustworthiness of most individuals against their tendency to assume caution while interacting with others. Both instruments possess a scale range spanning from 0 to 100. The correlation between the two measures was $r = .82$, $p < .001$, with a confidence interval of [.69 to .90], suggesting a strong overlap among these two variables. In our analysis, the mean of these two variables is utilised as an indicator of societal trust.

Societal system quality and fairness. Societal system quality and fairness encompasses the perceived effectiveness and integrity of governance structures. This measure was derived from the Worldwide Governance Indicators (WGI; Kaufmann & Kraay, 2023) and assesses how the public perceives the efficiency, fairness, and quality of governmental institutions and legal frameworks. By examining factors such as government efficiency, the rule of law, and the accessibility of fair systems, this measure reflects citizens' views on the extent to which their societal systems facilitate fairness, accountability, and effective governance. Such perceptions are crucial in understanding the overall functionality and trustworthiness of a society's institutional framework, directly impacting the degree of trust and cooperation among its members.

We focused on five WGI dimensions, capturing key aspects of societal governance and quality of institutions: Voice and Accountability (VA), highlighting citizens' participatory rights and freedom; Government Effectiveness (GE), reflecting the quality of public services and policy formulation; Regulatory Quality (RQ), assessing the ability of the government to frame and implement sound policies; Rule of Law (RL), signifying the quality of contract enforcement, property rights, and the

judiciary; and Control of Corruption (CC), measuring the extent to which public power is used for private gain. A principal component analysis revealed that a dominant single factor accounted for 89.37% of the variance across these dimensions. Loadings of each dimension on this factor were substantial (loadings = $0.959 - 0.980$), indicating their significant contribution to the primary component of system quality and governance.

Human Development Index. The Human Development Index (HDI, United Nations Development Programme, 2018) is a composite statistic of life expectancy, education (measured by mean years of schooling and expected years of schooling), and per capita income indicators, which can be used to rank countries into four tiers of human development. The HDI provides insight into a nation's societal and economic development, reflecting the tangible standard of living. In our study, we chose HDI as a representative measure of societal development because it encompasses not only economic aspects but also educational and health outcomes, offering a broad perspective on societal progress. By including HDI, we aim to capture a multifaceted view of societal development, avoiding redundancy and overlap that might arise from economic development by using GDP as a single indicator.

Other Cultural Dimensions. Demographic features of the data included the student sample ratio, female ratio, and mean age of the sample (Krys et al., 2022). These were used to examine if they were associated with the experience–expression discrepancies. In addition, some cultural dimensions, such as Individualism (Hofstede, 2010) and Self-expression values (vs. survival values; Inglehart, 2006), have been proposed to influence emotional expression (Greenaway et al., 2018). For exploratory purposes, the additional cultural dimensions of Cultural Heterogeneity (World Migration Matrix, Putterman & Weil, 2010) and Tightness-Looseness (Gelfand et al., 2011) were also included. These cultural dimensions, while not the central focus of our investigation, serve as potential indicators to ensure a comprehensive understanding of the cultural factors influencing emotional expressivity across diverse contexts.

Analytical strategies

To quantitatively assess the discrepancies between emotional experience and

expression for positive and negative emotions within each nation, we conducted within-sample t-tests. These tests compare the mean scores of expressed and experienced emotions for each nation. Cohen's d was then employed to measure the effect size of these discrepancies. A positive Cohen's d indicates that emotions are predominantly over-expressed (i.e., expressed more frequently than experienced), whereas a negative Cohen's d suggests under-expression (i.e., expressed less frequently than experienced). This method allows us to evaluate the magnitude of experience-expression discrepancies within each cultural context and to compare these across different nations.

We conducted a cross-cultural meta-analysis (Smith et al., 2013) with a random-effects mode. This method accommodates the heterogeneity across the dataset, enabling us to explore both between- and within-nation effects. Then we employed meta-regression models to explain the cross-national differences in the over-expression, neutral, or under-expression effects for both positive and negative emotions.

All the analyses were conducted under the R statistical environment (R version 4.2.2, R Core Team, 2022) and the metafor package (version 3.8.1, Viechtbauer, 2010) for main effect size estimation and meta-regression analyses. This study was not pre-registered.

Result

Experience–expression discrepancies (EED) estimates

We firstly computed the experience–expression discrepancies for positive and negative emotions (hereafter, posEED and negEED, respectively) by using the standardised mean difference (Cohen's d, with Cohen's interpretation, 1988) between the aggregated frequency of emotional experience and that of emotional expression. A random-effect meta-analysis revealed that, overall, both positive and negative emotions were under-expressed; the effect was small in posEED
($d = -0.24[-0.29, -0.19], p < .001$), while medium to large in negEED
($d = -0.60[-0.66, -0.53], p < .001$). The complete list of EED is available in Table 5 (sorted alphabetically by nation) and in Figure 3 (sorted by effect size).

For positive emotions, most countries demonstrated under-expression of positive emotions. Italy exhibited significant over-expression with a small effect ($d = 0.21, p < .001$), whereas China showed the greatest under-expression with a medium to large difference ($d = -0.67$). In terms of negative emotions, Switzerland showed the greatest under-expression with a large effect ($d = -1.16$), and Ghana displayed the least under-expression with a small effect ($d = -0.13$). These findings highlight substantial variations in the emotional experience-expression discrepancy across countries, which may be influenced by distinct societal contexts. The correlation between EED for positive and negative emotions and nation-level variables is in Table 6 and the correlation among all variables used is found in Table S1 of the Supplementary Materials.

To examine if the between-nation variation is large enough for further moderation analyses, we performed heterogeneity tests. The between-nation variations were large, posEED: $Q(47) = 386.08, p < .001, I^2 = 88.27\%$; negEED: $Q(47) = 602.24, p < .001, I^2 = 92.42\%$, indicating the need for and suitability of performing moderation analyses to explain the between-nation variations.

Table 5

Descriptive statistics of the demographic and focal variables by nation (Study 1)

					Positive Emotion					Negative Emotion				
Nations	n	F%	S%	M_{age}	Xpr	Xpe	d	V_d	r	Xpr	Xpe	d	V_d	r
Argentina	174	74.14	100	32.44	5.31	5.47	-0.29	.006	.89	3.55	3.83	-0.40	.006	.84
Australia	336	57.74	42.56	38.04	4.65	4.73	-0.16	.003	.95	3.83	4.01	-0.34	.003	.93
Austria	316	80.38	66.77	28.47	5.14	5.31	-0.34	.003	.91	3.12	3.53	-0.75	.003	.83
Bhutan	119	61.34	100	22.62	4.92	4.98	-0.13	.008	.91	4.36	4.54	-0.32	.008	.89
Brazil	604	54.47	55.46	27.44	5.57	5.68	-0.19	.002	.90	4.12	4.53	-0.52	.002	.82
Canada	236	72.03	100	21.89	4.89	4.94	-0.09	.004	.92	3.70	4.02	-0.55	.004	.85
Chile	214	56.54	100	21.58	5.39	5.53	-0.22	.005	.87	3.90	4.42	-0.59	.005	.69
China	196	71.43	100	20.60	5.01	5.53	-0.67	.005	.84	3.38	3.98	-0.77	.006	.76
Colombia	459	51.63	100	32.89	5.72	5.82	-0.13	.002	.84	3.61	3.81	-0.25	.002	.83
Croatia	140	84.29	100	30.69	4.74	4.86	-0.21	.007	.91	3.28	3.62	-0.57	.007	.85
Czech Rep.	198	51.01	100	22.22	5.29	5.34	-0.07	.005	.83	3.72	4.21	-0.79	.006	.81
El Salvador	237	58.65	100	26.90	5.90	5.97	-0.10	.004	.81	4.23	4.46	-0.25	.004	.77
Estonia	198	71.21	100	28.80	5.18	5.36	-0.31	.005	.83	3.37	3.90	-0.76	.006	.72
France	214	83.18	100	31.73	4.59	4.94	-0.44	.005	.76	2.97	3.50	-0.83	.005	.78
Georgia	234	53.42	100	20.05	4.57	4.73	-0.23	.004	.79	3.33	3.88	-0.72	.005	.70
Germany	101	81.19	96.04	22.43	5.28	5.31	-0.07	.01	.89	3.32	3.79	-0.71	.011	.78
Ghana	258	52.33	100	22.21	6.31	6.25	0.12	.004	.90	3.85	3.96	-0.13	.004	.79
Greece	425	59.76	53.65	24.71	5.03	5.14	-0.19	.002	.90	3.56	4.06	-0.73	.003	.82
Guatemala	107	71.03	100	20.51	5.70	6.04	-0.36	.01	.73	4.24	4.94	-0.69	.011	.66
Hong Kong	291	37.11	100	21.16	4.26	4.25	0.04	.003	.96	3.32	3.67	-0.51	.004	.76
Hungary	831	73.16	100	20.89	5.27	5.42	-0.23	.001	.86	3.67	4.20	-0.68	.001	.68
Iceland	350	80.57	78.86	30.91	4.37	4.84	-0.55	.003	.79	2.81	3.55	-1.01	.004	.73
Iran	191	48.17	100	34.42	5.01	5.17	-0.21	.005	.80	3.58	3.91	-0.40	.005	.75
Ireland	237	59.49	100	20.96	5.17	5.35	-0.26	.004	.80	3.77	4.28	-0.69	.005	.75
Italy	286	53.85	100	25.15	5.86	5.69	0.21	.004	.80	4.06	4.20	-0.16	.004	.78
Japan	198	38.89	100	19.56	4.27	4.48	-0.43	.005	.92	3.88	4.26	-0.57	.005	.85
South Korea	208	47.6	100	22.43	4.90	5.13	-0.44	.005	.91	4.08	4.37	-0.49	.005	.86
Lithuania	294	73.47	75.85	25.65	5.35	5.50	-0.22	.003	.80	3.76	4.23	-0.53	.004	.61
Luxembourg	211	69.19	80.57	25.83	5.11	5.26	-0.23	.005	.88	3.55	4.08	-0.72	.005	.80
Malaysia	190	67.89	100	20.82	5.70	5.89	-0.32	.005	.89	4.20	4.63	-0.61	.006	.82
Mexico	172	56.98	100	20.79	5.26	5.49	-0.35	.006	.88	3.63	4.15	-0.67	.007	.73
Netherlands	194	9.79	100	19.41	4.62	4.89	-0.55	.005	.87	3.25	3.79	-1.04	.006	.77
Nigeria	130	82.31	100	19.82	5.51	5.53	-0.04	.008	.94	4.03	4.16	-0.19	.008	.88
Norway	249	78.71	100	22.66	4.52	4.68	-0.22	.004	.79	2.92	3.62	-0.97	.005	.63
Pakistan	239	46.86	100	21.78	5.50	5.52	-0.04	.004	.88	4.44	4.73	-0.36	.004	.81
Poland	470	68.94	51.7	32.55	4.39	4.40	-0.02	.002	.93	3.34	3.62	-0.46	.002	.86
Portugal	256	66.41	59.77	28.60	5.59	5.65	-0.09	.004	.83	3.55	3.95	-0.53	.004	.77
Romania	289	49.83	100	22.31	5.54	5.72	-0.29	.003	.88	3.57	3.87	-0.49	.004	.87

(*Continued on next page*)

(*Continued*)

					Positive Emotion					Negative Emotion				
Nations	n	F%	S%	M_{age}	Xpr	Xpe	d	V_d	r	Xpr	Xpe	d	V_d	r
Russia	270	62.96	100	19.76	5.02	5.12	-0.16	.004	.83	3.88	4.19	-0.36	.004	.76
Saudi Arabia	177	80.79	100	39.37	5.11	5.59	-0.53	.006	.86	3.28	3.78	-0.57	.006	.72
Serbia	210	50.48	100	20.11	5.11	5.40	-0.48	.005	.89	3.23	3.96	-1.10	.006	.84
Slovakia	310	52.58	100	21.55	5.53	5.73	-0.33	.003	.85	3.75	4.18	-0.59	.003	.77
Switzerland	333	20.12	95.8	25.92	4.69	4.94	-0.54	.003	.88	2.96	3.45	-1.16	.004	.82
Taiwan	210	64.29	100	19.99	4.71	4.80	-0.20	.005	.92	3.31	3.74	-0.68	.005	.81
Turkey	201	53.23	100	32.02	5.62	5.69	-0.17	.005	.93	3.64	3.94	-0.47	.005	.87
Ukraine	204	55.39	100	18.97	4.98	5.22	-0.44	.005	.89	3.55	4.10	-0.66	.005	.74
UK	139	30.94	100	20.75	4.25	4.38	-0.29	.007	.90	3.20	3.67	-0.80	.008	.79
USA	443	70.43	100	21.37	5.24	5.28	-0.07	.002	.89	3.77	4.16	-0.55	.002	.83
Mean	261.44	60.34	92.85	24.83	5.12	5.27	-0.24	.005	.87	3.61	4.03	-0.60	.005	.79
SD	131.06	16.13	15.63	5.30	0.48	0.45	0.18	.002	.05	0.39	0.34	0.24	.002	.07
Min	101	9.79	42.56	18.97	4.25	4.25	-0.67	.001	.73	2.81	3.45	-1.16	.001	.61
Max.	831	84.29	100	39.37	6.31	6.25	0.21	.01	.96	4.44	4.94	-0.13	.011	.93

Note. F% = percentage of female participants; S% = percentage of student participants; Xpr = Emotional Expression; Xpe = Emotional Experience; d = expression-experience discrepancy for positive (posEED) and negative (negEED) emotions (expression - experience); Vd = variance of d; r = strength of association between emotional expression and experience.

Table 6

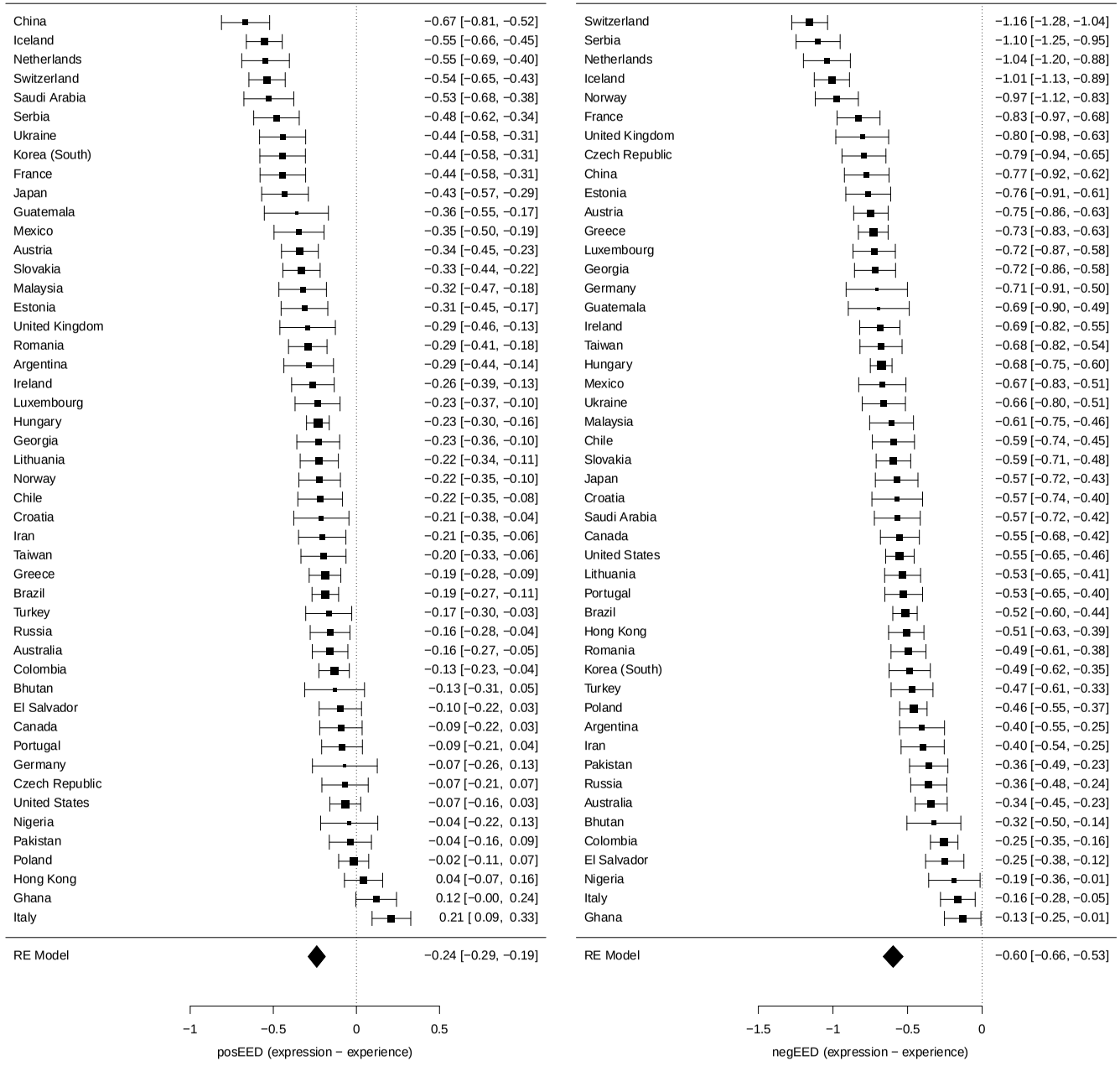
Correlations among national level indicators in the main analyses (Study 1)

Variables	*M*	*SD*	1	2	3	4	5	6	7	8
1. posEED	-0.24	0.18								
2. negEED	-0.6	0.24	.68***							
3. Positive Emotional Expression	5.12	0.48	.37*	.51***						
4. Negative Emotional Expression	3.61	0.39	.42**	.68***	.58***					
5. Positive Emotional Experience	5.27	0.45	0.11	.35*	.96***	.49***				
6. Negative Emotional Experience	4.03	0.34	0.18	.38**	.52***	.92***	.50***			
7. Societal Trust	33.37	16.46	.30*	.49***	.56***	.46**	.51***	.38**		
8. System Quality & Fairness	0.62	0.85	0.08	.48***	.51***	.47***	.54***	.42**	.71***	
9. Human Development Index	0.82	0.11	0.22	.51***	.55***	.57***	.54***	.50***	.65***	.80***

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. posEED/negEED = Expression-Experience Discrepency for Positive/Negative Emotions

Figure 3

Forest plot of the integrated effect sizes of the posEED (left) & negEED (right) across 48 nations (Study 1)



Potential cultural and demographic impacts on EED

Prior to examining the effects of societal development on emotional expression discrepancies, we assessed the potential impact of sample characteristics, such as the student ratio, gender ratio, and mean age, along with various cultural dimensions including Individualism, Self-expression values, Cultural Heterogeneity, and Tightness-Looseness on EED. As shown in Table 7, these variables generally did not significantly influence the EED for either positive or negative emotions, except for a marginally significant effect of Self-expression values on the negEED ($p = .07$). The analysis revealed minimal impact from sample characteristics and other cultural dimensions on EED, thus the following sections will focus on the effects of societal development.

EED and Societal Development

We found that the more a given society was developed, the larger was the effect of under-expression of negative emotions. Specifically, people under-expressed their negative emotions more in nations with greater societal development, trust: $Q_M(df = 1) = 14.88$, $p < .001$, $R^2 = 24.95\%$; system quality and fairness: $Q_M(df = 1) = 13.83$, $p < .001$, $R^2 = 23.45\%$; HDI: $Q_M(df = 1) = 15.82$, $p < .001$, $R^2 = 26.47\%$. In contrast, when examining posEED, only societal trust showed a significant effect, $Q_M(df = 1) = 4.85$, $p < .05$, $R^2 = 8.97\%$. This suggests that while societal trust correlates with the expression of both positive and negative emotions, the magnitude of its effect is notably more pronounced in negEED. The full meta-regression results for the moderation effects on posEED and negEED can be found in Table 7 and the regressions are illustrated in Figure 4. These effects remained significant after controlling the effects of study characteristics, i.e., the mean age of the sample, the portion of students in the sample, and the portion of females in the sample, for posEED, trust: Estimate $= -0.004$, $SE = 0.002$, $p = .02$; for negEED, trust: Estimate $= -0.001$, $SE = 0.001$, $p = .002$; system quality and fairness: Estimate $= -0.14$, $SE = 0.04$, $p < .001$; HDI: Estimate $= -1.25$, $SE = 0.29$, $p < .001$.

Table 7

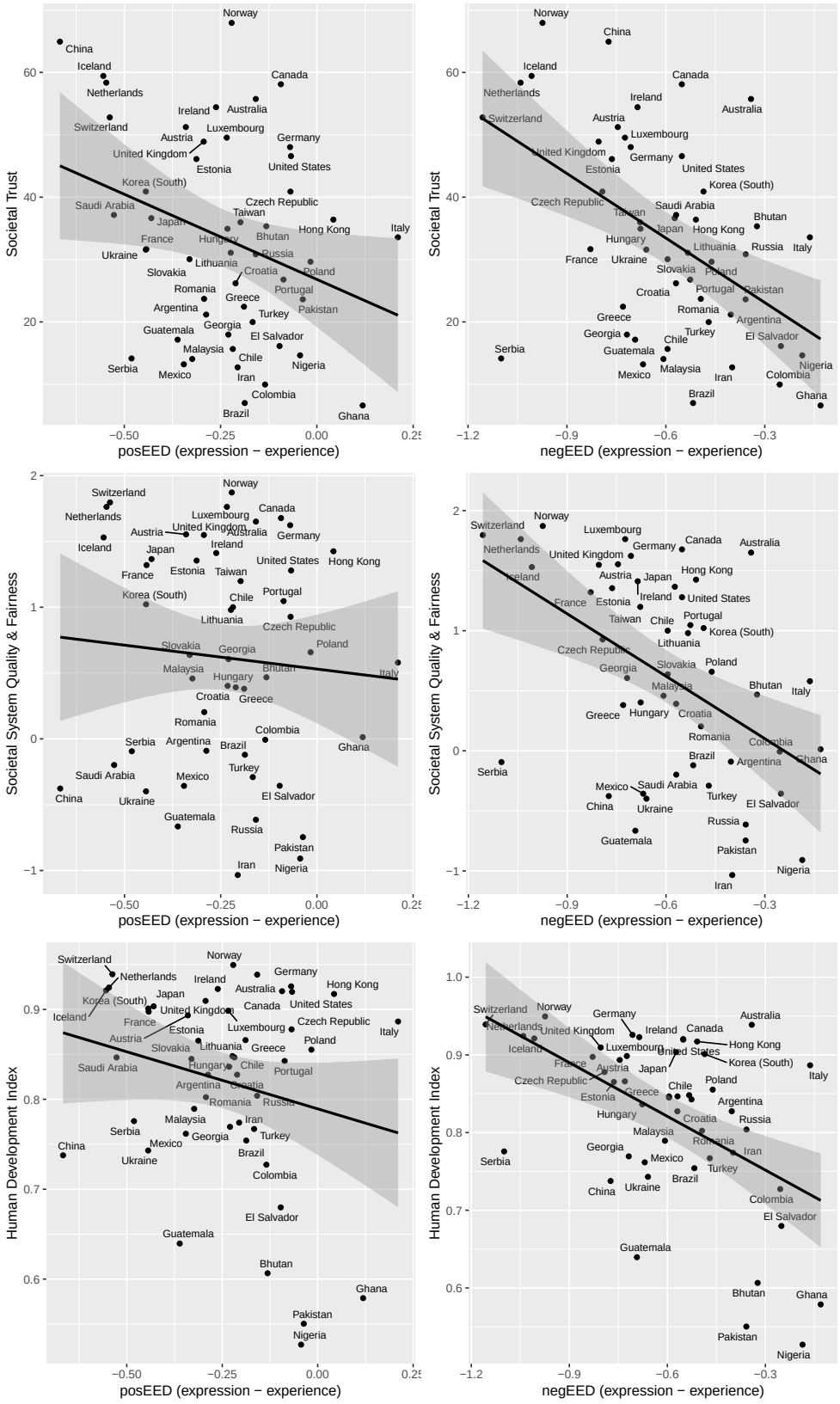
Meta-regression results for the moderation effects of different indicators on posEED and negEED (Studies 1 & 2)

			Dependent Variables							
			posEED				negEED			
Moderators	k	data source	Q_M	B (SE)	CI	R^2%	Q_M	B (SE)	CI	R^2%
					Study 1					
Sample characteristics										
Student sample ratio	48	K	0.69	-0.14 (0.17)	-0.47, 0.19	0.00	0.03	-0.04 (0.22)	-0.47, 0.39	0.00
Gender ratio	48	K	0.22	0.001 (0.002)	-0.003, 0.004	0.00	0.55	0 (0)	0, 0.01	0.00
Sample mean age	48	K	0.00	0 (0.01)	-0.01, 0.01	0.00	1.68	0.01 (0.01)	0, 0.02	1.58
Societal developmental level										
Societal Trust	48	H&W	4.85*	-0.003 (0.002)	-0.01, 0	8.97	14.88***	-0.01 (0.002)	-0.01, -0.003	24.95
Societal System Quality Fairness	48	WGI	0.35	-0.019 (0.032)	-0.08, 0.04	0.00	13.83***	-0.13 (0.036)	-0.21, -0.064	23.45
Human Development Index	47	UNDP	2.32	-0.39 (0.26)	-0.89, 0.11	3.35	15.82***	-1.15 (0.29)	-1.71, -0.58	26.47
Other Cultural Dimensions										
Heterogeneity	48	WMM	0.23	0.001 (0.002)	-0.002, 0.004	0.00	0.05	0 (0.002)	-0.004, 0.005	0.00
Hofstede Individualism	41	Hof	0.31	0.001 (0.001)	-0.002, 0.003	0.00	2.26	-0.002 (0.001)	-0.005, 0.001	3.27
Self-expression (vs. survival)	37	I	0.34	-0.03 (0.04)	-0.11, 0.06	0.00	3.27†	-0.11 (0.06)	-0.22,0.01	6.37
Tightness (vs. Looseness)	25	G	0.11	0.01 (0.02)	-0.03, 0.04	0.00	1.01	0.02 (0.02)	-0.01, 0.05	0.00
					Study 2 (Replication)					
Societal developmental level										
Societal Trust	61	H&W	3.73†	0.004 (0.002)	0, 0.008	6.20	11.82***	-0.009 (0.003)	-0.014, -0.004	18.50
Societal System Quality Fairness	63	WGI	1.61	0.049 (0.039)	-0.027, 0.125	1.99	14.46***	-0.181 (0.047)	-0.274, -0.088	22.24
Human Development Index	64	UNDP	1.07	0.263 (0.255)	-0.236, 0.762	0.20	9.76**	-1.007 (0.322)	-1.639, -0.375	14.02

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. k = number of nations. QM = test of moderator. K = aggregated data from Krys et al. (2022); H = Human Understanding Measured Across National (HUMAN) Surveys; W = World Value Survey wave 7; WGI = World Government Index; UNDP = United Nations Development Programme; G = Gelfand et al. (2011); WMM = World Migration Matrix (Putterman & Weil, 2010); Hof = Hofstede (2001); I = Inglehart (2006)

Figure 4

The Association Between posEED & negEED and Societal Development (Study 1)



As a sensitivity check, we also employed multilevel modeling which specify the individual difference scores (i.e., EED) as the outcome variables, and individual demographics and emotional experience as covariates, and evaluated if the effect of societal development remains after introducing these controls. The results based on multilevel analysis controlling for demographics and emotional experiences at the individual level was consistent with those based on the meta-analytic approach. Stronger under-expression of both positive and negative emotions was associated with higher frequency of experiencing those emotions (Estimates ranged from $-.25$ to $-.09$, $p < .001$). For negative emotions, societal trust, societal system quality and fairness, and the Human Development Index were negatively associated with individual EED (Estimates ranges from $-.686$ to $-.004$, $p < .01$), whereas for positive emotions, only societal trust was significantly and negatively associated (Estimate $= -.003$, $p < .01$). Details of model specification may be found in the Table S4 in the Supplementary Materials.

Analyses on Specific Emotions

Not all emotions would show the signaling response related to societal development. To assess this possibility, separate post-hoc meta-regression models for all the specific emotions were conducted. Specifically, we calculated the experience-expression discrepancy for each emotion item and examined whether societal development is associated with the strength of the discrepancy. Given that conducting multiple analyses can elevate the risk of Type I errors, only those results that remained significant after the application of a Bonferroni correction were considered for interpretation. The meta-regression results are in Table 8, and the full list of specific emotion analyses is in the Supplementary Materials.

For positive emotion items, only the experience-expression discrepancy of *grateful* was significantly moderated by societal development. It indicated that the more the society is developed, the greater the under-expression gap between the frequency of the societal expression and societal experience in *grateful*, trust: $Q_M(df = 1) = 13.27$, $p < .001$,$R^2 = 26.16\%$; system quality and fairness: $Q_M(df = 1) = 16.52$, $p < .001$,

$R^2 = 31.4\%$; HDI: $Q_M(df = 1) = 12.54$, $p < .001$, $R^2 = 25.7\%$.

For negative emotion items, the EED of anger was not significantly associated with societal development. However, the complex forms of anger (Shaver et al., 1987), such as hostility, disgust, and hate, as well as emotions related to fear, including fearful and nervous feelings, were associated with societal development indicators. To illustrate, the EED of hostility was moderated by trust ($Q_M[df = 1] = 13.68$, $p < .001$), by system quality and fairness ($Q_M[df = 1] = 12.98$, $p < .001$), and by HDI ($Q_M[df = 1] = 11.23$, $p < .001$), each indicating a considerable percentage of variance explained ($R^2 = 24.82\%$, 23.72%, and 20.78%, respectively). Similarly, the emotion of nervousness showed a significant association with societal development in terms of trust ($Q_M[df = 1] = 18.93$, $p < .001$, $R^2 = 32.33\%$), system quality and fairness ($Q_M[df = 1] = 14.8$, $p < .001$, $R^2 = 26.53\%$), and HDI ($Q_M[df = 1] = 16.76$, $p < .001$, $R^2 = 29.06\%$).

Some negative emotions that cannot be grouped based on emotion families, such as feeling ashamed, depressed, sleepy, and sluggish, were also found to be significantly associated with societal development. For example, the EED of feeling ashamed was notably moderated by societal development, $Q_M(df = 1) = 19.99$, $p < .001$, $R^2 = 35.88\%$ for trust, $Q_M(df = 1) = 12.21$, $p < .001$, $R^2 = 24.35\%$ for system quality and fairness, and $Q_M(df = 1) = 12.69$, $p < .001$, $R^2 = 25.68\%$ for HDI.

Table 8

Meta-regression results for the moderation effects of societal development on EED of specific emotions (Study 1)

	Moderators								
	Societal Trust			System Quality Fairness			Human Development Index		
Emotions	Q_M	B (SE)	R^2%	Q_M	B (SE)	R^2%	Q_M	B (SE)	R^2%
Positive Emotions									
amused	4.61*	0.00 (0.00)	13.71	0.86	-0.02 (0.02)	1.51	0.18	-0.06 (0.15)	0
authentic	6.76**	0.00 (0.00)	15.89	1.58	-0.03 (0.02)	2.61	2.68	-0.32 (0.19)	5.96
calm	0.85	0.00 (0.00)	0	1.25	0.03 (0.03)	0.17	0.29	0.12 (0.23)	0
elated	0.17	0.00 (0.00)	0	0.03	0.00 (0.02)	0	0.42	-0.12 (0.18)	0
enthusiastic	0.2	0.00 (0.00)	0	0.56	0.01 (0.02)	0	0.28	0.08 (0.15)	0
euphoric	1.26	0.00 (0.00)	0.07	0.04	0.00 (0.02)	0	0.1	0.05 (0.15)	0
excited	2.62	0.00 (0.00)	3.93	0.35	-0.01 (0.02)	0	1.95	-0.28 (0.20)	2.38
grateful	**13.27*** **	**0.00 (0.00)**	**26.16**	**16.52*** **	**-0.09 (0.02)**	**31.4**	**12.54*** **	**-0.68 (0.19)**	**25.67**
hopeful	2	0.00 (0.00)	2.75	0.09	-0.01 (0.03)	0	0.96	-0.21 (0.22)	0
in love	3.17†	0.00 (0.00)	5.54	2.47	-0.04 (0.02)	3.48	5.69*	-0.46 (0.19)	10.77
peaceful	7.17**	0.00 (0.00)	14.52	0.04	0.01 (0.03)	0	0.82	-0.21 (0.23)	0
proud	3.07†	0.00 (0.00)	5.41	2.04	-0.03 (0.02)	3.14	4.17*	-0.39 (0.19)	8.01
relaxed	6.31*	0.00 (0.00)	14.61	0.18	-0.01 (0.02)	0	2.63	-0.28 (0.17)	4.92
respectful	7.46**	0.00 (0.00)	16.37	4.54*	-0.05 (0.02)	9.94	6.35*	-0.48 (0.19)	13.56
self-confident	1.36	0.00 (0.00)	1.81	0.25	0.01 (0.02)	0	0.11	-0.06 (0.18)	0
serene	2.49	0.00 (0.00)	3.68	0.66	0.03 (0.03)	0	0.01	-0.02 (0.25)	0
Negative Emotions									
angry	5.7*	0.00 (0.00)	11.77	3.97*	-0.05 (0.02)	8.12	2.6	-0.32 (0.20)	4.94
ashamed	**19.99*** **	**-0.01 (0.00)**	**35.88**	**12.21*** **	**-0.09 (0.02)**	**24.35**	**12.69*** **	**-0.71 (0.20)**	**25.68**
bored	**8.91** **	**0.00 (0.00)**	**17.82**	6.95**	-0.06 (0.02)	13.69	7.07**	-0.51 (0.19)	13.89
depressed	**11.42*** **	**0.00 (0.00)**	**23.83**	**10** **	**-0.07 (0.02)**	**21.22**	**14.77*** **	**-0.69 (0.18)**	**29.57**
disgusted	**13.73*** **	**0.00 (0.00)**	**30.79**	**12.31*** **	**-0.07 (0.02)**	**28.2**	**8.82** **	**-0.49 (0.16)**	**22.16**
dull	8.28**	0.00 (0.00)	16.76	7.26**	-0.07 (0.03)	14.47	**11.53*** **	**-0.71 (0.21)**	**22.33**
embarrassed	7.17**	0.00 (0.00)	14.92	3.74†	-0.05 (0.03)	7.45	6.2*	-0.52 (0.21)	12.73
fearful	7.58**	0.00 (0.00)	14.28	**9.05** **	**-0.08 (0.03)**	**16.9**	**14.46*** **	**-0.82 (0.22)**	**26.15**
hateful	**10.51** **	**0.00 (0.00)**	**22.79**	7.51**	-0.06 (0.02)	16.87	**10.57** **	**-0.54 (0.17)**	**23.27**
hostile	**13.68*** **	**-0.01 (0.00)**	**24.82**	**12.98*** **	**-0.1 (0.03)**	**23.72**	**11.23*** **	**-0.75 (0.22)**	**20.78**
nervous	**18.93*** **	**-0.01 (0.00)**	**32.33**	**14.8*** **	**-0.1 (0.03)**	**26.53**	**16.76*** **	**-0.89 (0.22)**	**29.6**
sad	5.27*	0.00 (0.00)	10.59	6.19*	-0.07 (0.03)	12.67	**9.61** **	**-0.68 (0.22)**	**19.5**
sleepy	**11.93*** **	**0.00 (0.00)**	**22.47**	**9.8** **	**-0.08 (0.03)**	**18.64**	**9.42** **	**-0.65 (0.21)**	**17.88**
sluggish	**17.49*** **	**0.00 (0.00)**	**32.5**	**10.4** **	**-0.08 (0.02)**	**20.91**	**11.27*** **	**-0.65 (0.19)**	**22.79**

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. EED = Expression-Experience Discrepancy. Significant after Bonferroni correction ($p < .05/i$) in bold.

Study 2

Method

Participants

The current dataset was part of a cross-cultural study on societal development and ideal types of well-being conducted between 2022 and 2024. The final dataset consisted of 19,690 individuals with valid responses ($M_{age} = 28.48$; $SD_{age} = 4.24$; $M_{Female\%} = 61.06\%$) from 65 nations and regions[7]. The average national sample size was $M_n = 304.16, SD_n = 264.06$, varying between 112 (Brazil) and 1800 (Malaysia). Supplementary Materials show the descriptive statistics of the demographic and focal variables used in the present study.

Measures

Frequency of Negative Emotional Experiences and Expressions. As in Study 1, participants rated their frequency of emotional experiences and expressions on a 9-point Likert scale with the same time periods specified (Krys et al., 2022), but with a shortened list of emotion items (positive: *gratitude*, *excitement*, *relaxed*, and *in love*; negative: *fear*, *anger*, *sadness*, and *shame*).

Societal Development. We used the same measures for societal development from Study 1 to maintain consistency, including data from the World Value Survey (Haerpfer et al., 2022). The HUMAN Surveys (Klassen, 2018) were again used to assess societal trust, reflecting the community's perceived trustworthiness. Similarly, the perception of societal system quality and fairness was evaluated using the Worldwide Governance Indicators (Kaufmann & Kraay, 2023), which measure public opinion on government efficiency, fairness, and integrity. Additionally, the Human Development Index (United Nations Development Programme, 2022) was employed to provide a comprehensive measure of life expectancy, education, and income.

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[7] We included only participants who self-reported ages between 18 and 60, excluded responses deemed of low quality (e.g., random or non-compliant with instructions), and considered only data from nations contributing more than 100 valid responses.

Result

Before proceeding with the main analysis, we conducted tests for measurement invariance of emotional constructs across cultures. We specified multi-group confirmatory analysis between 10 cultural clusters (Gupta et al., 2002; Mensah & Chen, 2013), namely Anglo, Latin Europe, Nordic Europe, Germanic Europe, Eastern Europe, Latin America, Sub-Saharan Africa, Middle East, Southern Asia, and Confucian Asia. These tests demonstrated metric equivalence, indicating that the factor loadings and the relations among items and their corresponding latent structures were consistent across cultures. Details of these analyses can be found in the Supplementary Materials.

In Study 2, we replicated the main findings from Study 1 regarding under-expression of negative emotions across different societal contexts. Consistent with the initial results, our analysis confirmed that more developed societies show a greater tendency towards under-expression of negative emotions. The statistical significance of this effect remained robust across measures of societal development, mirroring the significant associations found in Study 1: trust: $Q_M(df = 1) = 11.82$, $p < .001$, $R^2 = 18.50\%$; system quality and fairness: $Q_M(df = 1) = 14.46$, $p < 001$, $R^2 = 22.24\%$; HDI: $Q_M(df = 1) = 9.76$, $p = .001$, $R^2 = 14.02\%$.

Regarding positive emotions, societal trust showed a marginally significant effect, $Q_M(df = 1) = 3.73$, $p = .053$, $R^2 = 6.20\%$. Consistent with Study 1, other indicators of societal development did not significantly predict experience-expression discrepancy for positive emotions ($p > .20$).

These results reaffirm the findings observed in Study 1, suggesting the robustness of our findings across a larger and more diverse sample. The full meta-regression results for the moderation effects on posEED and negEED can also be found in Table 7.

General Discussion

There is a discrepancy between what we feel and what we express. In the present study, we examined and documented this discrepancy across two studies– one covering 48 nations, another 65– and find out if people express less than what they feel, for both positive and especially negative emotions. Importantly, we also explored three

indicators of societal development that can predict the difference between the frequency of emotional experience and emotional expression shown across nations. The consistency of results across two different large-scale cross-cultural studies highlights the robustness of our findings and lends support to the reasoning that societal development may have pervasive impact on inhibiting negative-emotion expressivity.

The Incremental Value of the Current Approach

The decision to focus on the experience-expression discrepancy using Cohen's d has yielded significant insights that may not have been illuminated through correlation analysis alone. While correlation coefficients indicate the strength of the association between emotional expression and experience, the directional difference in magnitude between these two measures is not explicitly revealed. This study's approach has allowed for a more directly interpretable analysis of emotional expression norms, revealing that the extent of under-expression of negative emotions can vary dramatically even between nations. For example, in Study 1, the substantial difference in negEED values between Switzerland ($d = -1.16$) and Malaysia ($d = -0.61$), despite their identical correlation coefficients ($r = .82$), highlights that Swiss individuals' under-express negative emotions to a far greater extent than Malaysians. By quantifying the discrepancies between emotional expression and emotional experience, this research sheds light on the underlying cultural mechanisms that govern emotional behaviour, offering a more precise manifestation of emotional expressivity that extends beyond linear associations.

Our analysis reveals some intriguing patterns showing within-cultural cluster variance. For instance, within the Confucian Asia cluster, China stands out, demonstrating a significant tendency to under-express positive emotions, which contrasts sharply with that of Hong Kong. Despite their geographical proximity and shared cultural heritage, Hong Kong displays a different trend, with data suggesting that its citizens express positive emotions at a level closer to their experience. When examining negative emotional expression (negEED) within the Latin Europe cluster, the data for France and Italy are particularly telling. France demonstrates notable

under-expression of negative emotions, suggesting a cultural trend towards restraint in negative emotional displays. Italy shows a milder under-expression, indicating a slighter deviation from the experience baseline in negative emotional expression. These differences within the Latin Europe cluster, especially between France and Italy, suggest that the expressiveness pattern extends beyond cluster categorisations to other macro-level characteristics.

Implications of the Current Findings

Our analysis revealed a substantial correlation between negEED and posEED with a noteworthy distinction arising from the influence of societal development on these discrepancies. While societal development appeared to be consistently associated with negEED, the association with posEED was less pronounced. These findings at the macro, societal level are consistent with the negative-positive asymmetry (Gross et al., 2000; Jordan et al., 2011) in emotion research that has been mainly based on individual and group levels, which suggest that individuals are naturally inclined to address negative events or signals due to their stronger and lasting effects compared to positive events, as emphasised by the principle that "bad is stronger than good" (Baumeister et al., 2001).

Our finding reveals the relatively under-documented topic of how structural context is associated with emotion dynamics from a macro perspective. Trust and efficiency of the societal system moderate the strength of under-expression for negative emotions. In societal systems with efficient institutions and trusting citizens, people under-express negative emotions more (i.e., they less frequently express negative emotions that they feel). This finding suggests that in societies with relatively inefficient institutions, people may rely more on negative emotional expressions to signal and communicate with others about the problems they encounter, in order to provoke ameliorative responses from others.

Surprisingly, in predicting the between-nation variation of negative-emotion expressivity, typical cultural indicators, including tightness (vs. looseness), heterogeneity, individualism (vs. collectivism), and self-expression (vs. survival) values,

did not explain the emotional experience-expression discrepancy for negative emotion, while only societal development indicators and their related constructs did so, indicating a unique and crucial role of societal development on negative expressiveness.

Theoretically, this finding may provide insights for research on emotion regulation regarding the effectiveness of using negative emotional expression as a social strategy. These insights are pivotal for better practices in multi-cultural contexts, such as industrial/organisational or mental health practices involving individuals with mixed cultural backgrounds, where the need for cultural sensitivity in communication is emphasised. For instance, a study focusing on Iranian immigrants in Germany found significant differences in how anger is expressed among Germans, Iranians, and Iranian migrants, depending on their cultural adaptation strategy (Gilan et al., 2022). This indicates that immigrants from certain cultures might seem under-expressive to members of some over-expressive cultures, which might lead to intercultural misunderstanding and even dispute, especially when the consequences of under-expression for some emotions are different across cultures (Butler et al., 2007).

There were some inconclusive patterns regarding the impact of societal development on the expressivity of specific emotions. For instance, among all the experience-expression discrepancies (EED) for positive emotions, only the EED for gratitude was significantly correlated with societal development after Bonferroni correction. The significant moderation of gratitude by societal development indicates that, as societies become more advanced, there may be a greater under-expression of gratitude. Among the prosocial positive emotions such as love and compassion, gratitude is regarded as facilitating reciprocity (Sauter, 2017). In certain cultural contexts, the act of expressing gratitude may also give rise to feelings of indebtedness, creating an obligation to reciprocate the favour received from the benefactor and hence be suppressed (Oishi et al., 2019).

This selective under-expression of gratitude can be contrasted with the non-significant association of societal development with the experience-expression discrepancy for anger. Anger is often regarded as a basic and universal emotion

(Ekman, 1999) and rooted in ancestral mechanisms optimised for small-scale societal interactions, rather than the nuanced dynamics of modern, developed societies (Sell et al., 2009). Hence, it may exhibit a relatively stable pattern of expression that transcends variations in societal development levels. In contrast, hostility, disgust, and hate are associated with long-term social issues and biases (Allport, 1954; Rozin et al., 2009). Thus, they might be more subject to societal and cultural influences over time.

Limitations & Future Research

Regarding constraints on the generality of the current study (Simons et al., 2017), we acknowledged that most of our participants were drawn from convenient, student samples (89.66%). Although we did not observe that demographic characteristics moderated the effect of our focal variables, the current findings may only describe or be applicable to the younger adult generation across our target nations.

The present study relied on emotional self-report using a retrospective time frame (as opposed to momentary experience), which is one type of access to emotion knowledge (Robinson & Clore, 2002). Such emotion self-reports may represent "holistic constructions of key emotional events" (Thomas & Diener, 1990, p. 296) rather than direct recall of emotional experiences.

Retrospective self-reports of one's emotions tend not to be extremely accurate over time (D. L. Thomas & Diener, 1990). Implementing a reliable self-reported, retrospective emotional measure with a specific time frame (e.g., "once a week/day") could enhance the consistency and comparability of data across different nations. This approach might mitigate some of the limitations associated with broader retrospective accounts and provide more precise insights into emotional expressivity across diverse cultural settings.

As for the measures used, our emotion items were measured as retrospective frequencies of experiences and expressions in general. Other dimensions of emotional behaviours, such as intensity and event-specificity, however, were not within the scope of the current study. Hence, we cannot know whether under-expression of negative emotion is due to different emotional regulation strategies (Gross, 1998a), such as

emotional suppression (one does not express the corresponding emotion that one feels) and/or down-regulation of negative emotion (one does not express emotion after reappraisal).

In addition, as this study is correlational in nature, some speculations implied by the study need further experimental and/or longitudinal investigations. For example, studies with experience sampling method that capture people's daily emotional experiences, expressions, and emotion-triggering events would help investigate the above-discussed speculations.

Chapter 4. Experience-Expectation (In)Congruence (Papers 3 and 4)

This chapter integrates two studies that examine these experience–expectation congruence and incongruence from different analytical perspectives. Paper 3 investigates the relation between experience–expectation (in)congruence and life satisfaction at the individual level using a U.S. sample. Paper 4 extends this investigation by adopting a cross-cultural approach, examining whether societal emotional environments influence the impact of emotional incongruence on well-being. Paper 3 was originally published as a short report in *Frontiers in Psychology*, with supplementary material, which has been incorporated into the thesis. Paper 4 extends the model from Paper 3 (Yeung et al., 2024) into a multilevel, cross-cultural framework using data from 48 countries.

Because the two studies are conceptually connected and partly overlapped, the introduction and discussion are presented in an integrated form. The standalone versions of each paper, including their original introductions and discussions, are available in the Appendix.

Citations:

Yeung, J. C., Roczniewska, M., & Krys, K. (2024). Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction. *Frontiers in Psychology*, *15*, 1305812. https://doi.org/10.3389/fpsyg.2024.1305812

Yeung, J. C., [author list forthcoming]. (n.d.). Emotional misfit and well-being: Direction-sensitive misfit in negative emotions across 48 societies [working manuscript].

Author contribution note:

For Paper 3, I developed the conceptual framework, designed and programmed the models, conducted the analyses, curated and annotated the data, interpreted the results, and prepared the manuscript and figures. I also coordinated the research process. For Paper 4, I originated the study design, programmed and executed the multilevel models, conducted the analyses, interpreted the results, and drafted the manuscript and visualisations. CRediT roles: *Conceptualisation, Methodology, Software, Investigation, Formal analysis, Writing – original draft, Visualisation*; additionally for Paper 3: *Data curation and Project administration.*

Paper 3: Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction (Yeung et al., 2024)

and

Paper 4: Emotional misfit and well-being: Direction-sensitive incongruence in negative emotions across 48 societies (Yeung et al., in prep.)

Integrated Abstract

Emotions are not evaluated in isolation, but in relation to socially endorsed norms—what people believe they should feel. This chapter investigates how the congruence and incongruence between emotional experience and perceived societal expectations for negative emotions relate to well-being, and whether this relation is culturally contingent. Paper 3 explores this association in a U.S. sample using response surface analysis (RSA), demonstrating that emotional misfit is not psychologically neutral: individuals who experience more negativity than expected report significantly lower life satisfaction than those who experience less than expected. Paper 4 extends this analysis across 48 countries using multilevel response surface analysis (MLRSA), testing whether the psychological cost of misfit is moderated by national emotional climates. Results revealed a consistent asymmetry: directional misfit—particularly experiencing more negative emotion than one feels is appropriate—was more detrimental to well-being than the reverse. Crucially, this effect was amplified in societies where negative emotions are less openly expressed. These findings position emotional fit as a culturally embedded, norm-evaluative process whose consequences depend on both the direction of misalignment and the social meaning assigned to emotional expression. We discuss implications for emotion regulation, cultural psychology, and the study of affective normativity in global contexts.

Keywords: emotional experience, societal expectation, emotional norms, satisfaction with life, response surface analysis, multilevel modeling

Integrated Introduction

Emotions are not only internal reactions; they are sites of evaluation. People do not simply feel—they assess what it means to feel, and whether what they feel is acceptable, legitimate, or appropriate. This process of norm-guided emotional evaluation is not always conscious, but it is pervasive. It shapes how individuals make sense of their own responses, how they compare themselves to others, and how they anticipate or avoid emotional expression.

This chapter begins from a sociological premise: emotional life is structured by norms. As Hochschild (1979, 1997) argues, individuals internalise what she calls "feeling rules"—cultural expectations about what emotions are appropriate in particular situations. These rules do not only tell us how to act; they shape how we interpret our own feelings. In her words, people navigate both an "emotional dictionary," which defines what can be felt, and an "emotional Bible," which prescribes what should be felt. Even in highly personal moments, emotions are never purely private; they are filtered through a normative lens that gives them meaning, value, or stigma.

This view positions emotional fit as a socially structured evaluative process. When individuals reflect on whether their emotional response "makes sense," they are not simply comparing it to an internal standard—they are referencing a set of internalised, socially constructed rules. The sense of fit or misfit that emerges from this comparison is not just a passive discrepancy. It is a relational judgment, one that signals how well a person believes they align with the emotional expectations of their world.

In this framework, emotional fit is not an individual trait or an external outcome. It is a process of positioning the self in relation to normative feeling rules, in which emotions are judged not only for their content but for their social alignment. This conceptualisation opens the way for a deeper investigation into the types of norms that structure emotional life, and the consequences of perceiving misalignment within them.

Two kinds of emotional rules: injunctive and descriptive norms

If emotional fit involves evaluating how one's feelings align with internalised norms, a crucial question follows: what kinds of norms are being referenced? While

emotional life is shaped by a wide array of cultural scripts, prior research suggests that normative expectations tend to cluster into two distinct types: those that prescribe how one ought to feel, and those that reflect how others typically feel in the same context.

The first type—commonly referred to as *injunctive norms*—encompasses beliefs about which emotions are appropriate, expected, or morally sanctioned in a given situation. These norms often reflect cultural ideals or institutionalised role expectations (Thoits, 1989; Hochschild, 1979; Bastian et al., 2012). As Thoits (1989) argues, emotional norms are tightly bound to social identities: individuals learn that certain roles require not only specific actions, but specific feelings. Such injunctive norms parallel the 'ought self' described in self-discrepancy theory, where emotional deviations from internalised standards can elicit distress (Higgins, 1987). In cultural contexts, injunctive norms are often shaped by ideal affect—culturally valued emotional states that individuals are encouraged to feel and express (Tsai, 2007).

The second type—*descriptive norms*—refers to what emotions are commonly observed or expressed in a particular social context. Rather than prescribing what should be felt, descriptive norms provide a sense of what is usual, typical, or shared. They operate not through moral evaluation, but through patterns of emotional visibility: what people see others express, and what expressions are culturally tolerated or encouraged (Cialdini, Kallgren, & Reno, 1991). At the cultural level, descriptive emotional norms can be observed in broader societal patterns of emotional expression, such as the societal emotional environment (Krys et al., 2022).

Although these two types of norms are conceptually distinct, they often coexist in the same emotional environment. In many situations, individuals may simultaneously reflect on what they should feel and what others around them seem to be feeling. Yet the alignment—or misalignment—between these norms can vary. Sometimes, what one ought to feel matches what others express. At other times, the two diverge, creating ambiguity in how emotional fit is judged (Cialdini et al., 1991).

This distinction between injunctive and descriptive norms provides a structural lens for understanding how people evaluate their emotions. It moves the concept of

emotional fit away from a general sense of social appropriateness and toward a more precise account of how normative references are layered and potentially conflicting. In the next section, we build on this distinction to propose that emotional fit should be understood not as a single axis of person–norm alignment, but as a nested process that unfolds across multiple normative dimensions.

Nested structures: emotional fit across coexisting norms

Emotional fit does not arise from a single normative comparison. As individuals reflect on the appropriateness of their emotional responses, they may draw on multiple, coexisting normative references—what they believe they should feel, and what others around them appear to feel. These reference points do not always align. A person may feel sadness in a situation where others appear cheerful; or may feel calm while believing that anger would be more justified. In such cases, the question is not simply whether one's feelings are "fitting," but which standard one is failing to meet.

This highlights a key feature of emotional fit: it is structured by the simultaneous presence of injunctive and descriptive norms. In some situations, these norms reinforce one another—what is expected is also what is expressed. In others, they diverge, creating a layered evaluative environment in which emotional misfit can take different forms. The same emotional experience may feel normatively appropriate by one standard and deviant by another.

Rather than treating emotional fit as a one-dimensional deviation from a single norm, we propose that it should be understood as a process of evaluative positioning within a nested normative structure. Individuals do not merely ask "Does this emotion make sense?"—they ask, implicitly or explicitly, "Does it make sense given what I think I should feel, and what others seem to feel?" This layered judgment reflects the entanglement of internalised expectations and socially visible cues.

This approach helps to explain why emotional misfit may vary not only in intensity but in meaning. A mismatch with injunctive norms may evoke guilt, shame, or a sense of moral inadequacy; a mismatch with descriptive norms may trigger feelings of alienation, social detachment, or illegibility. In both cases, the misfit is not just a

difference—it is a disruption in one's perceived alignment with the emotional order of a situation.

In this framework, emotional fit is better understood not as a property of the emotion itself, but as a positional judgment situated within a normative landscape. It is shaped by the interplay of what is felt, what is expected, and what is observed—and by how individuals navigate these layers in making sense of their emotional reality.

Emotional visibility as a cultural structure: the role of NSEE

While individuals navigate emotional fit through internalised norms and social cues, these cues are not only situational—they are embedded within broader cultural patterns. What emotions are visible, shared, or tolerated in a society forms a background against which individuals evaluate the legitimacy of their own emotional responses. This emotional backdrop is not always articulated, but it is absorbed: it shapes expectations about what emotions are normal, what expressions are allowed, and what forms of misfit feel deviant.

We refer to this cultural-level visibility of emotion as the *Negative Societal Emotional Expression* (NSEE). NSEE captures the extent to which negative emotions—such as sadness, anger, or fear—are commonly expressed in a given society. It reflects what is culturally observable: how often negative emotion appears in public discourse, social interaction, or institutional rituals. As such, NSEE can be understood as a descriptive emotional norm at the societal level.

NSEE is not merely a record of how people feel; it reflects what is made socially legible. A society with high NSEE is not simply a society where people experience more negative emotion—it is a society where such emotions are more likely to be expressed, seen, and implicitly permitted. Conversely, in low-NSEE contexts, the expression of negative emotion may be suppressed, discouraged, or reframed as inappropriate. This cultural climate provides individuals with a general sense of whether their own negative feelings can be disclosed or must be contained.

Because emotional fit involves not only what one feels but how that feeling is judged, the cultural visibility of emotion plays a central role. Individuals may judge

their emotional responses not only against what they believe they should feel, but also against what others appear to be feeling—and this appearance is shaped by the expressive norms of their society. In this way, NSEE enters into the evaluative process, not as a situational factor, but as a structural context that informs how emotional misfit is experienced and interpreted.

The concept of NSEE thus allows us to locate emotional fit within a broader normative environment. It bridges the gap between micro-level evaluation and macro-level culture, offering a way to understand how emotional life is regulated not only through personal expectations, but through patterned structures of social expression.

Interpreting (mis)fit as norm-based and direction-sensitive evaluation

While some studies have begun to examine emotional fit or congruence with cultural norms (Bastian et al., 2012; De Leersnyder et al., 2014), few have addressed how the direction of emotional misfit—feeling more versus less than expected—might carry distinct psychological meanings rather than representing a uniform deviation from the norm.

The fit and misfit can be examined by congruence model and discrepancy model. Congruence models in organizational and personality psychology suggest that well-being is highest when the self and environment are aligned, and declines as they diverge (Edwards, 2002). Discrepancy-based theories propose that the direction of divergence—such as falling short of a moral or social standard—may carry greater affective consequences. For example, self-discrepancy theory posits that failing to meet internalised ought-standards triggers guilt or shame, while exceeding them may evoke dissonance or moral unease (Higgins, 1987; Thoits, 1989). Cognitive dissonance theory further posits that individuals are motivated to resolve perceived inconsistencies between their feelings and normative expectations, often through suppression, justification, or emotional reinterpretation (Festinger, 1957; Harmon-Jones & Mills, 2019). These models suggest that the psychological impact of emotional misfit depends not only on how far individuals deviate from expectations, but also on which side of the

normative standard they fall—that is, whether they feel too much or too little of a given emotion.

Crucially, the direction of misfit is socially encoded. In normatively constrained environments, excessive negativity may signal emotional instability or moral deviance—a pattern that may be understood as a stigmatised mismatch. In contrast, feeling less negative emotion than expected—a protective mismatch—may not generate discomfort, or may even be socially rewarded in contexts where restraint, resilience, or emotional control is valorised. This asymmetry also emerges in congruent conditions: individuals whose expected and experienced negative emotions are both high may perceive emotional alignment and social validation (accepted match), whereas those with low-low alignment may remain affectively muted or even invisible within normative frameworks (muted match). These evaluations vary across cultural contexts, depending on how emotion norms define and enforce emotional legitimacy. Understanding emotional misfit therefore requires not only assessing the presence of incongruence, but also analysing its directionality, social meaning, and moral load within a given normative environment. To clarify the psychological meanings of different expectation–experience combinations, Table 9 outlines a directional model of emotional (mis)fit for negative emotions.

Table 9

A directional matrix of emotional (mis)fit: Expectation × Experience for negative emotion

	Experience	
Expectation	**Low**	**High**
High	**Protective Mismatch** "I was expected to feel bad, but I don't"	**Accepted Match** "Expected to feel bad, and I do"
Low	**Muted Match** "No expectation, and feel little"	**Stigmatised Mismatch** "I shouldn't feel bad, but I do"

Note. Each quadrant represents a unique combination of emotional expectation and emotional experience. Congruent cases (diagonal) differ in social visibility; incongruent cases differ in moral framing.

Building on these insights, recent empirical work in emotion research demonstrates that directional asymmetry is a meaningful and measurable phenomenon. Yeung et al. (2024), for instance, found that individuals who reported feeling more

negative emotion than they believed they should—what we term a *Stigmatised Mismatch*—experience greater psychological costs (i.e., low self-reported well-being) than those who felt less than expected, a configuration we describe as a *Protective Mismatch*. This suggests that emotional misfit is not a uniform deviation, but a direction-sensitive evaluation. In short, too much emotion may not be judged—or felt—the same as too little, even though both differ from one's preferred emotional state.

The emotional ecology of fit: directional asymmetry and cultural modulation

Building on self-discrepancy theory (Higgins, 1987), individuals who experience more negative emotion than they believe they should—a configuration we refer to as a Stigmatised Mismatch—are likely to perceive a gap between their actual and "ought" emotional self, eliciting shame, anxiety, or internalised failure. This directional tension is consistent with research on cognitive dissonance (Festinger, 1957), which shows that aversive self-evaluations emerge more strongly when behaviour or internal states contradict internalised standards. Likewise, Thoits (1989) emphasises that emotional deviance from role-based norms can be experienced as more or less consequential, depending on the social meaning of the deviation.

In the context of negative emotion, these accounts converge on a key insight: feeling more negatively than one believes one should (Stigmatised Mismatch) is more psychologically costly than the reverse. While feeling "too little" may evoke self-doubt or indifference—a case of Protective Mismatch—feeling "too much" may signal deeper violations of normative control, restraint, or social coherence.

Before formalising our hypotheses, we first raise an exploratory research question about the nature of emotional misfit:

> **RQ:** Does the direction of emotional (in)congruence matter for psychological well-being? Specifically, is it more costly to experience more negative emotion than one believes one should, than the reverse?

We address this question in an initial study (Paper 3), treating it as a theoretical pilot to examine the affective meaning of directional misfit within a single cultural

context. The findings suggest that emotional incongruence is not symmetrical, and that direction plays a psychologically meaningful role.

Building on this foundation, we now turn to our core hypotheses for the current study (Paper 4). This directional asymmetry forms the basis of our first hypothesis:

> **H1:** The direction of incongruence between emotional experience and injunctive norms will matter for well-being. Specifically, individuals who experience more negative emotion than they believe they should (Stigmatised Mismatch) will report lower life satisfaction than those who experience less negative emotion than they believe they should (Protective Mismatch).

However, this psychological cost is not culturally uniform. In societies where negative emotion is more openly expressed, such misfits may be more tolerated or even normalised. By contrast, in contexts where negative emotion is less visible or acceptable, such deviations—particularly those characterised as Stigmatised Mismatches (high experience + low expectation)—may be more strongly pathologised or morally condemned, deepening the perceived dissonance.

This leads to our second hypothesis:

> **H2:** The negative effect of incongruence characterised by high emotional experience and low expectation (Stigmatised Mismatch) will be moderated by NSEE. The effect will be stronger in low-NSEE societies, where negative emotions are less socially visible or normatively accepted.

Together, these hypotheses treat emotional fit not as a general alignment variable, but as a culturally embedded, direction-sensitive evaluative process, structured by both internalised norms and their cultural visibility.

The Present Studies

Exploratory Individual experience-norm congruence (Paper 3)

This paper investigates how (in)congruence between emotional experience and perceived social expectation relates to life satisfaction. We focus on both positive and

negative emotions, examining whether people feel better when their emotional life matches what they believe is expected of them.

Using a single-nation dataset (N = 301, United States), we model emotional (in)congruence with response surface analysis (RSA). This method captures not only the degree of fit between emotional experience and expectation, but also the direction and curvature of their mismatch. For instance, feeling worse than one believes they should—Stigmatised Mismatch (high experience + low expectation)—may have different implications than feeling better than one believes they should—Protective Mismatch (low experience + high expectation).

The RSA framework allows us to test whether simple congruence is always beneficial, or whether the psychological cost of mismatch depends on its structure and direction. This is especially relevant for negative emotions, which are often normatively discouraged yet experientially common. We model these dynamics in a way that allows for asymmetry and non-linearity, offering a more nuanced picture of emotional fit and well-being.

By doing so, we move beyond linear or bivariate approaches and begin to unpack how the felt pressure to match emotional injunctive norms is associated with psychological outcomes—even within a single cultural setting.

Multilevel experience-norms congruences for negative emotions (Paper 4)

This study investigates whether the psychological effects of emotional (in)congruence are shaped by the emotional climate of a society. We ask whether the misfit between how individuals experience negative emotions and how much they feel expected to feel them—i.e., the incongruence between personal affect and injunctive norms—has different implications depending on the broader cultural context.

To address this question, we adopt a multilevel design that captures emotional fit as a cross-level phenomenon: at the individual level, we model the relation between experienced and expected negative emotions; at the societal level, we use the average level of negative emotion expression (the Societal Emotional Environment, SEE) to represent descriptive norms.

This structure enables us to test whether emotional incongruence functions differently in contexts where negative emotions are more publicly visible and socially accepted. In particular, we examine whether Stigmatised Mismatches (high experience + low expectation) are more psychologically costly in low-SEE societies, where negative emotion is less normative or visible, and whether Protective Mismatches (low experience + high expectation) are buffered or neutralised under these same conditions.

Paper 3: Single Nation Individual-Level Analysis

Method

Participants

The research had a sample size of 301 individuals residing in the United States who willingly participated in the study through the Prolific platform. The study population consisted of 145 female participants and 149 male participants, ranging in age from 18 to 50 years. The mean age was 34.41, with a standard deviation of 7.91. In order to enhance the representativeness of the online population in the United States, the selection of participants was conducted from a non-student, community sample.

Measures

Emotional experience and social expectations for emotions. Participants were asked to report their emotional experiences and their perceived social expectations for emotions. The scale for emotional experiences was adapted from Krys et al. (2022), selecting a mix of 12 distinct emotions based on the factor loadings in the original study. These emotions were categorised into 6 positive (grateful, excited, peaceful, relaxed, in love) and 6 negative emotions (fearful, angry, sad, ashamed, depressed, dull). Similarly, the items for perceived societal expectations were inspired and adapted from Bastian et al. (2012). Participants reported both the frequency of their emotional experiences (e.g., 'your frequency of experience: grateful') and their perception of societal expectations for each emotion (e.g., 'Your society expects you should feel: grateful'). The scale's responses ranged from 1 to 9 (1 = *none in a week*, 5 = *once a day*, 9 = *all the time*). The reliability of this scale was substantiated by Cronbach's alpha, with scores ranging from .79 for Positive Emotional Experiences to .88 for

Expectation for Negative Emotions (see Table 10).

Life Satisfaction. Life satisfaction, a key component of subjective well-being, was assessed in our study using the Satisfaction with Life Scale (Diener et al., 1985). Recognised as a reliable measure in diverse sociocultural contexts, this scale is instrumental in evaluating a happiness-related aspect of subjective well-being. Sample items from this scale include statements like "In most ways my life is close to my ideal" and "I am satisfied with my life". The scale demonstrated high reliability with a Cronbach's alpha of .93.

Analytical strategies

Descriptive statistics and correlations among focal variables were assessed. Paired-sample t-test were employed to examine the discrepancies between emotional experience and social expectation for positive and negative emotions.

In this study, polynomial regression with response surface analysis (RSA) was applied to explore the complex relation between emotional experiences, societal expectations, and life satisfaction. Polynomial regression extends linear regression by allowing for nonlinear effects, which is particularly useful in psychological research where interactions between variables are complex. The RSA approach provides a three-dimensional interpretation of these relations, capturing not only direct effects but also interactions and curvature effects.

The polynomial regression model used in our study is expressed as:

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 \tag{1}$$

where Z represents life satisfaction, X is the expectation for emotions, and Y is the emotional experience.

Polynomial regressions with response surface analyses (Edwards and Parry, 1993; Shanock et al., 2010; `RSA` package: Schönbrodt and Humberg, 2023) was conducted to determine the relation between experience-norm congruence for positive and negative emotions and life satisfaction. All analyses were conducted in `R` (R Core Team (2022), 4.2.2), with anonymised data and script available online at https://osf.io/h683g/.

Results

Descriptive statistics, including M, SD, and correlations between all the focal variables are provided in the Table 10. In general, individuals perceived they should experience positive emotions moderately more frequently than they actually experienced ($t[300] = 8.62, p < .001, d = 0.50$) and experience negative emotions moderately less frequently than they actually experienced ($t[300] = -7.30, p < .001, d = -0.42$).

Table 10
Descriptive statistics and correlations among focal variables

Variables	M	SD	α	1	2	3	4
1. Life Satisfaction	2.45	1.10	.93				
2. Positive Emotional Experiences	4.07	1.44	.79	.54**			
3. Expectation for Positive Emotion	5.10	1.87	.87	.06	.24**		
4. Negative Emotional Experiences	3.38	1.63	.87	-.50**	-.30**	.14*	
5. Expectation for Negative Emotions	2.54	1.55	.88	.03	.27**	-.20**	.20**

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

Two polynomial regressions were estimated and visualised in three-dimensional surface plots. The explained variance of the global models, regression coefficients, principal axes, and surface tests estimates can be found in Table 11. Each regression coefficient quantifies the effect of expectations and experiences on life satisfaction:

- b_0 **- Intercept**: The baseline level of life satisfaction when both expectations and experiences are zero.
- b_1 **- Linear Effect of Emotional Expectations**: The direct influence of expectations on life satisfaction. A positive b_1 suggests that higher emotional expectations are associated with higher life satisfaction, and vice versa.
- b_2 **- Linear Effect of Emotional Experiences**: The direct impact of emotional experiences on life satisfaction. A positive b_2 implies that more frequent or intense emotional experiences correspond to greater life satisfaction.
- b_3 **- Quadratic Effect of Emotional Expectations**: Represents the curvature effect of expectations. It represents how the relation between expectations and life satisfaction changes as expectations increase.
- b_4 **- Interaction Effect**: Represents how expectations and experiences jointly influence life satisfaction. It shows how the relation between expectation and life satisfaction changes at different levels of the emotional experience.

- b_5 **- Quadratic Effect of Emotional Experiences**: Represents the curvature effect of emotional experiences, indicating how this relation evolves as experiences intensify.

The RSA provides additional insights by examining surface parameters that define the nature of congruence and incongruence (Edwards & Parry, 1993) with visualisation (Figure 5). Each surface parameters quantifies the effect of expectations and experiences on life satisfaction, along the Line of Congruence and Incongruence:

- p_{10} **and** p_{11} **- Position of First Principal Axis**: These coefficients define the orientation of the first principal axis on the RSA plot. The first principal axis, often described as the surface's ridge, is projected onto the XY plane to understand the relation between the variables.
- a_1 **and** a_2 **- Slope and Curvature along the Line of Congruence (LOC)**: These coefficients describes how life satisfaction changes when expectations and experiences align, specifically, describe the nature of the relation along the LOC. The a_1, calculated as $a1 = b1 + b2$, indicates the slope or the direction of the relation, while a_2, calculated as $a2 = b3 + b4 + b5$, gives the curvature, showing how the relation bends along the LOC.
- a_3 **and** a_4 **- Slope and Curvature along the Line of Incongruence (LOIC)**: These parameters explain the relation when there is a mismatch between emotional experiences and expectations. The a_3, calculated as $a3 = b1 - b2$, describes the slope along the LOIC, and a_4, calculated as $a4 = b3 - b4 + b5$, provides information about the curvature, offering insights into how life satisfaction varies with increasing incongruence between experience and expectation.

We firstly examined the effect of congruence by Humberg and colleagues' checklist (2019). In all the analyses, at least one condition was violated and the RSA contradicted a congruence effect, indicating that those who simply feel fit their perceived expectations were not those who have the highest level of life satisfaction. Although there were no effects of congruence, the result can be interpreted (see Breetzke & Wild, 2022, for a similar practice). Especially the linear, curvilinear, possible interaction effects, and the direct interpretation of the potential effects of emotional fit on life satisfaction are of our major interests.

Experience-expectation congruence for positive emotions.

The baseline level of life satisfaction is $b_0 = 2.869$ ($SE = 0.079$, $p < .001$). This Intercept indicates a moderate baseline life satisfaction when emotional expectations and experiences are zero. The effect of emotional expectations on life satisfaction is minor and not statistically significant ($b_1 = -0.010$, $SE = 0.035$, $p = .772$), suggesting expectations alone do not strongly influence life satisfaction. There is a significant positive relation between the experience of positive emotions and life satisfaction ($b_2 = 0.382$, $SE = 0.050$, $p < .001$), highlighting the importance of actual emotional experiences. The quadratic effect is negligible ($b_3 = -0.001$, $SE = 0.013$, $p = .959$), indicating a nearly linear relation between expectations and life satisfaction. The interaction between expectations and experiences is significant ($b_4 = 0.039$, $SE = 0.016$, $p = .014$), suggesting a combined influence on life satisfaction. A slight, non-significant curvilinear relation is suggested between the experience of positive emotions and life satisfaction ($b_5 = -0.027$, $SE = 0.020$, $p = .175$).

Moreover, the significant linear additive effect ($a_1 = 0.372$, $SE = 0.061$, $p < .001$) suggests a strong linear relation along the line of congruence. This indicates that congruent levels of expectations and experiences of positive emotions have a pronounced effect on life satisfaction. The curvature effect ($a_2 = 0.011$, $SE = 0.027$, $p = .684$) is not significant, indicating a predominantly linear relation along the line of congruence without notable bending. A significant negative coefficient ($a_3 = -0.392$, $SE = 0.060$, $p < .001$) suggests that the direction of incongruence between experiences and expectations matters: life satisfaction is lower when one experiences low levels of emotions but the expectations for positive emotions are high compared to when one experiences high emotions but the norm/expectation is low. The significant curvature ($a_4 = -0.067$, $SE = 0.024$, $p = .004$) along the line of incongruence suggests a complex relation between incongruent levels of expectations and experiences and life satisfaction.

Experience-expectation congruence for negative emotions.

The baseline life satisfaction when both expectations and experiences of negative emotions are zero is $b_0 = 2.190$ ($SE = 0.118$, $p < .001$). This suggests a lower baseline

life satisfaction compared to positive emotions. The direct effect of expectations for negative emotions on life satisfaction is $b_1 = 0.080$ ($SE = 0.061$, $p = .193$), which is not statistically significant, indicating a weak influence. The coefficient $b_2 = -0.168$ ($SE = 0.067$, $p = .012$) shows a significant negative relation, implying that more frequent negative emotions are associated with lower life satisfaction. The significant quadratic effect ($b_3 = -0.039$, $SE = 0.017$, $p = .024$) suggests a non-linear relation, indicating a complex dynamic between expectations of negative emotions and life satisfaction. The coefficient $b_4 = 0.042$ ($SE = 0.022$, $p = .055$) suggests a marginally significant interaction effect, indicating the combined influence of expectations and experiences on life satisfaction. Last but not least, a significant positive quadratic effect ($b_5 = 0.063$, $SE = 0.013$, $p < .001$) suggests an increasing relation between the intensity of negative emotional experiences and life satisfaction, but with diminishing returns.

The RSA shows no significant linear additive effect ($a_1 = -0.088$, $SE = 0.094$, $p = .352$) along the line of congruence for negative emotions, suggesting a less pronounced linear relation between congruent levels of expectations and experiences. A significant curvature is observed ($a_2 = 0.066$, $SE = 0.027$, $p = .015$), indicating a nonlinear relation along the line of congruence. This suggests that the effect of congruence on life satisfaction is not uniformly linear. A significant shift away from the line of congruence ($a_3 = 0.247$, $SE = 0.087$, $p = .004$) indicates that higher life satisfaction is associated with levels of incongruence between low expectations and high experiences of negative emotions—Stigmatised Mismatch—than the levels of incongruence between high expectations and low experiences—Protective Mismatch. The analysis does not indicate significant curvature on the line of incongruence ($a_4 = -0.019$, $SE = 0.033$, $p = .578$), suggesting a more linear relation in this context.

Table 11

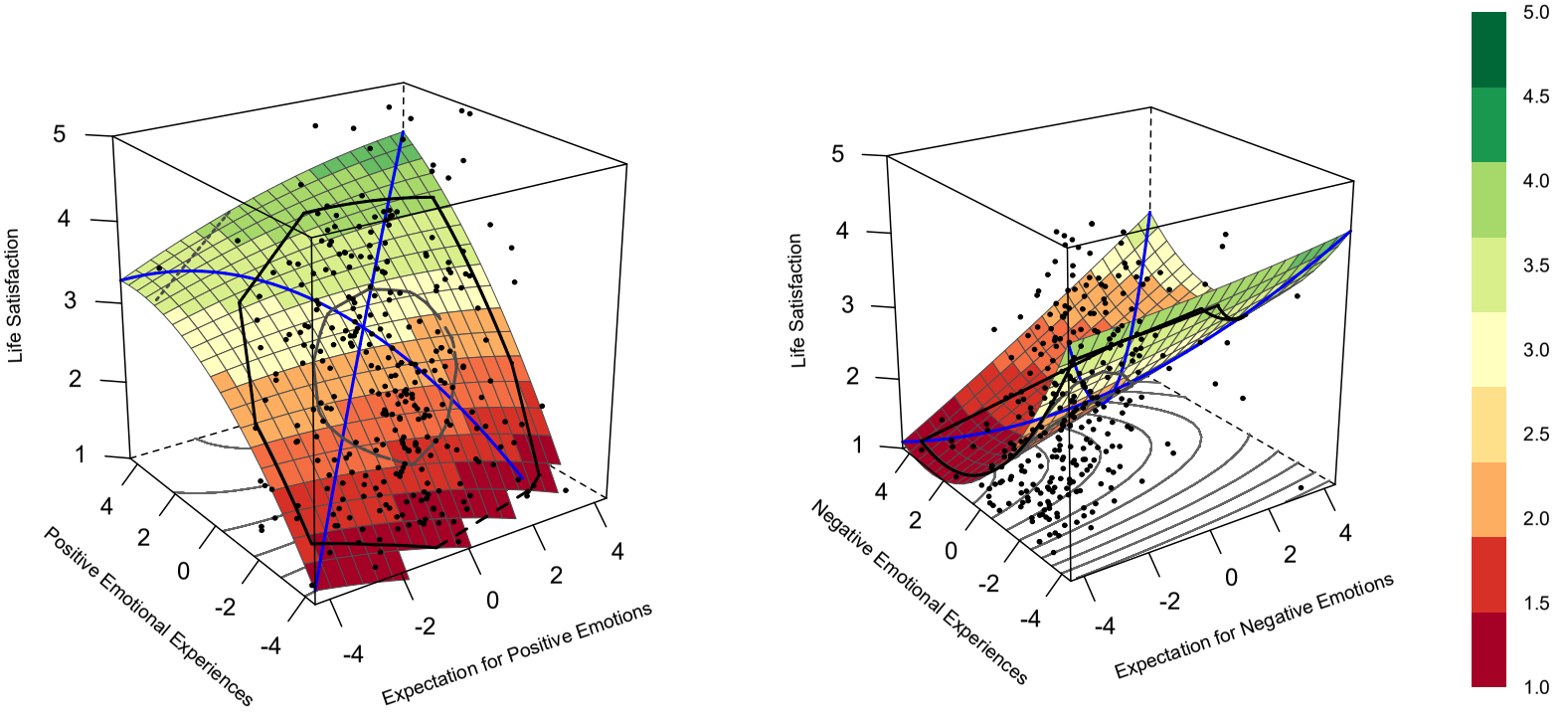
Response surface results for the effect of experience-norm congruence on life satisfaction

		Estimated Regression Models					
		Positive Emotions			Negative Emotions		
Parameter		Estimate (SE)		CI	Estimate (SE)		CI
Standardised regression coefficients for models							
	b_0	2.87 (0.08)	***	[2.71, 3.02]	2.19 (0.12)	***	[1.96, 2.42]
	b_1	-0.01 (0.04)		[-0.08, 0.06]	0.08 (0.06)		[-0.04, 0.20]
	b_2	0.38 (0.05)	***	[0.29, 0.48]	-0.17 (0.07)	*	[-0.30, -0.04]
	b_3	-0.001 (0.01)		[-0.03, 0.02]	-0.04 (0.02)	*	[-0.07, -0.01]
	b_4	0.04 (0.02)	*	[0.01, 0.07]	0.04 (0.02)	†	[-0.001, 0.09]
	b_5	-0.03 (0.02)		[-0.07, 0.01]	0.06 (0.01)	***	[0.04, 0.09]
Position of first principal axis							
	p_{10}	5.16 (2.66)	†	[-0.05, 10.37]	-6.55 (6.35)		[-19.00, 5.90]
	p_{11}	0.53 (0.33)		[-0.12, 1.18]	5.05 (2.38)	*	[0.40, 9.71]
Shape of surface along lines							
LOC	a_1	0.37 (0.06)	***	[0.25, 0.49]	-0.09 (0.09)		[-0.27, 0.10]
	a_2	0.01 (0.03)		[-0.04, 0.07]	0.07 (0.03)	*	[0.01, 0.12]
LOIC	a_3	-0.39 (0.06)	***	[-0.51, -0.28]	0.25 (0.09)	**	[0.08, 0.42]
	a_4	-0.07 (0.02)	**	[-0.11, -0.02]	-0.02 (0.03)		[-0.08, 0.05]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. Outcome variables: life satisfaction. LOC = line of congruence. LOIC = line of incongruence. $R^2_{positive} = 30.8\%$, $R^2_{negative} = 34.8\%$

Figure 5

Surface plots display experience-expectation congruence on life satisfaction



Note. Surface plots display experience-expectation congruence for positive (left) and negative (right) emotions. The experience-expectation congruence is the combination between emotional experience (y axis) and social expectation for emotions (x axis) on life satisfaction (z axis).

Discussion

Through our empirical inquiry into the intricate relation between individual emotional experiences and societal expectations, we have discovered effect on life satisfaction, the happiness-related key component of subjective well-being. In contrast to the congruence effects, our findings revealed that individuals who reported rare experiences of negative emotions but believed high societal expectations for such feelings—characteristic of Protective Mismatch—reported the highest levels of life satisfaction. This elucidates the possible benefits of societies embracing a wider range of negative emotions.

The present study expands the scope of emotion research by delving into the realm of the actual-ought emotional difference, which has received less attention compared to the examined actual-ideal emotional discrepancy. This study combines elements from the Affect Valuation Theory (Tsai, 2007) and the Self-Discrepancy Theory (Higgins, 1987) to explore the intersection between emotional norms and self-concept. By integrating these two paradigms, this investigation aims to deepen our understanding of the complex relation between these factors. Significantly, the deviation observed from the potential results predicted by congruence models (e.g., Chatman, 1989) — which suggest that congruence between internal experiences and external expectations generally enhances well-being — indicates the necessity of revisiting the general applicability of these models, particularly in relation to emotional experiences and societal norms. Moreover, the study revealed that the most significant impacts observed were linear in nature, specifically related to emotional experiences. The significance of good emotions in promoting well-being has been acknowledged (Fredrickson, 2001). It has been continuously observed that individuals who frequently experience positive emotions, regardless of cultural norms, tend to report higher levels of life satisfaction.

From a practical standpoint, the study highlights the adverse consequences of societal norms that may marginalise or diminish the significance of unpleasant emotions, often generating Stigmatised Mismatch where individuals feel more negative

emotion than expected but face social disapproval. It suggests there are advantages to be gained from a society transition that embraces a wider range of negative emotions. The results of our study suggest that individuals may enjoy an increased level of life satisfaction when they perceive that their negative emotional experiences are acknowledged and accepted by society. This probable explanation is consistent with the observed phenomenon of those who report the highest levels of life satisfaction being those who infrequently experience negative emotions, yet perceive a high level of society expectations around these emotions (Protective Mismatch). When there is societal acceptance or even an expectation for individuals to experience negativity, it can potentially enhance their life satisfaction, particularly for those who frequently encounter such negative feelings. This notion is aligned with the research of Ford et al. (2018), who found that individuals who accept their negative emotions and thoughts exhibit better psychological health. Additionally, the study by Dejonckheere et al. (2022) indicates that perceiving societal pressure to be happy, particularly in nations with high happiness indices, is linked to poorer well-being. These findings highlight the complex interplay between societal emotion norms and individual well-being, suggesting that the acknowledgment of negative emotions in society can have beneficial effects. This comprehension holds significant implications for therapeutic strategies, since therapists and counsellors possess a broader awareness of the emotional dynamics that arise from society norms and expectations. Moreover, at a social level, it calls for the implementation of campaigns or interventions designed to reshape public attitudes towards emotions, hence facilitating the development of a more inclusive and empathic society (Bastian et al., 2012; Humphrey et al., 2022; Yeung & Lun, 2021).

Nevertheless, it is important to approach this interpretation with caution because individuals' experiences and perceptions of emotions vary significantly across various cultural contexts. It is important to acknowledge that this research constitutes an exploratory study. Although the current findings offer valuable insights, it is important to replicate them in order to strengthen the reliability and validity of the research conclusions. In keeping with the notion of Constraints on Generality as

proposed by (Simons et al., 2017), this analysis acknowledges the limits related to the sample. The present sample, which comprises only of online participants from the United States, imposes limitations on the extent to which the findings can be generalised. In order to adequately address the variances in emotional norms and expectations across different cultures and in a culturally sensitive way (Badaan & Choucair, 2023; C. C. Thomas & Markus, 2023), it is crucial to incorporate multiple cultural contexts into the future research agenda.

Paper 4: Cross-National Cross-level Analysis

Method

The current study is part of a broader cross-cultural investigation exploring cultural factors associated with the endorsement of societal development goals, emotion-related constructs, and well-being. In the present paper, we focus specifically on self-reported frequencies of negative emotional experience, perceived expectations, and emotional expression.

Participants and Nations

The original dataset comprises responses from 70 cultural groups. In the original project (Wasiel et al., 2025), the target sample size in each nation was set at $n = 200$, but it vary across nations (range from 82 to 1903). For the present analysis, we excluded participants who (a) failed more than one of the twelve attention checks, (b) had missing data on the key variables, or (c) were older than 60 years. We retained only nations with sufficiently large samples for multilevel modelling ($n \geq 150$). The final analytic sample consisted of $N = 14,823$ participants from 48 nations ($M_n = 308.81$, $SD_n = 274.94$, range: 150–1566). Demographic details can be found in Table 12 .

Table 12

Descriptive statistics of the demographic and focal variables by nation

		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Algeria	976	35.52 (12.58)	52.46	46.52	3.70 (1.46)	4.13 (1.87)	3.75 (1.49)	2.34 (0.78)	2.96 (0.74)	2.52 (0.75)
Australia	585	52.21 (19.34)	49.06	12.48	2.82 (1.18)	2.25 (1.28)	2.47 (0.99)	1.96 (1.00)	2.26 (1.02)	2.33 (0.91)
Austria	244	27.13 (8.87)	74.18	93.44	3.51 (1.02)	2.54 (1.09)	2.91 (0.89)	2.39 (0.79)	2.37 (0.98)	2.56 (0.70)
Bosnia and Herzegovina	356	30.80 (12.70)	76.12	67.70	3.28 (0.96)	3.00 (1.40)	2.82 (0.78)	2.33 (0.78)	2.73 (0.85)	2.62 (0.68)
Bulgaria	204	33.34 (10.72)	49.02	100.00	3.62 (1.38)	4.18 (2.21)	3.18 (1.34)	2.24 (0.91)	2.98 (0.93)	2.59 (0.83)
Canada	268	21.63 (3.37)	76.49	98.88	4.06 (1.25)	2.87 (1.29)	3.43 (1.20)	2.03 (0.84)	2.14 (1.02)	2.18 (0.72)
Chile	156	29.15 (9.88)	64.74	87.82	3.85 (1.12)	4.07 (1.85)	3.29 (0.93)	2.25 (0.80)	2.69 (0.98)	2.51 (0.71)
China	235	26.51 (6.77)	49.79	60.00	3.47 (1.42)	2.69 (1.56)	3.21 (1.32)	2.29 (0.97)	2.79 (0.89)	2.86 (0.76)
Colombia	250	29.35 (11.04)	48.40	58.40	3.97 (1.35)	4.10 (1.70)	3.55 (1.31)	2.78 (0.72)	2.91 (0.81)	2.91 (0.68)
Croatia	203	36.05 (13.68)	84.73	44.33	3.28 (0.85)	2.93 (1.24)	2.89 (0.71)	2.34 (0.73)	2.58 (0.84)	2.43 (0.61)
Czechia	219	34.60 (13.96)	63.47	42.92	3.63 (1.12)	2.91 (1.21)	2.89 (0.87)	2.33 (0.83)	2.35 (0.97)	2.24 (0.86)
Ecuador	217	28.22 (9.00)	45.16	44.70	3.84 (1.22)	3.73 (1.98)	3.46 (1.27)	2.08 (0.95)	2.63 (1.03)	2.56 (0.77)
Estonia	226	37.33 (13.72)	71.68	69.03	3.28 (0.90)	2.66 (1.36)	2.74 (0.75)	2.34 (0.73)	2.56 (0.86)	2.45 (0.67)
France	164	36.38 (14.50)	79.27	74.39	3.43 (1.08)	2.77 (1.51)	3.03 (0.88)	2.19 (0.86)	2.30 (0.96)	2.40 (0.78)
Georgia	170	35.06 (15.17)	75.88	48.82	3.52 (1.14)	3.16 (1.81)	2.91 (0.92)	1.65 (0.72)	2.46 (1.01)	2.14 (0.68)
Germany	276	29.06 (10.26)	58.70	81.88	3.62 (1.15)	2.71 (1.30)	3.03 (1.02)	2.33 (0.79)	2.31 (1.04)	2.45 (0.77)
Ghana	157	24.77 (3.61)	54.78	87.26	3.80 (1.39)	3.57 (1.67)	3.47 (1.44)	2.05 (0.80)	3.04 (0.83)	2.62 (0.76)
Hungary	529	24.19 (6.56)	72.97	98.11	3.82 (1.04)	3.40 (1.66)	3.36 (0.96)	2.36 (0.78)	2.49 (0.97)	2.44 (0.78)
Iceland	288	29.41 (9.07)	63.89	89.93	3.01 (0.93)	2.33 (1.03)	2.39 (0.75)	2.23 (0.86)	2.24 (1.05)	2.39 (0.77)
Indonesia	226	20.58 (2.75)	76.11	97.35	4.25 (1.14)	2.51 (1.26)	3.89 (1.08)	2.11 (0.73)	2.30 (0.88)	2.46 (0.61)
Ireland	262	25.54 (7.60)	60.69	98.47	3.44 (1.01)	2.72 (1.18)	2.81 (0.92)	2.11 (0.87)	2.22 (1.02)	2.16 (0.77)
Jordan	233	34.47 (12.17)	65.24	40.77	3.61 (1.27)	3.65 (1.77)	3.53 (1.37)	2.17 (0.86)	2.69 (0.85)	2.36 (0.84)
Kazakhstan	205	28.16 (11.64)	71.71	68.29	4.03 (1.51)	2.79 (1.53)	3.25 (1.20)	2.17 (0.82)	2.68 (1.04)	2.54 (0.84)

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		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Kenya	177	28.75 (6.19)	43.50	30.51	3.64 (1.32)	3.16 (1.90)	3.42 (1.23)	1.92 (1.04)	2.87 (0.94)	2.54 (0.90)
Korea South	201	22.44 (2.12)	59.70	100.00	3.55 (1.20)	2.81 (1.60)	2.67 (1.11)	2.24 (0.82)	2.58 (0.93)	2.52 (0.75)
Madagascar	217	29.30 (7.59)	47.47	34.10	3.78 (1.37)	3.91 (2.42)	3.73 (1.36)	1.69 (0.86)	2.67 (0.87)	2.24 (0.74)
Malaysia	1566	29.13 (6.62)	64.94	29.57	3.56 (1.16)	2.83 (1.38)	3.27 (1.15)	1.74 (0.86)	2.30 (1.00)	2.22 (0.81)
Morocco	150	29.35 (7.90)	36.00	30.67	3.48 (1.40)	3.38 (1.71)	3.31 (1.30)	1.66 (0.91)	2.63 (0.92)	2.21 (0.86)
Nigeria	257	24.48 (8.00)	64.59	72.76	3.56 (1.26)	4.28 (2.12)	3.16 (1.17)	2.02 (0.92)	2.67 (1.01)	2.38 (0.89)
Palestine	154	40.58 (11.75)	60.39	24.68	3.45 (1.53)	4.16 (1.92)	3.47 (1.53)	2.41 (0.69)	2.73 (0.88)	2.45 (0.82)
Peru	169	30.68 (13.98)	52.66	50.89	3.98 (1.29)	3.66 (1.81)	3.76 (1.26)	2.15 (0.87)	2.65 (0.95)	2.45 (0.81)
Philippines	220	26.09 (7.55)	58.18	72.73	3.98 (1.20)	3.58 (1.48)	3.45 (1.15)	1.77 (0.87)	2.29 (0.96)	2.08 (0.70)
Poland	227	28.81 (7.94)	49.34	43.61	3.65 (1.19)	3.14 (1.56)	2.94 (0.95)	1.75 (0.92)	2.19 (1.07)	2.19 (0.82)
Portugal	175	36.88 (15.90)	73.14	46.29	3.44 (1.08)	2.69 (1.22)	2.74 (0.79)	2.20 (0.85)	2.39 (0.84)	2.48 (0.79)
Romania	225	26.22 (8.85)	62.67	79.56	3.64 (1.08)	3.58 (1.67)	3.08 (0.93)	2.24 (0.85)	2.55 (0.92)	2.44 (0.73)
Russia	414	23.23 (3.62)	60.39	98.07	3.81 (1.27)	2.74 (1.79)	3.19 (1.23)	2.04 (0.91)	2.53 (1.01)	2.42 (0.86)
Serbia	193	24.11 (3.49)	69.43	100.00	3.64 (1.02)	2.90 (1.20)	2.97 (0.84)	2.41 (0.72)	2.44 (0.91)	2.48 (0.67)
Slovakia	272	39.43 (13.08)	85.29	50.74	3.55 (1.08)	3.30 (1.57)	3.10 (0.93)	2.32 (0.82)	2.73 (0.99)	2.36 (0.79)
South Africa	471	31.70 (11.12)	49.68	41.19	3.62 (1.28)	4.15 (1.90)	3.16 (1.23)	1.82 (0.97)	2.60 (0.98)	2.33 (0.87)
Spain	260	25.63 (7.23)	68.85	86.54	3.81 (0.96)	3.03 (1.40)	3.20 (0.85)	2.39 (0.76)	2.36 (0.91)	2.48 (0.76)
Taiwan	204	27.36 (6.78)	74.02	55.39	3.01 (0.98)	2.37 (1.04)	2.58 (0.87)	1.55 (0.87)	2.13 (1.00)	2.07 (0.90)
Trinidad and Tobago	157	28.34 (9.46)	68.15	95.54	3.64 (1.28)	4.23 (1.90)	3.29 (1.21)	1.99 (0.93)	2.56 (1.12)	2.34 (0.91)
Turkey	1278	31.02 (11.85)	57.36	48.36	3.48 (1.06)	4.01 (1.77)	3.13 (0.99)	2.06 (0.82)	2.75 (0.83)	2.55 (0.73)
Ukraine	167	31.23 (11.99)	73.65	73.05	3.49 (0.99)	2.90 (1.82)	3.12 (0.93)	1.85 (0.87)	2.68 (1.03)	2.47 (0.84)
UK	187	29.33 (12.26)	72.19	68.98	3.88 (1.34)	3.02 (1.33)	3.05 (1.02)	1.89 (0.88)	2.10 (1.03)	2.05 (0.78)
USA	350	30.92 (12.03)	65.43	63.43	3.65 (1.23)	3.38 (1.77)	3.16 (1.11)	1.86 (0.97)	2.33 (1.08)	2.20 (0.92)
Venezuela	287	37.10 (12.04)	45.99	25.44	3.71 (1.31)	3.68 (2.03)	3.04 (1.02)	1.97 (0.93)	2.71 (1.00)	2.46 (0.79)

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		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Vietnam	196	24.95 (6.73)	61.73	59.18	4.04 (1.37)	2.86 (1.52)	3.52 (1.29)	2.20 (0.86)	2.89 (0.83)	2.56 (0.71)
MEAN	308.81	30.14 (9.69)	62.69	64.43	3.62 (1.19)	3.24 (1.60)	3.16 (1.08)	2.11 (0.85)	2.54 (0.95)	2.41 (0.78)
SD	274.94	5.77 (3.79)	11.61	24.89	0.28 (0.17)	0.58 (0.32)	0.34 (0.21)	0.25 (0.08)	0.24 (0.08)	0.18 (0.08)
MIN	150	20.58 (2.12)	36	12.48	2.82 (0.85)	2.25 (1.03)	2.39 (0.71)	1.55 (0.69)	2.10 (0.74)	2.05 (0.61)
MAX	1566	52.21 (19.34)	85.29	100	4.25 (1.53)	4.28 (2.42)	3.89 (1.53)	2.78 (1.04)	3.04 (1.12)	2.91 (0.92)

Note. F% = percentage of female participants; S% = percentage of student participants; Xpe = Emotional Experience; Xpt = Emotional Expectation; Xps = Emotional Expression; SwL = Satisfaction with life; MiL = Meaning in life; HiL = Harmony in life.

Measures

Emotional experience and social expectations for negative emotions.

The first measure assessed the frequency of negative emotional experiences. Adapted from Krys et al., 2022, participants reported their emotional experiences (e.g., '*your frequency of experience: sad*') of 4 negative emotions– *fearful*, *angry*, *sad* and *ashamed*, with the actual time frame ranged from 1 to 9 (1 = *never*, 3 = *a couple of times a month*, 5 = *once a day*, 7 = *almost every single hour*, 9 = *all the time*). Although such retrospective self-reports may not precisely reflect actual momentary experiences (D. L. Thomas & Diener, 1990), they capture individuals' retrospective experiences and semantic emotion knowledge—that is, beliefs about their emotional tendencies—which renders them comparable to expectation beliefs (Robinson & Clore, 2002).

The second measure captured injunctive norms—participants' beliefs about whether they *should* experience these negative emotions. Items were adapted from Bastian et al. (2012), prompting participants to rate perceived societal expectations for each emotion (e.g., "*Your society expects you should feel: sad*"). The average Cronbach's alpha across nations was .74 for emotional experience (range: .63–.91) and .78 for expectation (range: .56–.94).

In line with recommendations for assessing congruence and incongruence (Edwards, 2002), both predictors were constructed to represent the same content domain and use the same response scale. The current study examines the individuals' congruence and incongruence between their beliefs about experienced and expected negative emotions, as well as how such incongruence varies across emotional contexts.

Well-being. Well-being was measured using three indicators: life satisfaction, meaning in life, and harmony in life. Life satisfaction was assessed using the Satisfaction with Life Scale (Diener et al., 1985), with high internal consistency (mean $\alpha = .84$, range: .70–.92). A sample item is "You are satisfied with your life." Meaning in life was measured using the Presence subscale of the Meaning in Life Questionnaire (Steger et al., 2006), which showed good reliability (mean $\alpha = .88$, range: .71–.93); a

sample item is "You understand your life's meaning." Harmony in life was assessed with the Harmony in Life Scale (Kjell et al., 2016), with satisfactory reliability (mean $\alpha = .79$, range: .66–.89); a sample item is "Most aspects of your life are in balance."

Societal Emotional Environment based on Individual Aggregated Emotional Expression.

To construct the societal emotional environment (SEE) for negative emotions, we used aggregated individual reports of emotional expression. Participants rated how frequently they expressed each of the four negative emotions—*fearful*, *angry*, *sad*, and *ashamed*—in their daily lives (e.g., '*your frequency of expression: sad*'), using the same 1 to 9 scale as for emotional experience described above.

National-level SEE scores were calculated by averaging individual-level emotional expression scores within each country. These aggregated scores reflect the descriptive norms of negative emotion expression in each society. Reliability for the expression items across nations was acceptable, with an average Cronbach's alpha of .70 (range: .50–.83). This approach—aggregating individual-level reports to represent societal norms—has been previously applied in cultural psychology to operationalize normative emotional patterns (De Leersnyder et al., 2014; Krys et al., 2022).

Analytical Strategies

This analysis examines whether the alignment—or misalignment—between personal emotional experience and normative expectations predicts psychological well-being in a direction-sensitive and culturally contingent manner. We conceptualise emotional fit and misfit as experience–norms congruence and incongruence—a structured evaluation of how individuals' emotional experiences align with perceived normative expectations. Driven from our research question, we focus on two levels of this alignment, corresponding to the two hypotheses outlined above:

- H1: At the individual level, we model experience–expectation congruence, where expectations reflect injunctive norms. Based on prior findings (Yeung et al., 2024), we test whether individuals who experience more negative emotion than they believe they should (high experience, low expectation; i.e., Stigmatised

Mismatch) report lower well-being than those who experience less than expected (Protective Mismatch), across countries.

- H2: At the cross-level, we examine how this alignment operates within different cultural emotional climates, operationalised as the societal visibility of negative affect. We hypothesise that the psychological cost of directional misfit—especially Stigmatised Mismatch—is amplified in low-NSEE contexts, where negative emotion is less publicly expressed or socially accepted.

We examine these hypotheses by use polynomial regression with multilevel response surface analysis (MLRSA, Nestler et al., 2019), allowing us to assess both the degree and direction of alignment between experience and expectation, capturing nonlinear and asymmetric effects. We estimated a series of nested models to test our hypotheses (Aguinis et al., 2013):

- Model 0: A null model by adding only a random intercept for country, for partitioning the variance in well-being at different level.
- Model 1: A model with five individual-level predictors derived from polynomial regression: expectation (x), experience (y), and their quadratic and interaction terms (x^2, xy, y^2). These variables were constructed following standard response surface procedures to capture both the degree and direction of experience–expectation (in)congruence (Nestler et al., 2019). All predictors were grand-mean centered, allowing us to model both individual deviation and cross-level interactions on a common referential baseline (see similar practice in Krys et al., 2022). This model directly tests H1, focusing on directional asymmetry—specifically, whether the psychological cost is greater when individuals experience more negative emotion than they believe they should.
- Model 2: An extended Model 1 by adding Negative Societal Emotional Expression (NSEE) as a country-level predictor. This model does not include interaction terms and serves as a baseline model for the cross-level interaction model (Model 3).

- Model 3: A cross-level model with interactions between NSEE and each of the five RSA terms, allowing us to test H2. This model examines whether the psychological effects of experience–expectation (in)congruence vary depending on the normative visibility of negative emotions in a given society.

To summarise the full model specification (Model 3), we estimated the following multilevel polynomial regression model:

$$\begin{aligned} z_{ij} = \; & \beta_0 + \beta_1 x_{ij} + \beta_2 y_{ij} + \beta_3 x_{ij}^2 + \beta_4 x_{ij} y_{ij} + \beta_5 y_{ij}^2 \\ & + \beta_6 g_j + \beta_7 g_j x_{ij} + \beta_8 g_j y_{ij} + \beta_9 g_j x_{ij}^2 \\ & + \beta_{10} g_j x_{ij} y_{ij} + \beta_{11} g_j y_{ij}^2 + u_{0j} + u_{1j} x_{ij} + u_{2j} y_{ij} \\ & + u_{3j} x_{ij}^2 + u_{4j} x_{ij} y_{ij} + u_{5j} y_{ij}^2 + \epsilon_{ij} \end{aligned} \tag{2}$$

z_{ij} represents psychological well-being for individual i in country j. Predictors x and y refer to perceived expectation and emotional experience, respectively, while g_j refers to the country-level negative societal emotional expression (NSEE). Model 0 includes only $\beta_0 + u_{0j}$. Model 1 includes β_1 to β_5 and random slopes for all individual-level RSA predictors (u_{1j} to u_{5j}). Model 2 adds β_6 for the country-level main effect. Model 3 includes cross-level interactions (β_7–β_{11}). Model parameters are interpreted in line with response surface analysis conventions, with particular focus on the structure and direction of (in)congruence, by deriving two conceptual surfaces:

- The line of congruence ($x = y$) captures the effects of being aligned with one's emotional norms—whether high or low in negativity. The slope along this line ($a_1 = \beta_1 + \beta_2$) indicates how well-being changes when both experience and expectation increase together. The curvature ($a_2 = \beta_3 + \beta_4 + \beta_5$) shows whether this alignment has linear or nonlinear effects on well-being.

- The line of incongruence ($x = -y$) captures the consequences of emotional misfit. Of particular interest is the slope along this line ($a_3 = \beta_1 - \beta_2$), which reflects directional asymmetry—whether experiencing more negative emotion than expected is more psychologically costly than the reverse. Additionally, the

curvature along this line ($a_4 = \beta_3 - \beta_4 + \beta_5$) captures whether the effects of misfit intensify nonlinearly as misalignment increases.

In Model 3, interaction terms between NSEE and the RSA predictors are used to test H2. Specifically, moderation of the a_3 parameter by NSEE would suggest that the directional cost of emotional misfit is not culturally neutral, but varies according to how visibly negative emotion is expressed in a society. A stronger negative association in low-NSEE contexts would support the idea that emotional environments shape how misalignment is evaluated and felt. For an overview of multilevel regression parameters and RSA indicators, see Table 13.

Table 13

Overview on Multilevel Regression Parameters and Response Surface Analysis (RSA) Indicators

Parameter	Definition	Description
β_0	Intercept	Baseline level of life satisfaction (z) when all predictors are at their mean.
β_1	Effect of expectation (x)	Effect of negative emotion expectation on life satisfaction.
β_2	Effect of experience (y)	Effect of experienced negative emotions on life satisfaction.
β_3	Quadratic effect of x (x^2)	Curvature effect of negative emotion expectation.
β_4	Interaction between xy	Interaction between expectation and experience.
β_5	Quadratic effect of y (y^2)	Curvature effect of negative emotion experience.
β_6	Effect of nation-level g	Direct effect of national-level negative emotion expression.
β_7	Moderation of $g \times x$	How national-level expression moderates the expectation effect.
β_8	Moderation of $g \times y$	How national-level expression moderates the experience effect.
β_9	Moderation of $g \times x^2$	Moderation of quadratic expectation effects.
β_{10}	Moderation of $g \times xy$	Moderation of expectation-experience interaction.
β_{11}	Moderation of $g \times y^2$	Moderation of quadratic experience effects.
a_1	$\beta_1 + \beta_2$	Slope of the Line of Congruence (LOC), indicating how life satisfaction changes when expectation and experience increase together (i.e., along the $x = y$ axis).
a_2	$\beta_3 + \beta_4 + \beta_5$	Curvature along LOC, determining whether the effect of moving along the $x = y$ axis is linear or non-linear.
a_3	$\beta_1 - \beta_2$	Slope of the Line of Incongruence (LOIC), showing how life satisfaction changes when expectation and experience differ (i.e., along the $x = -y$ axis).
a_4	$\beta_3 - \beta_4 + \beta_5$	Curvature along LOIC, indicating whether the effect of expectation-experience mismatch is linear or non-linear.

Results

We begin by establishing measurement invariance across nations to examine comparability of constructs, followed by multilevel response surface analyses testing the proposed hypotheses across three well-being indicators.

Multigroup Confirmatory Factor Analysis In our study, we specified a MGCFA model consisting of five distinct latent factors: negative emotional experience, negative emotional expectation, satisfaction with life, meaning and harmony in life[8]. For negative emotions, the factors included experiences and expectancies of sadness, shame, fear, and anger; for three types of well-being, the factors included all items measuring each well-being variable. We further specified that each emotional experience was directly linked to its corresponding expectation, allowing us to assess the covariance between experiencing and expecting each specific emotion. The configural model had a satisfactory fit, CFI = .958, RMSEA = .047, SRMR = .036, and all items loaded positively on the constructs they were intended to measure. Therefore, configural invariance was established.

Cheung and Rensvold (2002) recommended the use of other goodness-of-fit indices, such as the change in comparative fit index (ΔCFI), to evaluate measurement invariance. A value of ΔCFI smaller than or equal to -.01 indicates invariance for a MGCFA. However, Rutkowski and Svetina (2014) suggested that when the number of groups is large (e.g., greater than 10 or 20), the conventional ΔCFI -0.01 threshold may be overly stringent. Based on their simulation study in the context of large-scale international surveys, they proposed a more liberal cutoff of ΔCFI -0.02 to account for the increased likelihood of minor model misfit in such conditions. The metric model also had a satisfactory fit CFI = .953, RMSEA = .048, SRMR = .042, and it did not significant differ from the configural model, ΔCFI = -.005, ΔRMSEA = .001, ΔSRMR = .008. Therefore, the scales we used in the current study were metric invariance was

[8] In the original questionnaire, they also include some items for positive emotions. However, the reliabilities of the positive emotions varies a lot across cultures, from .32 to .89. We were not able to develop configural invariance in the current dataset for positive emotions. Thus, we were not include them in the current study and focus solely on the negative emotions.

established, indicating that the factor structures and the relations between factor and items are similar across nations.

Descriptives and Correlations

Descriptive statistics (i.e., M and SD) at the national level are presented in Table 12. Table 14 presents both descriptive statistics and bivariate correlations among the focal variables at the individual and national levels.

At the individual level across all countries, significant correlations were observed among well-being measures. Notably, Life Satisfaction strongly correlated with Harmony in Life ($r = .66, p < .001$). Negative experiences showed a negative correlation with all well-being measures, with the strongest against Harmony in Life ($r = -.22, p < .001$). Individual correlations by nations are available in the supplementary materials. At the national level, Meaning in Life and Harmony in Life demonstrated a robust positive correlation ($r = .74, p < .001$). Additionally, the expectation of negative experiences correlated significantly with Meaning in Life ($r = .48, p < .001$), suggesting a cultural pattern where higher expectations of adversity are associated with greater perceived meaning.

Multilevel Response Surface Analysis

In this section, we examine Hypotheses 1 and 2 using multilevel response surface analysis. Hypothesis 1 concerns the directional asymmetry of emotional incongruence—specifically, whether experiencing more negative emotion than one believes is appropriate predicts lower well-being. This hypothesis is tested across three facets of psychological well-being: (a) life satisfaction (H1a, as in Yeung et al., 2024), (b) meaning in life (H1b), and (c) harmony in life (H1c). Hypothesis 2 predicts that this directional incongruence effect will be moderated by societal norms of emotional expression (NSEE), with stronger effects expected in low-expression contexts.

MLRSA predicting life satisfaction

We first estimated a multilevel response surface model predicting life satisfaction from emotional expectation and experience regarding negative emotions (Model 1). Both variables were centred on their grand means, and their linear, quadratic, and

Table 14

Descriptive statistics and correlations among focal variables at the individual level

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
Individual Level										
1. SwL	2.09	0.88								
2. MiL	2.54	0.97	.55**							
3. HiL	2.41	0.8	.67**	.59**						
4. Experience	3.59	1.23	-.24**	-.23**	-.31**					
5. Expectation	3.26	1.73	-.01	.05**	-.02**	.30**				
6. Expression	3.18	1.17	-.12**	-.10**	-.18**	.75**	.32**			
7. Age	30.54	12.21	.07**	.13**	.10**	-.25**	-.04**	-.19**		
8. Gender[a]	0.64	0.48	.03**	-.06**	-.03**	.10**	-.03**	.09**	-.10**	
9. Student[b]	0.61	0.49	.03**	-.06**	-.03**	.16**	.00	.10**	-.58**	.11**
National level										
1. SwL	2.12	0.26								
2. MiL	2.54	0.26	.38**							
3. HiL	2.41	0.18	.73**	.70**						
4. Experience	3.61	0.28	.02	.19	.09					
5. Expectation	3.21	0.59	.00	.50**	.12	.37**				
6. Expression	3.17	0.33	-.04	.39**	.14	.78**	.54**			
7. Mean age	29.93	5.77	.17	.18	.06	-.49**	.00	-.33*		
8. Female%[a]	64.42	13.45	.18	-.45**	-.18	-.14	-.38**	-.33*	.03	
9. Student%[b]	65.63	24.66	.14	-.28*	.00	.25	-.14	-.02	-.66**	.33*

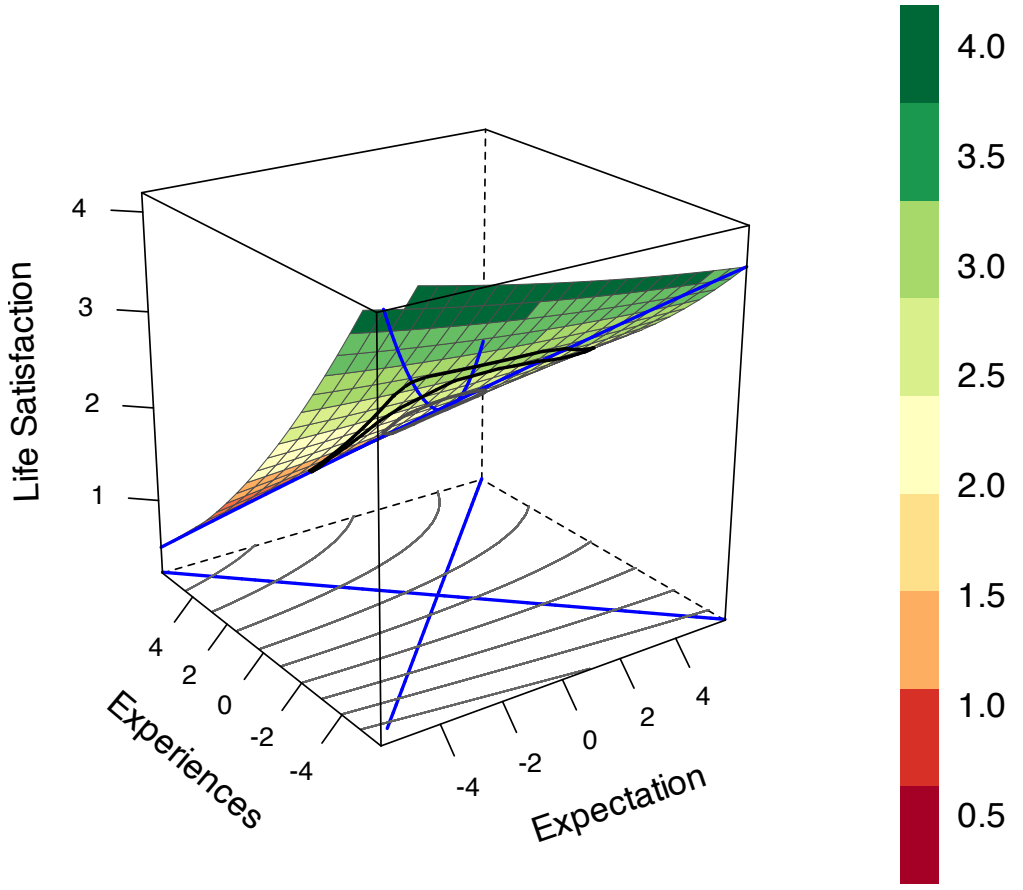
Note. *** $p < .001$, ** $p < .01$, * $p < .05$. SwL = Satisfaction with life; MiL = Meaning in life; HiL = Harmony in life. Gender[a]: 1 = female; 0 = non-female. Student[b]: 1 = student; 0 = non-student

interaction terms were included. The model specified random intercepts and slopes at the country level and was estimated using maximum likelihood. For completeness, the fixed effect estimates of individual polynomial terms are presented in Supplementary Materials. However, interpretations are based on the response surface parameters ($a_1 - a_5$) derived from these coefficients. Figure 6 presents the response surface, where life satisfaction (z_{ij}) is modeled as a function of negative emotional experience (y_{ij}) and social expectation (x_{ij}).

The slope along the Line of Congruence (LOC; where expectation equals experience) was significantly negative ($a_1 = -0.22$, $SE = 0.014$, $z = -16.03$, $p < .001$), suggesting that higher absolute levels of both emotional expectation and experience were associated with lower life satisfaction. The curvature along the LOC was slightly positive ($a_2 = 0.03$, $SE = 0.006$, $z = 4.81$, $p < .001$), indicating an upward-sloping surface rather than a peaked congruence effect. Along the Line of Incongruence (LOIC;

Figure 6

Surface plots display the average response surface parameters of experience-expectation (in)congruence on life satisfaction



Note. The experience-expectation congruence is the combination between emotional experience (y axis) and social expectation (x axis) for negative emotions on life satisfaction (z axis).

where expectation and experience differ), the slope was significantly positive ($a_3 = 0.27$, $SE = 0.020$, $z = 13.54$, $p < .001$), suggesting a directional effect: individuals reported higher life satisfaction when emotional experience exceeded expectation, rather than the reverse, consistent with the Protective Mismatch advantage and supporting H1a (Yeung et al., 2024). However, the curvature along the LOIC was negligible ($a_4 = 0.00$, $SE = 0.009$, $z = 0.10$, $p = .918$), indicating that the mismatch effect was primarily linear rather than quadratic. Finally, the surface's principal axis deviated slightly from the LOC ($a_5 = -0.01$, $SE = 0.005$, $z = -1.86$, $p = .063$), suggesting that the optimal point for life satisfaction did not lie directly on the congruence line, highlighting asymmetries between Stigmatised Mismatch (high experience, low expectation) and

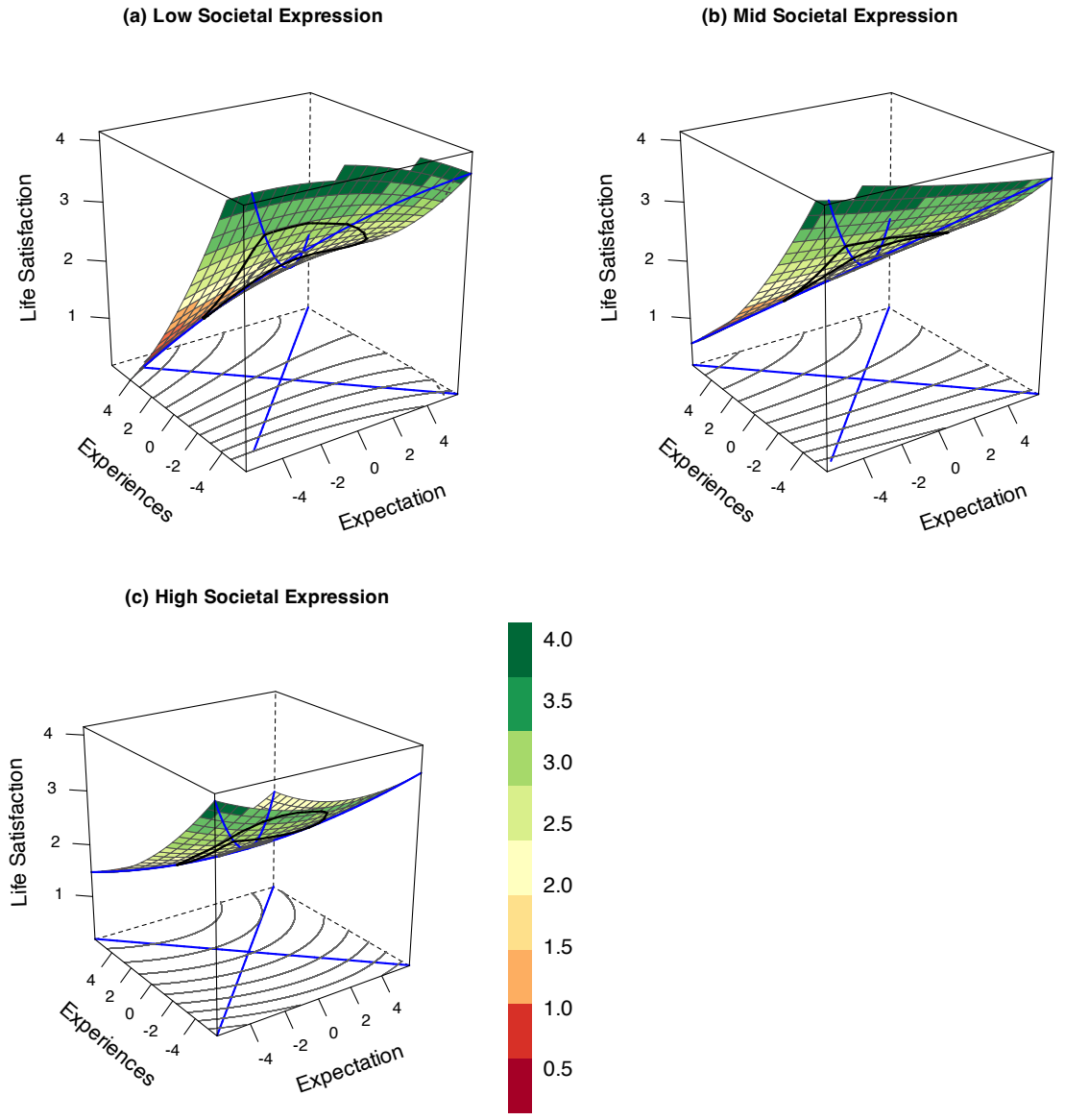
Protective Mismatch (low experience, high expectation).

Before testing our cross-level interaction model, we specified a Model 2 by adding only the level-2 predictor, societal emotional expression (NSEE, g) without cross-level interaction term. It did not yield a significant main effect on life satisfaction ($b = -0.041$, $SE = 0.038$, $p = .288$), suggesting that its influence may manifest through cross-level interactions. We then tested our main model (Model 3), examining whether the response surface parameters varied as a function of societal norms for negative emotional expression (NSEE). Conditional surface estimates were computed for low (-1 SD), average (0), and high ($+1$ SD) levels of NSEE, as illustrated in Figure 7.

At low NSEE levels (-1 SD), the slope along the Line of Congruence ($a_1 = -0.28$, $SE = 0.017$, $p < .001$) was strongly negative, suggesting that higher emotional intensity—regardless of congruence—was associated with lower life satisfaction. The curvature along the LOC remained upward ($a_2 = 0.03$, $SE = 0.009$, $p = .001$), and the incongruence slope ($a_3 = 0.36$, $SE = 0.024$, $p < .001$) was strongly positive, indicating a pronounced penalty for Stigmatised Mismatch: individuals were more satisfied when their emotional experience exceeded their expectation (Protective Mismatch), rather than the reverse. The LOIC curvature ($a_4 = -0.01$, $p = .34$) was not significant, and the surface apex deviated from the LOC ($a_5 = -0.023$, $p = .009$). At mean NSEE ($g = 0$), the pattern was similar but less extreme. The LOC slope was moderately negative ($a_1 = -0.22$, $SE = 0.011$, $p < .001$), and the mismatch slope remained significant ($a_3 = 0.27$, $SE = 0.016$, $p < .001$). The surface peak still deviated from the congruence line ($a_5 = -0.011$, $p = .045$), indicating a preference for mild Protective Mismatch. At high NSEE levels ($+1$ SD), the mismatch slope diminished considerably ($a_3 = 0.19$, $SE = 0.022$, $p < .001$), and the LOC slope became less negative ($a_1 = -0.16$, $SE = 0.014$, $p < .001$), suggesting a general attenuation of both emotional intensity and incongruence effects. The surface's principal axis no longer deviated from the LOC ($a_5 \approx 0$, $p = .92$), indicating that in high-NSEE societies, congruence regained prominence as the most optimal emotional configuration, reducing the psychological costs associated with Stigmatised Mismatch.

Figure 7

The surface plots display the average response surface of experience-expectation (in)congruence for negative emotions on life satisfaction across (a) low, (b) mid, and (c) high levels of the negative societal emotional environment



MLRSA predicting meaning and harmony in life

For the main model predicting meaning in life, at low NSEE levels, the slope along the LOC ($a_1 = -0.30$, $SE = 0.018$, $p < .001$) was strongly negative, indicating that individuals experiencing both high expectations and high emotional intensity reported lower meaning in life. The curvature along the LOC remained upward ($a_2 = 0.042$, $SE = 0.010$, $p < .001$), while the slope along the LOIC was also pronounced ($a_3 = 0.40$, $SE = 0.032$, $p < .001$, H1b supported), suggesting a clear directional mismatch effect consistent with the Protective Mismatch: meaning in life was higher when emotional experience exceeded expectations rather than when Stigmatised Mismatch occurred. The surface apex did not significantly deviate from the LOC ($a_5 = -0.012$, $p = .22$). At average NSEE levels, a similar structure emerged: $a_1 = -0.24$ ($SE = 0.012$, $p < .001$), $a_3 = 0.32$ ($SE = 0.021$, $p < .001$), and $a_5 = -0.004$ ($p = .54$). These results indicate a stable directional mismatch effect across typical societal contexts. At high NSEE levels, both slopes attenuated: $a_1 = -0.19$ ($SE = 0.016$, $p < .001$) and $a_3 = 0.23$ ($SE = 0.029$, $p < .001$). This moderation pattern suggests that the negative impact of high emotional intensity, as well as the directional mismatch, became less pronounced in high-expression societies, where Stigmatised Mismatch carries a reduced psychological cost. Again, the principal axis of the surface ($a_5 = 0.004$, $p = .58$) did not deviate significantly from the LOC.

For the main model predicting harmony in life, at low NSEE levels, the surface structure reflected a strong directional mismatch pattern: the slope along the Line of Congruence was notably negative ($a_1 = -0.31$, $SE = 0.017$, $p < .001$), while the slope along the Line of Incongruence was positive and significant ($a_3 = 0.37$, $SE = 0.028$, $p < .001$, H1c supported). This indicates that Protective Mismatch was associated with higher harmony in life relative to Stigmatised Mismatch. The surface curvature along the LOC ($a_2 = 0.027$, $p = .001$) was upward, and the apex of the surface did not significantly deviate from the LOC ($a_5 = -0.011$, $p = .25$). At average levels of NSEE, the pattern remained stable: $a_1 = -0.26$ ($SE = 0.011$, $p < .001$), $a_3 = 0.30$ ($SE = 0.018$, $p < .001$), and $a_5 = -0.011$ ($p = .081$), again indicating a directional

incongruence effect without a significant deviation of the surface peak from the congruence line. At high levels of NSEE, the mismatch slope a_3 declined (0.23, $SE = 0.026$, $p < .001$), and the congruence slope became less negative ($a_1 = -0.22$, $SE = 0.015$, $p < .001$). Although the LOIC curvature reached significance ($a_4 = 0.027$, $p = .024$), the surface peak still did not significantly deviate from the LOC ($a_5 = -0.011$, $p = .20$), consistent with an attenuation of the Stigmatised Mismatch impact in high-expression societies.

To examine whether societal emotional environments moderate these relations, Model 3 incorporated SEE as a Level 2 moderator. The results indicated that the degree to which expectation-experience congruence is associated with life satisfaction differs across societal contexts. In societies with higher levels of negative emotional expression, the negative impact of expectation-experience incongruence (Stigmatised Mismatch) appears more pronounced, while in societies with lower levels of negative emotional expression, the well-being differences between congruent and incongruent individuals are relatively attenuated, reflecting a buffering effect on Protective-Stigmatised Mismatch contrast.

Discussion

This study examined how emotional fit—specifically, the (in)congruence between emotional experience and cultural expectations—relates to well-being across three indicators: life satisfaction, meaning in life, and harmony in life. Using multilevel response surface analysis, we found consistent evidence for directional asymmetry in emotional incongruence, as well as cultural moderation of these effects by societal norms of emotional expression (NSEE).

Across all outcomes, individuals reported greater well-being when their emotional experience exceeded societal expectations, rather than the reverse. This asymmetry supports a directional interpretation of emotional misfit, consistent with the concept of Protective Mismatch where exceeding emotional expectations is associated with better outcomes, contrasting with Stigmatised Mismatch where falling short or underexpressing is linked to poorer well-being in most cultural contexts.

Furthermore, we found that the strength of these misfit effects was moderated by societal norms of emotional expression. In low-expression cultures, emotional intensity and incongruence were strongly predictive of well-being, indicating a pronounced psychological cost of Stigmatised Mismatch. In contrast, in high-expression cultures, the psychological impact of both Stigmatised Mismatch and Protective Mismatch was attenuated, suggesting that expressive norms act as regulatory buffers that mitigate the social and emotional consequences of emotional deviation within the cultural climate.

These findings contribute to a broader understanding of emotion-culture interactions by showing that emotional fit is not only a personal experience but also a culturally contingent construct. To interpret these findings, we turn to theoretical perspectives that frame emotional fit as a norm-evaluative process, shaped by the social meanings and moral weight assigned to emotional deviation, distinguishing between Stigmatised Mismatch and Protective Mismatch as culturally meaningful patterns.

Integrated Discussion

The present findings support a growing view that emotional fit is not merely a matter of alignment, but a form of normative evaluation. When individuals assess whether their emotions "fit," they are not simply comparing felt states to abstract standards. They are evaluating whether their emotions conform to what is socially, morally, or culturally expected—what one should feel in a given role, setting, or relationship. This evaluative process underpins the distinction between Stigmatised Mismatch (when emotional experience falls short of expectations, carrying social penalties) and Protective Mismatch (when emotional experience exceeds expectations, which may confer psychological benefits).

This evaluative process is particularly evident in the asymmetry of emotional misfit. When people feel more negatively than they believe they should, they are not only aware of incongruence—they are likely to interpret it as a moral deviation, a failure to manage emotions properly, or even a threat to their social identity. Self-discrepancy theory (Higgins, 1987) describes this as a gap between the actual and "ought" self, which generates distress when emotional expression violates internalised

norms. Similarly, cognitive dissonance theory (Festinger, 1957; Harmon-Jones & Mills, 2019) suggests that misalignment between emotional experience and social expectations induces psychological tension, prompting individuals to suppress, justify, or reframe their feelings. These processes exemplify Stigmatised Mismatch, where emotional deviation triggers social and internal penalties.

Such dynamics indicate that emotional misfit is not a neutral mismatch, but a socially encoded deviation. Emotions are not judged solely by their intensity or frequency, but by whether they uphold or violate affective norms—norms that are contextually defined, morally loaded, and culturally variable. The psychological costs observed in this study thus reflect not only affective conflict, but normative dissonance. Emotional fit, in this light, is best understood as a form of affective legitimacy: to feel appropriately is to be socially intelligible, avoiding the pitfalls of Stigmatised Mismatch while potentially benefiting from Protective Mismatch.

Cultural moderation as regulatory buffering

The moderating role of societal emotional expression suggests that cultural norms do not merely dictate what emotions are typical—they also influence how emotional misfit is experienced and interpreted. In societies where negative emotions are frequently expressed and publicly visible (i.e., high-NSEE contexts), emotional incongruence may be viewed as less unusual or threatening, thus reducing Stigmatised Mismatch effects. In contrast, in low-NSEE contexts, where negative emotion is downregulated or suppressed, emotional misfit may carry stronger evaluative consequences and be more readily perceived as Stigmatised Mismatch.

These findings support the view that cultural emotional climates function as regulatory buffers. Emotional expression norms are not passive reflections of what people feel; they are active constraints and affordances that shape what emotions can be shown, interpreted, or sanctioned. When negative emotion is normatively visible, individuals may perceive a broader range of emotional experience as socially legitimate, increasing the prevalence of Protective Mismatch. This broader affective bandwidth reduces the psychological toll of misfit by increasing its interpretive flexibility—feeling

more than expected is no longer a signal of deviance, but a plausible variation within an accepted range.

In this way, emotional fit is not universally defined. The very boundaries of what counts as "too much" or "not enough" are stretched or compressed by a society's emotional affordances. Rather than acting as static benchmarks, cultural norms for emotional expression actively shape the thresholds at which emotional misalignment becomes psychologically consequential. By revealing this moderation, our findings highlight the need to conceptualise emotion norms not only as internalised guides, but also as external buffers—cultural filters through which affective life becomes manageable, meaningful, or moralised, mediating the balance between Stigmatised Mismatch and Protective Mismatch.

Methodological contribution: Modeling multilevel, directional misfit

This study also advances methodological approaches to the study of emotional fit by applying multilevel response surface analysis (MLRSA). Conventional approaches to discrepancy often rely on difference scores, which obscure the distinct contributions of direction and magnitude. RSA allows for a more comprehensive assessment of fit, capturing not only whether emotional experience and expectations align, but also the directionality and curvature of their mismatch (Nestler et al., 2019). Specifically, we modelled the slope along the line of incongruence (a_3) to assess directional misfit—whether the psychological cost differs when individuals feel more versus less negativity than expected. This parameter, inaccessible via standard regression or moderation approaches, reveals asymmetries in the evaluation of emotional deviation, particularly distinguishing Stigmatised Mismatch—when excess negative emotion is experienced beyond expectations and carries a stronger psychological cost—from Protective Mismatch, which may reflect tolerated or culturally buffered deviations. In our model, a_3 consistently showed stronger negative associations with well-being when individuals experienced more negativity than they felt they should, indexing the impact of Stigmatised Mismatch.

A step forward, MLRSA further enabled us to account for cross-national

variation in emotional norms. By allowing random slopes and testing cross-level interactions with societal emotional expression (NSEE), the model accommodated both individual deviation and macro-level moderation. This analytic integration strengthens claims about the cultural contingency of emotional fit and the differential roles of Stigmatised Mismatch and Protective Mismatch, providing a template for future investigations into other norm-based psychological constructs.

Limitations and directions for future research

While this study offers new insights into the dynamics of emotional fit, several limitations should be acknowledged. First, the data are cross-sectional and based on retrospective self-reports. This design limits our ability to capture dynamic emotional processes or establish causal relations between emotional misfit—including both Stigmatised Mismatch and Protective Mismatch—and well-being. Longitudinal or experience sampling designs would be better suited to track how emotional fit unfolds over time and across contexts.

Second, the present analysis focused exclusively on negative emotions. While this choice was theoretically grounded—given the asymmetry in social regulation of affect (Gross & John, 2003)—it leaves open the question of whether similar patterns hold for positive emotions. Future research could examine whether over- or under-experiencing culturally valued positive emotions (e.g., pride, enthusiasm, calm) elicits distinct psychological costs or benefits (Manokara et al., 2023, 2024), and their cross-level interaction.

Third, although the sample included 48 nations, the distribution of cases across countries was uneven, and not all regions or cultural clusters were equally represented. While our models accounted for sample size differences statistically, future studies would benefit from more representative sampling or targeted comparisons across matched cultural contexts.

Finally, the current study examined internalised emotional norms but did not incorporate real-time interpersonal feedback or social interactions. Since emotional fit is often negotiated in dynamic social contexts, future research could explore how

emotional misfit—particularly Stigmatised Mismatch as socially sanctioned deviation or Protective Mismatch as tolerated variation—is perceived and sanctioned by others—e.g., in workplace, familial, or online settings—using observational or experimental methods.

Concluding remarks: What it means to feel rightly

Emotional fit is more than a psychological outcome—it is a social judgement. To feel appropriately is to be seen as emotionally competent, morally adequate, and socially attuned. Across cultures, this judgement is shaped by complex systems of norms that dictate not only what people should feel, but how deviations from these expectations are perceived. In this sense, emotional fit operates as a mirror of social legitimacy: it reflects how individuals internalise, navigate, and sometimes resist the emotional orders that surround them.

This study contributes to a growing recognition that emotions are not merely felt—they are evaluated, sanctioned, and situated within normative frameworks. By showing that the consequences of emotional misfit depend on both its direction and its cultural context, we underscore the need for a more contextualised, socially embedded understanding of emotional life.

Chapter 5. General Discussion

This dissertation posed four interrelated research questions to examine how emotional life is shaped by societal norms and structured across levels. This four empirical studies together, hopefully, provide a cohesive theoretical arc that integrates emotion as a psychological, normative, and sociocultural phenomenon.

In Chapter 2, we examined how societal patterns of emotional expression relate to individual well-being (RQ1). This was addressed through the concept of Societal Emotional Environments (SEE), demonstrating that both positive and negative emotional climates—when aggregated at the national level—are systematically linked to subjective life satisfaction, above and beyond individual emotion reports. These findings show that public emotional visibility constitutes a social structure with psychological implications.

Chapter 3 explored the extent to which individuals' emotional expressions reflect their internal experiences, and how this alignment varies with societal conditions (RQ2). By examining experience–expression discrepancies across countries, this study revealed that under-expression of negative emotions is more prevalent in socially cohesive, high-trust environments. This suggests that expressiveness is not merely a personal trait, but is responsive to collective norms and structural affordances.

Chapter 4 firstly investigated the effects of congruence and incongruence between emotional experience and perceived emotional expectations (RQ3). Drawing on self-discrepancy theory, this study showed that mismatches between felt and expected emotions—particularly low experience coupled with high expectation, conceptualised here as a Stigmatised Mismatch—predict lower well-being, reflecting what is conceptualised as cognitive-affective dissonance. Then RQ4 extended RQ3 by testing whether societal-level emotional climates moderate the impact of person-level (in)congruence. The multilevel analysis showed that in societies where negative emotions are more commonly expressed, the psychological cost of emotional incongruence—often a Protective Mismatch—is attenuated. In contrast, in emotionally restrained societies, norm–experience misfit is more detrimental to well-being. This

pattern highlights that the meaning of fit is contingent on macro-level norms.

Theoretical Implications

First, it reconceptualizes emotional fit as a dynamic process of evaluative positioning within a normative environment. Instead of treating fit as a static match between internal states and external expectations, the findings suggest that individuals engage in an ongoing assessment of whether their emotions are appropriate relative to internalised and perceived standards. This reframing positions emotional fit not as a property of experience, but as a judgment shaped by normative cues and socio-relational context.

Second, the dissertation operationalises a dual-norm framework, distinguishing between injunctive norms (what emotions one ought to feel) and descriptive norms (what emotions others typically express). This distinction allows for a more precise analysis of emotional (mis)alignment and identifies separate pathways through which normativity exerts its effects. Descriptive norms are further elevated to a macro-level construct—captured in the concept of societal emotional environments (SEE)—that contextualizes the lived experience of emotion within shared expressive climates.

Third, the integration of these normative dimensions into a multilevel analytic design expands the theoretical scope of emotion research. By nesting person-level evaluations within national-level expressive climates, the dissertation proposes that emotional life is conditioned by structural affordances and constrained by cultural expressive norms. This offers a formalised model of cross-level norm–fit relations, where macro-level conditions shape the psychological meaning and consequence of norm violations.

Fourth, the use of response surface analysis (RSA) enables a directional analysis of emotional misfit, clarifying that the consequences of incongruence differ by mismatch type. Notably, low emotional experience paired with high normative expectation—a Stigmatised Mismatch—is associated with particularly adverse outcomes. This asymmetry is theoretically anchored in self-discrepancy theory—where emotional oughts signal motivational standards—and cognitive dissonance theory. The RSA findings

thereby demonstrate that emotional misalignment is not uniformly negative but direction-sensitive.

Finally, the concept of societal emotional environments is theorised not only as a contextual condition but as a moderator of emotional incongruence. Societies that permit more visible negative emotion expression provide a Protective Mismatch environment that attenuates the psychological costs of emotional misfit, functioning as normative buffers. This introduces emotional norm visibility as a cultural regulatory mechanism that shapes how norm violations are experienced and processed at the individual level. As such, macro-level expressive norms do not merely prescribe affect but modulate its psychological impact.

Practical Applications

First, the construct of Societal Emotional Environments (SEE) offers a framework for tracking collective emotional climates as sociological indicators. The national-level frequency of expressed positive and negative emotions, as measured through large-scale self-report data, may reflect not only public affective norms but also shifting social moods and perceived emotional affordances. This approach complements existing social indicators, such as GDP or trust, by providing a lens on how emotional expressivity—particularly its public visibility—may signal systemic stress or cohesion. Policymakers and institutions could monitor emotional climates over time to better understand the affective texture of social change, or to evaluate the emotional costs of large-scale disruptions.

Second, the concept of emotional (in)congruence, particularly between emotional experience and perceived expectations, may serve as a complementary signal for identifying psychological stress or regulatory strain. Individuals who report persistent mismatches—especially those exhibiting a Stigmatised Mismatch of feeling less than they believe they ought to—may be at heightened risk for internal tension, reduced well-being, and downstream health impacts. Emotional misfit may not always be consciously articulated, but patterns of divergence could be identified through brief survey instruments and used alongside conventional mental health screening tools to

detect latent forms of affective conflict or burnout, especially in high-demand normative environments.

Third, experience–expression discrepancies highlight the importance of aligning emotional support with cultural expectations in contexts of migration or cross-cultural mobility. Emotion expression norms are not universal; under-expression of negative emotions, for example, may be normative in high-trust societies and misinterpreted elsewhere as avoidance or suppression. Awareness of these structural discrepancies and the existence of Protective Mismatch environments may help design more culturally responsive onboarding or adjustment programs for immigrants, international students, or expatriates. Interventions that acknowledge norm gaps, rather than framing them as deficiencies, may foster emotional adaptation and reduce stigma around divergent expression patterns.

Finally, the distinction between injunctive and descriptive emotion norms can inform emotion education and cross-cultural communication training. Rather than treating emotion regulation strategies as universally beneficial or maladaptive, educators and practitioners might emphasize their normative embeddedness and cultural variability. This orientation can reduce bias in emotion socialisation practices, particularly in educational, healthcare, or diplomatic contexts where misalignment between internal experience and display rules is common. By raising awareness of how emotional expectations operate within social systems, the dissertation's findings may contribute to a more nuanced and socially grounded understanding of emotion in practice.

Future Directions

While this dissertation contributes to a multilevel understanding of emotion in normative contexts, several directions remain open for future research. The findings underscore the importance of studying emotion not merely as an individual experience, but as a socially situated phenomenon embedded in cultural norms and shaped by structural conditions. Building on this foundation, future work may further develop the theoretical, methodological, and contextual reach of emotional norm research across

three emerging areas.

First, future studies could focus on communal emotional episodes—emotionally charged events that are collectively experienced yet unfold outside formal institutions. While this dissertation models societal emotional environments through aggregate patterns of expression, it does not capture how emotional norms manifest in temporally specific episodes such as elections, protests, or collective mourning. These situations offer a unique opportunity to study the dynamic co-construction of emotional fit in action. By modeling emotion as a time-sensitive, interactional process that gains meaning through shared participation, researchers can examine how norms are enacted, reinforced, or contested in situ. Approaches such as event-based sampling, digital ethnography, or sequential emotion tracking may allow for the empirical capture of emotional convergence and divergence across actors in shared affective contexts. These studies could further clarify how micro-level emotion dynamics feed into—or deviate from—macro-level expressive climates, offering a more complete picture of norm formation and transformation.

Second, a key limitation of this dissertation lies in its reliance on non-probability sampling. Future research could prioritize the construction of representative, cross-culturally calibrated samples to ensure greater generalisability and cultural validity. This would involve recruiting participants using stratified random sampling across diverse cultural, linguistic, and demographic strata, ideally with harmonised field protocols. Such efforts would enable the development of standardised metrics for injunctive and descriptive emotion norms, facilitating their comparison across societies. This would also make it possible to move beyond national-level proxies toward more granular, within-country analyses of emotional norm diversity, including urban-rural distinctions, subcultural formations, and regional emotional ecologies. Ultimately, large-scale, representative sampling would support the refinement of emotional fit as a cross-culturally measurable construct and clarify its role in psychological adaptation.

Third, future work should extend emotional norm research to the context of global mobility and migration. As individuals move across cultural boundaries, they

encounter competing or conflicting emotion norms that may challenge their habitual expression and experience patterns. Building on the notion of emotional fit, future studies could explore bicultural or transnational affective alignment—how immigrants, refugees, or expatriates navigate dual normative systems in their emotional lives. Of particular interest is the psychological impact of norm conflict: when expectations from the host society diverge from internalised norms of the culture of origin, individuals may experience emotional ambivalence, misrecognition, or social sanction. These dynamics may be especially salient in high-stakes contexts such as healthcare, education, or law enforcement, where emotion display is socially regulated but culturally variable. Empirical work in this area could adopt a mixed-methods approach, combining narrative interviews with survey instruments that assess perceived norm misfit, emotion regulation strategies, and well-being outcomes. Additionally, constructing dual SEE indicators—for origin and destination societies—could allow researchers to model affective dissonance at the macro-structural level, offering a new perspective on cultural adaptation beyond behavioral or identity-focused models.

Concluding Remarks

This dissertation began with the dystopian vision from *Brave New World*: when emotion becomes an object of social design—expected, encouraged, calibrated—what kind of society does it reveal? What would be the consequences in lived reality? The work has since traced these questions across four empirical studies, each grounded in the premise that emotion is both individual *and* social. It belongs to persons, and yet it is made legible—and often consequential—through the social contexts. By recognising the embedded belief about emotion, perhaps we come closer to asking how feeling becomes a way of being in the world, and to provide an alternative vision of a more emotionally diverse society.

References

Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, *39*(6), 1490–1528. https://doi.org/10.1177/0149206313478188

Alessandri, G., Cenciotti, R., Łaguna, M., Różycka-Tran, J., & Vecchione, M. (2017). Individual-level and culture-level self-esteem: A test of construct isomorphism. *Journal of Cross-Cultural Psychology*, *48*(9), 1328–1341. https://doi.org/10.1177/0022022117722633

Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The 'other-praising' emotions of elevation, gratitude, and admiration. *The Journal of Positive Psychology*, *4*(2), 105–127. https://doi.org/10.1080/17439760802650519

Allport, F. H. (1954). The structuring of events: Outline of a general theory with applications to psychology. *Psychological Review*, *61*(5), 281–303. https://doi.org/10.1037/h0062678

Badaan, V., & Choucair, F. (2023). Toward culturally sensitive development paradigms: New shifts, limitations, and the role of (cross-) cultural psychology. *Journal of Cross-Cultural Psychology*, *54*(2), 232–248. https://doi.org/10.1177/00220221211073671

Baker, L. R., McNulty, J. K., & Overall, N. C. (2014). When negative emotions benefit close relationships. In *The positive side of negative emotions* (pp. 101–125). The Guilford Press.

Barrett, L. F. (2018, March 13). *How emotions are made: The secret life of the brain* (Reprint edition). Mariner Books.

Bastian, B., Kuppens, P., Hornsey, M. J., Park, J., Koval, P., & Uchida, Y. (2012). Feeling bad about being sad: The role of social expectancies in amplifying negative mood. *Emotion*, *12*(1), 69–80. https://doi.org/10.1037/a0024755

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*(4), 323–370. https://doi.org/10.1037/1089-2680.5.4.323

Bennett, O. (2011). Cultures of optimism. *Cultural Sociology*, *5*(2), 301–320. https://doi.org/10.1177/1749975511401270

Berry, D. S., & Hansen, J. S. (1996). Positive affect, negative affect, and social interaction. *Journal of Personality and Social Psychology*, *71*(4), 796–809. https://doi.org/10.1037/0022-3514.71.4.796

Boiger, M., & Mesquita, B. (2012). The construction of emotion in interactions, relationships, and cultures. *Emotion Review*, *4*(3), 221–229. https://doi.org/10.1177/1754073912439765

Breetzke, J., & Wild, E.-M. (2022). Social connections at work and mental health during the first wave of the COVID-19 pandemic: Evidence from employees in germany. *PLOS ONE*, *17*(6), e0264602. https://doi.org/10.1371/journal.pone.0264602

Brown, C. L., Van Doren, N., Ford, B. Q., Mauss, I. B., Sze, J. W., & Levenson, R. W. (2020). Coherence between subjective experience and physiology in emotion: Individual differences and implications for well-being. *Emotion*, *20*(5), 818–829. https://doi.org/10.1037/emo0000579

Busseri, M. A. (2018). Examining the structure of subjective well-being through meta-analysis of the associations among positive affect, negative affect, and life satisfaction. *Personality and Individual Differences*, *122*, 68–71. https://doi.org/10.1016/j.paid.2017.10.003

Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Emotion*, *7*(1), 30–48. https://doi.org/10.1037/1528-3542.7.1.30

Cameron, L. D., & Overall, N. C. (2018). Suppression and expression as distinct emotion-regulation processes in daily interactions: Longitudinal and meta-analyses. *Emotion*, *18*(4), 465–480. https://doi.org/10.1037/emo0000334

Campos, B., Shiota, M. N., Keltner, D., Gonzaga, G. C., & Goetz, J. L. (2013). What is shared, what is different? core relational themes and expressive displays of eight positive emotions. *Cognition & Emotion*, *27*(1), 37–52. https://doi.org/10.1080/02699931.2012.683852

Chang, E. C., Chang, O. D., Li, M., Xi, Z., Liu, Y., Zhang, X., Wang, X., Li, Z., Zhang, M., Zhang, X., & Chen, X. (2019). Positive emotions, hope, and life satisfaction in chinese adults: A test of the broaden-and-build model in accounting for subjective well-being in chinese college students. *The Journal of Positive Psychology*, *14*(6), 829–835. https://doi.org/10.1080/17439760.2019.1579358

Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Review*, *14*(3), 333–349. https://doi.org/10.5465/amr.1989.4279063

Chervonsky, E., & Hunt, C. (2017). Suppression and expression of emotion in social and interpersonal outcomes: A meta-analysis. *Emotion*, *17*(4), 669–683. https://doi.org/10.1037/emo0000270

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

De Leersnyder, J., Mesquita, B., Kim, H., Eom, K., & Choi, H. (2014). Emotional fit with culture: A predictor of individual differences in relational well-being. *Emotion*, *14*(2), 241–245. https://doi.org/10.1037/a0035296

Dejonckheere, E., Rhee, J. J., Baguma, P. K., Barry, O., Becker, M., Bilewicz, M., Castelain, T., Costantini, G., Dimdins, G., Espinosa, A., Finchilescu, G., Friese, M., Gastardo-Conaco, M. C., Gómez, A., González, R., Goto, N., Halama, P., Hurtado-Parrado, C., Jiga-Boy, G. M., ... Bastian, B. (2022). Perceiving societal pressure to be happy is linked to poor well-being, especially

in happy nations. *Scientific Reports*, *12*(1), 1514. https://doi.org/10.1038/s41598-021-04262-z

Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, *69*(5), 851–864. https://doi.org/10.1037/0022-3514.69.5.851

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Lucas, R. E., & Oishi, S. (2002). Sujective well-being: The science of happiness and life satisfaction. In *Handbook of positive psychology* (pp. 463–73). Oxford University Press.

Diener, E., Tay, L., & Oishi, S. (2013). Rising income and the subjective well-being of nations. *Journal of Personality and Social Psychology*, *104*(2), 267–276. https://doi.org/10.1037/a0030487

Edwards, J. R. (2002). Alternatives to difference scores: Polynomial regression analysis and response surface methodology. In *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 350–400). Jossey-Bass/Wiley.

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Academy of Management Journal*, *36*, 1577–1613. https://doi.org/10.5465/256822

Ekman, P. (1992). An argument for basic emotions. *Cognition and Emotion*, *6*(3), 169–200. https://doi.org/10.1080/02699939208411068

Ekman, P. (1999). Basic emotions. In *Handbook of cognition and emotion* (pp. 45–60). John Wiley & Sons, Ltd. Retrieved January 26, 2024, from https://onlinelibrary.wiley.com/doi/abs/10.1002/0470013494.ch3

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Fischer, R., Vauclair, C.-M., Fontaine, J. R. J., & Schwartz, S. H. (2010). Are individual-level and country-level value structures different? testing hofstede's

legacy with the schwartz value survey. *Journal of Cross-Cultural Psychology*, *41*(2), 135–151. https://doi.org/10.1177/0022022109354377

Ford, B. Q., & Gross, J. J. (2019). Why beliefs about emotion matter: An emotion-regulation perspective. *Current Directions in Psychological Science*, *28*(1), 74–81. https://doi.org/10.1177/0963721418806697

Ford, B. Q., Lam, P., John, O. P., & Mauss, I. B. (2018). The psychological health benefits of accepting negative emotions and thoughts: Laboratory, diary, and longitudinal evidence. *Journal of Personality and Social Psychology*, *115*(6), 1075–1092. https://doi.org/10.1037/pspp0000157

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Fridlund, A. J. (1994). *Human facial expression: An evolutionary view*. Academic Press.

Frijda, N. H., Manstead, A. S. R., & Bem, S. (2000). The influence of emotions on beliefs. In A. S. R. Manstead, N. H. Frijda, & S. Bem (Eds.), *Emotions and beliefs: How feelings influence thoughts* (pp. 1–9). Cambridge University Press. Retrieved June 2, 2025, from https://www.cambridge.org/core/books/emotions-and-beliefs/influence-of-emotions-on-beliefs/79E3DC86097347A3A99CCFE8AA0035C3

Garza, R. T. (1978). Affective and associative qualities in the learning styles of chicanos and anglos. *Psychology in the Schools*, *15*(1), 111–115. https://doi.org/10.1002/1520-6807(197801)15:1<111::AID-PITS2310150121>3.0.CO;2-Y

Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., Duan, L., Almaliach, A., Ang, S., Arnadottir, J., Aycan, Z., Boehnke, K., Boski, P., Cabecinhas, R., Chan, D., Chhokar, J., D'Amato, A., Subirats Ferrer, M., Fischlmayr, I. C., ... Yamaguchi, S. (2011). Differences between tight and loose cultures: A 33-nation study. *Science*, *332*(6033), 1100–1104. https://doi.org/10.1126/science.1197754

Gilan, D., Werner, A. M., Hahad, O., Lieb, K., Frankenberg, E., & Bongard, S. (2022). Acculturation and anger expression among iranian migrants in germany. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.715152

Graham, S. M., Huang, J. Y., Clark, M. S., & Helgeson, V. S. (2008). The positives of negative emotions: Willingness to express negative emotions promotes relationships. *Personality and Social Psychology Bulletin*, *34*(3), 394–406. https://doi.org/10.1177/0146167207311281

Greenaway, K. H., Kalokerinos, E. K., & Williams, L. A. (2018). Context is everything (in emotion research). *Social and Personality Psychology Compass*, *12*(6), e12393. https://doi.org/10.1111/spc3.12393

Gross, J. J. (1998a). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237. https://doi.org/10.1037/0022-3514.74.1.224

Gross, J. J. (1998b). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*(3), 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In *Handbook of emotion regulation, 2nd ed* (pp. 3–20). The Guilford Press.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Gross, J. J., John, O. P., & Richards, J. M. (2000). The dissociation of emotion expression from emotion experience: A personality perspective. *Personality and Social Psychology Bulletin*, *26*(6), 712–726. https://doi.org/10.1177/0146167200268006

Gross, J. J., Richards, J. M., & John, O. P. (2006). Emotion regulation in everyday life. In *Emotion regulation in couples and families: Pathways to dysfunction and health* (pp. 13–35). American Psychological Association.

Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: Methodology and findings. *Journal of World Business*, *37*(1), 11–15. https://doi.org/10.1016/S1090-9516(01)00070-0

Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2022). World values survey: Round seven—country-pooled datafile version 5.0. *JD Systems Institute: Madrid, Spain*.

Haidt, J., & Keltner, D. (1999). Culture and facial expression: Open-ended methods find more expressions and a gradient of recognition. *Cognition and Emotion*, *13*(3), 225–266. https://doi.org/10.1080/026999399379267

Hareli, S., Kafetsios, K., & Hess, U. (2015). A cross-cultural study on emotion expression and the learning of social norms. *Frontiers in Psychology*, *6*. https://doi.org/10.3389/fpsyg.2015.01501

Harmon-Jones, E., & Mills, J. (2019). *Cognitive dissonance: Reexamining a pivotal theory in psychology*. American Psychological Association.

Harvey, S. T., Bimler, D., Evans, I. M., Kirkland, J., & Pechtel, P. (2012). Mapping the classroom emotional environment. *Teaching and Teacher Education*, *28*(4), 628–640. https://doi.org/10.1016/j.tate.2012.01.005

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science*, *2*(3), 96–100. https://doi.org/10.1111/1467-8721.ep10770953

Helliwell, J. F., Layard, R., & Sachs, J. D. (2019, March 20). *World happiness report 2019*. Retrieved October 22, 2024, from https://worldhappiness.report/ed/2019/

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, *94*(3), 319–340. https://doi.org/10.1037/0033-295X.94.3.319

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.

Hofstede, G. (2010, May 24). *Cultures and organizations: Software of the mind, third edition* (3rd edition). McGraw Hill.

Hornsey, M. J., Bain, P. G., Harris, E. A., Lebedeva, N., Kashima, E. S., Guan, Y., González, R., Chen, S. X., & Blumen, S. (2018). How much is enough in a perfect world? cultural variation in ideal levels of happiness, pleasure, freedom, health, self-esteem, longevity, and intelligence. *Psychological Science*, *29*(9), 1393–1404. https://doi.org/10.1177/0956797618768058

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004, April 29). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. SAGE Publications.

Humberg, S., Nestler, S., & Back, M. D. (2019). Response surface analysis in personality and social psychology: Checklist and clarifications for the case of congruence hypotheses. *Social Psychological and Personality Science*, *10*(3), 409–419. https://doi.org/10.1177/1948550618757600

Humphrey, A., Szoka, R., & Bastian, B. (2022). When the pursuit of happiness backfires: The role of negative emotion valuation. *The Journal of Positive Psychology*, *17*(5), 611–619. https://doi.org/10.1080/17439760.2021.1897869

Huxley, A. (1932). *Brave new world*. Chatto & Windus.

Inglehart, R. (2006). Mapping global values. *Comparative Sociology*, *5*(2), 115–136. https://doi.org/10.1163/156913306778667401

James, W. (1884). What is an emotion? *Mind*, *os-IX*(34), 188–205. https://doi.org/10.1093/mind/os-IX.34.188

Jasielska, D., Stolarski, M., & Bilewicz, M. (2018). Biased, therefore unhappy: Disentangling the collectivism-happiness relationship globally. *Journal of Cross-Cultural Psychology*, *49*(8), 1227–1246. https://doi.org/10.1177/0022022118784204

Johns, M., Inzlicht, M., & Schmader, T. (2008). Stereotype threat and executive resource depletion: Examining the influence of emotion regulation. *Journal of Experimental Psychology: General*, *137*(4), 691–705. https://doi.org/10.1037/a0013834

Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin*, *37*(1), 120–135. https://doi.org/10.1177/0146167210390822

Kaufmann, D., & Kraay, A. (2023). *Worldwide governance indicators*. World Bank Group.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion*, *13*(5), 505–521. https://doi.org/10.1080/026999399379168

Keltner, D., & Kring, A. M. (1998). Emotion, social function, and psychopathology. *Review of General Psychology*, *2*(3), 320–342. https://doi.org/10.1037/1089-2680.2.3.320

Keltner, D., Sauter, D., Tracy, J. L., Wetchler, E., & Cowen, A. S. (2022). How emotions, relationships, and culture constitute each other: Advances in social functionalist theory. *Cognition and Emotion*, *36*(3), 388–401. https://doi.org/10.1080/02699931.2022.2047009

Kennedy-Moore, E., & Watson, J. C. (2001). How and when does emotional expression help? *Review of General Psychology*, *5*(3), 187–212. https://doi.org/10.1037/1089-2680.5.3.187

Kjell, O. N. E., Daukantaitė, D., Hefferon, K., & Sikström, S. (2016). The harmony in life scale complements the satisfaction with life scale: Expanding the conceptualization of the cognitive component of subjective well-being. *Social Indicators Research*, *126*(2), 893–919. https://doi.org/10.1007/s11205-015-0903-z

Klassen, Andrew. (2018). Human understanding measured across national (HUMAN) surveys: Country-year data. https://doi.org/10.7910/DVN/QXZV3E

Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? a cross-country investigation. *The Quarterly Journal of Economics*, *112*(4), 1251–1288. https://doi.org/10.1162/003355300555475

Koh, A. H. Q., Tong, E. M. W., & Yuen, A. Y. L. (2019). The buffering effect of awe on negative affect towards lost possessions*. *The Journal of Positive Psychology*, *14*(2), 156–165. https://doi.org/10.1080/17439760.2017.1388431

Koopmann-Holm, B., & Tsai, J. L. (2014). Focusing on the negative: Cultural differences in expressions of sympathy. *Journal of Personality and Social Psychology*, *107*(6), 1092–1115. https://doi.org/10.1037/a0037684

Kramer, A. D. I., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences*, *111*(24), 8788–8790. https://doi.org/10.1073/pnas.1320040111

Krys, K. (2010). May amusement serve as a social courage engine? *Polish Psychological Bulletin*. https://doi.org/10.2478/v10059-010-0009-z

Krys, K., Capaldi, C. A., Zelenski, J. M., Park, J., Nader, M., Kocimska-Zych, A., Kwiatkowska, A., Michalski, P., & Uchida, Y. (2021). Family well-being is valued more than personal well-being: A four-country study. *Current Psychology*, *40*(7), 3332–3343. https://doi.org/10.1007/s12144-019-00249-2

Krys, K., Gajewska, O., & the Happiness Meanders Team. (2025). Data from the happiness meanders study conducted in 49 countries [manuscript in preparation]. https://osf.io/hkanm/

Krys, K., Kostoula, O., van Tilburg, W. A. P., Mosca, O., Lee, J. H., Maricchiolo, F., Kosiarczyk, A., Kocimska-Bortnowska, A., Torres, C., Hitokoto, H., Liew, K., Bond, M. H., Lun, V. M.-C., Vignoles, V. L., Zelenski, J. M., Haas, B. W., Park, J., Vauclair, C.-M., Kwiatkowska, A., … Uchida, Y. (2024). Happiness maximization is a WEIRD way of living. *Perspectives on Psychological Science*, 17456916231208367. https://doi.org/10.1177/17456916231208367

Krys, K., Park, J., Kocimska-Zych, A., Kosiarczyk, A., Selim, H. A., Wojtczuk-Turek, A., Haas, B. W., Uchida, Y., Torres, C., Capaldi, C. A., Bond, M. H., Zelenski, J. M., Lun, V. M.-C., Maricchiolo, F., Vauclair, C.-M., Poláčková Šolcová, I., Sirlopú, D., Xing, C., Vignoles, V. L., ... Adamovic, M. (2021). Personal life satisfaction as a measure of societal happiness is an individualistic presumption: Evidence from fifty countries. *Journal of Happiness Studies*, *22*(5), 2197–2214. https://doi.org/10.1007/s10902-020-00311-y

Krys, K., Uchida, Y., Oishi, S., & Diener, E. (2019). Open society fosters satisfaction: Explanation to why individualism associates with country level measures of satisfaction. *The Journal of Positive Psychology*, *14*(6), 768–778. https://doi.org/10.1080/17439760.2018.1557243

Krys, K., Vauclair, C. .-., Capaldi, C. A., Lun, V. M.-C., Bond, M. H., Domínguez-Espinosa, A., Torres, C., Lipp, O. V., Manickam, L. S. S., Xing, C., Antalíková, R., Pavlopoulos, V., Teyssier, J., Hur, T., Hansen, K., Szarota, P., Ahmed, R. A., Burtceva, E., Chkhaidze, A., ... Yu, A. A. (2016). Be careful where you smile: Culture shapes judgments of intelligence and honesty of smiling individuals. *Journal of Nonverbal Behavior*, *40*(2), 101–116. https://doi.org/10.1007/s10919-015-0226-4

Krys, K., Xing, C., Zelenski, J. M., Capaldi, C. A., Lin, Z., & Wojciszke, B. (2017). Punches or punchlines? honor, face, and dignity cultures encourage different reactions to provocation. *HUMOR*, *30*(3), 303–322. https://doi.org/10.1515/humor-2016-0087

Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M.-C., Torres, C., van Tilburg, W. A. P., Bond, M. H., Zelenski, J. M., Haas, B. W., Park, J., Maricchiolo, F., Vauclair, C.-M., Kosiarczyk, A., Kocimska-Zych, A., Kwiatkowska, A., Adamovic, M., Pavlopoulos, V., Fülöp, M., Sirlopu, D., ... Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *The Journal of Positive Psychology*, *17*(1), 117–130. https://doi.org/10.1080/17439760.2020.1858332

Krys, K., Zelenski, J. M., Capaldi, C. A., Park, J., van Tilburg, W., van Osch, Y., Haas, B. W., Bond, M. H., Dominguez-Espinoza, A., Xing, C., Igbokwe, D. O., Kwiatkowska, A., Luzniak-Piecha, M., Nader, M., Rizwan, M., Zhu, Z., & Uchida, Y. (2019). Putting the "we" into well-being: Using collectivism-themed measures of well-being attenuates well-being's association with individualism. *Asian Journal of Social Psychology*, *22*(3), 256–267. https://doi.org/10.1111/ajsp.12364

Kuppens, P., Realo, A., & Diener, E. (2008). The role of positive and negative emotions in life satisfaction judgment across nations. *Journal of Personality and Social Psychology*, *95*(1), 66–75. https://doi.org/10.1037/0022-3514.95.1.66

Lavrakas, P. J. (2008, September 12). *Encyclopedia of survey research methods*. SAGE Publications.

Lazarus, R. S., & Folkman, S. (1984, March 15). *Stress, appraisal, and coping*. Springer Publishing Company.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3), 141–169. https://doi.org/10.1002/per.2410010304

Lincoln, K. D. (2000). Social support, negative social interactions, and psychological well-being. *Social Service Review*, *74*(2), 231–252. https://doi.org/10.1086/514478

Locke, K. D., & Horowitz, L. M. (1990). Satisfaction in interpersonal interactions as a function of similarity in level of dysphoria. *Journal of Personality and Social Psychology*, *58*(5), 823–831. https://doi.org/10.1037/0022-3514.58.5.823

Manokara, K., Balabanova, A., Đurić, M., Fischer, A. H., & Sauter, D. A. (2024). (not) showing you feel good, can be bad: The consequences of breaking expressivity norms for positive emotions. *Journal of Experimental Social Psychology*, *113*, 104600. https://doi.org/10.1016/j.jesp.2024.104600

Manokara, K., Fischer, A., & Sauter, D. (2023). Display rules differ between positive emotions: Not all that feels good looks good. *Emotion*, *23*(1), 243–260. https://doi.org/10.1037/emo0001078

Matsumoto, D., Seung Hee Yoo, & Fontaine, J. (2008). Mapping expressive differences around the world: The relationship between emotional display rules and individualism versus collectivism. *Journal of Cross-Cultural Psychology*, *39*(1), 55–74. https://doi.org/10.1177/0022022107311854

Matsumoto, D., Yoo, S. H., Nakagawa, S., & Multinational Study of Cultural Display Rules. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology*, *94*(6), 925–937. https://doi.org/10.1037/0022-3514.94.6.925

Mensah, Y. M., & Chen, H.-Y. (2013, April 14). Global clustering of countries by culture – an extension of the GLOBE study. https://doi.org/10.2139/ssrn.2189904

Mesquita, B., & Boiger, M. (2014). Emotions in context: A sociodynamic model of emotions [Publisher: SAGE Publications]. *Emotion Review*, *6*(4), 298–302. https://doi.org/10.1177/1754073914534480

Mesquita, B., De Leersnyder, J., & Albert, D. (2014). The cultural regulation of emotions. In *Handbook of emotion regulation, 2nd ed* (pp. 284–301). The Guilford Press.

Mesquita, B., & Frijda, N. H. (1992). Cultural variations in emotions: A review. *Psychological Bulletin*, *112*(2), 179–204. https://doi.org/10.1037/0033-2909.112.2.179

Mesquita, B., & Karasawa, M. (2004). Self-conscious emotions as dynamic cultural processes. *Psychological Inquiry*, *15*(2), 161–166. Retrieved June 2, 2025, from https://www.jstor.org/stable/20447222

Minkov, M. (2009). Predictors of differences in subjective well-being across 97 nations. *Cross-Cultural Research*, *43*(2), 152–179. https://doi.org/10.1177/1069397109332239

Minkov, M., Dutt, P., Schachner, M., Morales, O., Sanchez, C., Jandosova, J., Khassenbekov, Y., & Mudd, B. (2017). A revision of hofstede's individualism-collectivism dimension. *Cross Cultural & Strategic Management*, *24*(3), 386–404. https://doi.org/10.1108/CCSM-11-2016-0197

Nam, Y., Kim, Y.-H., & Tam, K. K.-P. (2018). Effects of emotion suppression on life satisfaction in americans and chinese. *Journal of Cross-Cultural Psychology*, *49*(1), 149–160. https://doi.org/10.1177/0022022117736525

Nestler, S., Humberg, S., & Schönbrodt, F. D. (2019). Response surface analysis with multilevel data: Illustration for the case of congruence hypotheses. *Psychological Methods*, *24*, 291–308. https://doi.org/10.1037/met0000199

Nezlek, J. B., & Kuppens, P. (2008). Regulating positive and negative emotions in daily life. *Journal of Personality*, *76*(3), 561–580. https://doi.org/10.1111/j.1467-6494.2008.00496.x

Niedenthal, P. M., & Brauer, M. (2012). Social functionality of human emotion. *Annual Review of Psychology*, *63*, 259–285. https://doi.org/10.1146/annurev.psych.121208.131605

Oishi, S. (2011, November 29). *The psychological wealth of nations: Do happy people make a happy society?* John Wiley & Sons.

Oishi, S., Choi, H., Buttrick, N., Heintzelman, S. J., Kushlev, K., Westgate, E. C., Tucker, J., Ebersole, C. R., Axt, J., Gilbert, E., Ng, B. W., & Besser, L. L. (2019). The psychologically rich life questionnaire. *Journal of Research in Personality*, *81*, 257–270. https://doi.org/10.1016/j.jrp.2019.06.010

Okulicz-Kozaryn, A., Holmes IV, O., & Avery, D. R. (2014). The subjective well-being political paradox: Happy welfare states and unhappy liberals. *Journal of Applied Psychology*, *99*(6), 1300–1308. https://doi.org/10.1037/a0037654

Onions, C. T. 1., Friedrichsen, G. W. S. 1., & Burchfield, R. W. (1966). The oxford dictionary of english etymology. Retrieved April 4, 2025, from https://agris.fao.org/search/en/providers/122621/records/647396b1ce9437aa7600467c

Peñalver, J., Salanova, M., Martínez, I. M., & Schaufeli, W. B. (2019). Happy-productive groups: How positive affect links to performance through social resources. *The Journal of Positive Psychology*, *14*(3), 377–392. https://doi.org/10.1080/17439760.2017.1402076

Potter, S. H. (1988). The cultural construction of emotion in rural chinese social life. *Ethos*, *16*(2), 181–208. https://doi.org/10.1525/eth.1988.16.2.02a00050

Putnam, R. D., Leonardi, R., & Nonetti, R. Y. (1993). *Making democracy work: Civic traditions in modern italy*. Princeton University Press. Retrieved January 29, 2025, from https://doi.org/10.2307/j.ctt7s8r7

Putterman, L., & Weil, D. N. (2010). Post-1500 population flows and the long-run determinants of economic growth and inequality*. *The Quarterly Journal of Economics*, *125*(4), 1627–1682. https://doi.org/10.1162/qjec.2010.125.4.1627

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Radkiewicz, P., & Skarżyńska, K. (2019). Freedom, freedom... but what kind of freedom? *Social Psychological Bulletin*, *14*(3), 1–27. https://doi.org/10.32872/spb.v14i3.37565

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, *79*(3), 410–424. https://doi.org/10.1037/0022-3514.79.3.410

Righetti, F., Balliet, D., Visserman, M., & Hofmann, W. (2015). Trust and the suppression of emotions during sacrifice in close relationships. *Social Cognition*, *33*(5), 505–519. https://doi.org/10.1521/soco.2015.33.5.505

Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, *128*(6), 934–960. https://doi.org/10.1037/0033-2909.128.6.934

Rodriguez, T. (2013, May 1). *Negative emotions are key to well-being* [Scientific american]. Retrieved October 22, 2024, from https://www.scientificamerican.com/article/negative-emotions-key-well-being/

Rozin, P., Haidt, J., & McCauley, C. (2009). Disgust: The body and soul emotion in the 21st century. In *Disgust and its disorders: Theory, assessment, and treatment implications* (pp. 9–29). American Psychological Association.

Ruby, M. B., Falk, C. F., Heine, S. J., Villa, C., & Silberstein, O. (2012). Not all collectivisms are equal: Opposing preferences for ideal affect between east asians and mexicans. *Emotion*, *12*(6), 1206–1209. https://doi.org/10.1037/a0029118

Rutkowski, L., & Svetina, D. (2014). Assessing the hypothesis of measurement invariance in the context of large-scale international surveys. *Educational and Psychological Measurement*, *74*(1), 31–57. https://doi.org/10.1177/0013164413498257

Sauter, D. A. (2017). The nonverbal communication of positive emotions: An emotion eamily approach. *Emotion Review*, *9*(3), 222–234. https://doi.org/10.1177/1754073916667236

Scherer, K. R., London, H., & Wolf, J. J. (1973). The voice of confidence: Paralinguistic cues and audience evaluation. *Journal of Research in Personality*, *7*(1), 31–44. https://doi.org/10.1016/0092-6566(73)90030-5

Schönbrodt, F., & Humberg, S. (2023, January 12). *RSA: Response surface analysis*. Retrieved January 15, 2025, from https://CRAN.R-project.org/package=RSA

Sell, A., Tooby, J., & Cosmides, L. (2009). Formidability and the logic of human anger. *Proceedings of the National Academy of Sciences*, *106*(35), 15073–15078. https://doi.org/10.1073/pnas.0904312106

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, *25*(4), 543–554. https://doi.org/10.1007/s10869-010-9183-4

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology*, *52*(6), 1061–1086. https://doi.org/10.1037/0022-3514.52.6.1061

Shiota, M. N., Sauter, D. A., & Desmet, P. M. (2021). What are 'positive' affect and emotion? *Current Opinion in Behavioral Sciences*, *39*, 142–146. https://doi.org/10.1016/j.cobeha.2021.03.007

Simons, D. J., Shoda, Y., & Lindsay, D. S. (2017). Constraints on generality (COG): A proposed addition to all empirical papers. *Perspectives on Psychological Science*, *12*(6), 1123–1128. https://doi.org/10.1177/1745691617708630

Simpson, J. A., & Weiner, E. S. C. (1989). *Oxford english dictionary* (2nd ed., Vol. 5). Retrieved April 4, 2025, from http://archive.org/details/OXD1989ENEN

Sinaceur, M., & Tiedens, L. Z. (2006). Get mad and get more than even: When and why anger expression is effective in negotiations. *Journal of Experimental Social Psychology*, *42*(3), 314–322. https://doi.org/10.1016/j.jesp.2005.05.002

Smallenbroek, O., Zelenski, J. M., & Whelan, D. C. (2017). Authenticity as a eudaimonic construct: The relationships among authenticity, values, and valence. *The Journal of Positive Psychology*, *12*(2), 197–209. https://doi.org/10.1080/17439760.2016.1187198

Smith, P. B., Bond, M. H. H., Vignoles, V. L., & Fischer, R. (2013). *Understanding social psychology across cultures: Engaging with others in a changing world*. SAGE Publications Ltd. http://digital.casalini.it/9781446286012

Sommers, S. (1984). Reported emotions and conventions of emotionality among college students. *Journal of Personality and Social Psychology*, *46*(1), 207–215. https://doi.org/10.1037/0022-3514.46.1.207

Srivastava, S., Tamir, M., McGonigal, K. M., John, O. P., & Gross, J. J. (2009). The social costs of emotional suppression: A prospective study of the transition to college. *Journal of Personality and Social Psychology*, *96*(4), 883–897. https://doi.org/10.1037/a0014755

Stanton, A. L., & Low, C. A. (2012). Expressing emotions in stressful contexts: Benefits, moderators, and mechanisms. *Current Directions in Psychological Science*, *21*(2), 124–128. https://doi.org/10.1177/0963721411434978

Steel, P., Taras, V., Uggerslev, K., & Bosco, F. (2018). The happy culture: A theoretical, meta-analytic, and empirical review of the relationship between culture and wealth and subjective well-being. *Personality and Social Psychology Review*, *22*(2), 128–169. https://doi.org/10.1177/1088868317721372

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80–93. https://doi.org/10.1037/0022-0167.53.1.80

Tay, L., Woo, S. E., & Vermunt, J. K. (2014). A conceptual and methodological framework for psychometric isomorphism: Validation of multilevel construct measures. *Organizational Research Methods*, *17*(1), 77–106. https://doi.org/10.1177/1094428113517008

Thoits, P. A. (1989). The sociology of emotions. *Annual Review of Sociology*, *15*, 317–342. https://doi.org/10.1146/annurev.so.15.080189.001533

Thomas, C. C., & Markus, H. R. (2023). Enculturating the science of international development: Beyond the WEIRD independent paradigm. *Journal of Cross-Cultural Psychology*, *54*(2), 195–214. https://doi.org/10.1177/00220221221128211

Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*(2), 291–297. https://doi.org/10.1037/0022-3514.59.2.291

Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology*, *80*(1), 86–94. https://doi.org/10.1037/0022-3514.80.1.86

Triandis, H. C., Marín, G., Lisansky, J., & Betancourt, H. (1984). Simpatía as a cultural script of hispanics. *Journal of Personality and Social Psychology*, *47*(6), 1363–1375. https://doi.org/10.1037/0022-3514.47.6.1363

Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science*, *2*(3), 242–259. https://doi.org/10.1111/j.1745-6916.2007.00043.x

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90*(2), 288–307. https://doi.org/10.1037/0022-3514.90.2.288

United Nations Development Programme. (2018). Human development report – statistical update 2018. https://hdr.undp.org/content/statistical-update-2018

United Nations Development Programme. (2022, September 8). *Human development report 2021-22: Uncertain times, unsettled lives: Shaping our future in a transforming world*. United Nations. Retrieved January 19, 2025, from https://hdr.undp.org/content/human-development-report-2021-22

United States. (1776). The declaration of independence. https://www.archives.gov/founding-docs/declaration

Van Kleef, G. A. (2009). How emotions regulate social life: The emotions as social information (EASI) model. *Current Directions in Psychological Science*, *18*(3), 184–188. Retrieved June 6, 2025, from https://www.jstor.org/stable/20696025

Van Kleef, G. A. (2017, September 7). Emotions as agents of social influence: Insights from emotions as social information theory. In S. G. Harkins, K. D. Williams, & J. Burger (Eds.), *The oxford handbook of social influence* (pp. 237–256). Oxford University Press. Retrieved December 28, 2023, from https://doi.org/10.1093/oxfordhb/9780199859870.013.19

Van Kleef, G. A., & Côté, S. (2022). The social effects of emotions. *Annual Review of Psychology*, *73*(1), 629–658. https://doi.org/10.1146/annurev-psych-020821-010855

Van Kleef, G. A., De Dreu, C. K. W., & Manstead, A. S. R. (2004). The interpersonal effects of emotions in negotiations: A motivated information processing approach. *Journal of Personality and Social Psychology*, *87*(4), 510–528. https://doi.org/10.1037/0022-3514.87.4.510

Van Kleef, G. A., & Dreu, C. K. D. (2010). Longer-term consequences of anger expression in negotiation: Retaliation or spillover? *Journal of Experimental Social Psychology*, *46*(5), 753–760. https://doi.org/10.1016/j.jesp.2010.03.013

Veenhoven, R. (2009). Well-being in nations and well-being of nations. *Social Indicators Research*, *91*(1), 5–21. https://doi.org/10.1007/s11205-008-9323-7

Viechtbauer, W. (2010). Conducting meta-analyses in r with the metafor package. *Journal of Statistical Software*, *36*(3). https://doi.org/10.18637/jss.v036.i03

Vignoles, V. L., Owe, E., Becker, M., Smith, P. B., Easterbrook, M. J., Brown, R., González, R., Didier, N., Carrasco, D., Cadena, M. P., Lay, S., Schwartz, S. J., Des Rosiers, S. E., Villamar, J. A., Gavreliuc, A., Zinkeng, M., Kreuzbauer, R., Baguma, P., Martin, M., … Bond, M. H. (2016). Beyond the 'east–west' dichotomy: Global variation in cultural models of selfhood. *Journal of Experimental Psychology: General*, *145*(8), 966–1000. https://doi.org/10.1037/xge0000175

Wasiel, A., Górski, M. R., Bond, M. H., Yeung, V. W. L., Akaliyski, P., Akello, G., Park, J., Joshanloo, M., Sokolov, B., Hussain, M. A., Li, L. M. W., Olechowski, M., Vignoles, V. L., Guemaz, F., Boussena, M., Rabby, M. R.-A., Okvitawanli, A., Myślińska-Szarek, K., Haas, B. W., … Krys, K. (2025). Examining the connection between position-based power and social status across 70 cultures. *British Journal of Social Psychology*, *64*(2), e12871. https://doi.org/10.1111/bjso.12871

Wojciszke, B. (2004). The negative social world: The polish culture of complaining. *International Journal of Sociology*, *34*(4), 38–59. https://doi.org/10.1080/00207659.2004.11043140

Wong, S., Bond, M. H., & Rodriguez Mosquera, P. M. (2008). The influence of cultural value orientations on self-reported emotional expression across cultures. *Journal of Cross-Cultural Psychology*, *39*(2), 224–229. https://doi.org/10.1177/0022022107313866

World Bank. (2017). GDP per capita, PPP (current international $). https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD

Yeung, J. C., Lun, V., Li, L. M. W., Bond, M., Joshanloo, M., Górski, M., Kalinowski, M., Yeung, V., Yau, E., Haas, B., Guemaz, F., Mahmoud, B., Sánchez-Rodríguez, Á., Iter, N., Vlasenko, O., Aminnuddin, N., Işık, İ., Barry, O., Fülöp, M., ... Krys, K. (2025, May 31). Is societal progress muting the expression of negative emotions? evidence from two multinational studies. https://doi.org/10.31234/osf.io/ab5p6_v1

Yeung, J. C., & Lun, V. M.-C. (2021). Uncritical use of non-evidence-based self-help materials induces victim-blaming on depressed individuals. *The Journal of Positive Psychology*, *16*(4), 492–502. https://doi.org/10.1080/17439760.2020.1752780

Yeung, J. C., Roczniewska, M., & Krys, K. (2024). Is it okay to feel this way? exploring the joint effect of emotional experiences and expectations on life satisfaction. *Frontiers in Psychology*, *15*, 1305812. https://doi.org/10.3389/fpsyg.2024.1305812

Zerwas, F. K., Ford, B. Q., John, O. P., & Mauss, I. B. (2024). Unpacking the pursuit of happiness: Being concerned about happiness but not aspiring to happiness is linked with negative meta-emotions and worse well-being. *Emotion*, *24*(8), 1789–1802. https://doi.org/10.1037/emo0001381

Thesis Abstract in Polish

Emocjonalna tkanka społeczeństwa: Środowiska emocjonalne, kongruencja i rozbieżności z perspektywy makro

Życie emocjonalne obejmuje nie tylko to, jak jednostki odczuwają i wyrażają emocje, ale także jak myślą o emocjach i postrzegają, czego społeczeństwo od nich oczekuje. Choć wcześniejsze badania koncentrowały się głównie na intrapersonalnych i interpersonalnych skutkach emocji, niewiele wiadomo o tym, jak makrostruktury środowisk emocjonalnych i normy społeczne z poziomu makro kształtują się w różnych kulturach i jak wiążą się z dobrostanem i strukturami społecznymi. Niniejsza rozprawa przyjmuje perspektywę makro, integrując cztery empiryczne badania nad środowiskami emocjonalnymi, kongruencją emocjonalną oraz rozbieżnościami między doświadczeniem emocji, ich ekspresją i dotyczącymi ich oczekiwaniami.

Pierwszy artykuł wprowadza pojęcie społecznych środowisk emocjonalnych (ang. societal emotional environments; SEE), mierząc stopień wyrażania pozytywnych i negatywnych emocji w społeczeństwach. Na podstawie danych z 49 krajów, badanie ujawnia efekt „obosiecznego miecza" w przypadku ekspresji emocji negatywnych: wyrażanie negatywnych emocji – przy kontroli doświadczania emocjonalnego – wiąże się z korzyściami indywidualnymi, jednak społeczeństwa o wysokim poziomie ekspresji emocji negatywnych cechują się niższym poziomem satysfakcji z życia swoich członków.

Drugi artykuł bada rozbieżności między częstością doświadczania i wyrażania emocji, koncentrując się na wzorcach częstotliwości w różnych krajach. Analizy dwóch dużych międzynarodowych zbiorów danych pokazują, że emocje negatywne – takie jak złość czy smutek – są zazwyczaj wyrażane rzadziej, niż są doświadczane. Efekt ten jest szczególnie wyraźny w wysoko rozwiniętych społeczeństwach, gdzie czynniki strukturalne, takie jak rządy prawa i współpraca obywatelska, wiążą się z większą powściągliwością ekspresji emocji negatywnych. Wyniki sugerują, że ekspresyjność emocjonalna jest powiązana ze strukturami społecznymi z poziomu makro, wykraczając poza klasyczne wymiary kulturowe, takie jak indywidualizm-kolektywizm.

Trzeci i czwarty artykuł dotyczą kongruencji i rozbieżności między

doświadczeniem emocjonalnym a społecznymi oczekiwaniami co do jego ekspresji, analizując ich związek z dobrostanem. Artykuł trzeci stosuje regresję wielomianową i analizę powierzchni odpowiedzi (ang. response surface analysis; RSA), nie wykazując pozytywnego wpływu kongruencji emocjonalnej na poziom dobrostanu. Istotny okazuje się natomiast kierunek rozbieżności: osoby często doświadczające emocji negatywnych, przy jednoczesnym niskim poziomie ich społecznych oczekiwań (rozbieżność stygmatyzowana), wykazują najniższą satysfakcję z życia, natomiast osoby rzadko doświadczające takich emocji przy równoczesnych wysokich społecznych oczekiwaniach (rozbieżność chroniona) – najwyższą. Te wyniki sugerują, że postrzegana społeczna akceptacja emocji negatywnych, a nie samo dopasowanie oczekiwań społecznych do doświadczeń, może być kluczowa dla dobrostanu. Czwarty artykuł rozwija tę analizę, rozróżniając pomiędzy kierunkowymi rozbieżnościami (rozbieżność stygmatyzowana vs. rozbieżność chroniona) i pokazuje, że ich wpływ na dobrostan różni się w zależności od społecznego środowiska emocjonalnego. W społeczeństwach o niskim poziomie ekspresji emocji negatywnych, negatywne skutki rozbieżności są silniejsze, natomiast w kulturach o wysokiej ekspresji emocji negatywnych – osłabione. Razem badania te dowodzą, że dopasowanie emocjonalne jest procesem osadzonym kulturowo i normatywnie ocenianym.

Łącznie, badania te podkreślają znaczenie perspektywy makro w analizie emocji. Normy emocjonalne, ekspresyjność i rozbieżności między doświadczeniem a oczekiwaniami społecznymi są systematycznie powiązane z dobrostanem jednostek i szerszymi wzorcami społecznymi. Integrując modele wielopoziomowe i analizę powierzchni odpowiedzi na przestrzeni czterech badań, rozprawa wnosi nową wiedzę o tym, jak regulacja emocjonalna i normy ekspresji emocji współoddziałują na dobrostan w kontekście kulturowym, przyczyniając się do szerszej dyskusji na temat społecznych i strukturalnych wymiarów emocji.

Thesis Abstract in Traditional Chinese

社會的情緒織構：從宏觀視角探討情緒環境、一致與差異性

情緒生活不僅涵蓋個體如何感受與表達情緒，也包含人們如何思考情緒，以及如何理解社會對情緒的期待。過去研究廣泛探討情緒的個體內與人際影響，然而我們對於不同文化下宏觀層次的情緒環境與社會規範結構，以及它們與社會結構與福祉之間的關係仍知之甚少。本論文採用宏觀視角，整合四項實證研究，並嘗試探討情緒環境，以及情緒經驗、表達與期待三者之間的一致與差異性。

第一篇論文提出「社會情緒環境」的概念，用於測量一個社會中正向與負向情緒表達的程度。該研究使用了來自49個國家的資料，發現負向情緒表達具有「雙面刃」效應：當控制情緒經驗後，個體層面的負向情緒表達與較高的福祉相關，然而在負向情緒表達頻繁的社會層面中，其成員的整體生活滿意度反而較低。

第二篇論文分析個體在不同情緒的經驗與表達之間頻率上的差異，並聚焦於不同社會的頻率型模式。利用兩個大規模跨國資料顯示，負向情緒（如憤怒、悲傷）與實際經驗相比普遍表達不足。此種表達不足在高度發展的社會中特別明顯，而這些社會的結構因素如法治與公民合作與負向情緒表達的抑制程度相關。研究結果顯示，情緒表達傾向與宏觀的社會結構有關，乃至被潛在地塑形，且超出傳統框架如「個人主義—集體主義」所能解釋。

第三與第四篇論文進一步探討情緒經驗與社會期待的一致性與不一致性，以及聚焦於情緒經驗與被感知的社會期待之間的適配與落差如何與福祉相關。第三篇使用多項式迴歸與反應面分析檢驗此關係，發現並非所有情緒一致性都會帶來實際的好處；相反地，差異的方向性卻在其中扮演關鍵角色：當個體經常感受負向情緒，卻認為社會對此期待很低（即「污名化不適配」），其生活滿意度亦為最低；而那些較少經驗負向情緒、但認為社會對此期待很高者（即「保護性不適配」），則生活滿意度反而最高。這說明，社會對負向情緒的接受程度，可能比情緒一致性本身更關鍵。第四篇擴展此發現，進一步區分不同方向的情緒不適配，並發現其對福祉的影響會依據社會情緒環境而有所不同。在負向情緒表達較少的社會（低負向社會情緒環境）中，情緒不一致與較低的福祉關聯更強；在表達較高的社會中，這種負面影響則較為緩和。整體而言，這些研究揭示了情緒適配是一個具有文化根基與規範評價性的過程。

綜合這些結果，本論文突顯從宏觀層次理解情緒的重要性。情緒規範、表達傾向，以及情緒經驗與社會期待之間的一致與差異性，皆與個體福祉與社會整體趨勢系統性相關。透過整合多層次建模與反應面分析，本論文深化我們對情緒調節與表達的規範如何在文化脈絡中交互作用的理解，並對情緒的社會與結構層面提供理論貢獻。

Acknowledgement

A Ph.D. is often seen as a journey of academic training, but for me, it has been a process of collecting templates from mentors, colleagues, and friends—templates that guide both my scholarly work and my personal growth as I look towards a future, potential academic career. Academically, I have gathered templates for conducting rigorous scientific research, for writing papers both as lead and supporting author, and for evaluating scholarship in the roles of reviewer and editor. Personally, I have collected templates for staying grounded and seeking support in a context that can often feel emotionally distant, and for regaining my footing as a researcher in the face of both internal and external crises.

First and foremost, I would like to express my sincere gratitude to my former supervisor, Kuba. I am deeply appreciative of his kindness and his early guidance during my time in Poland, as well as for his generosity in allowing me to use his datasets for my dissertation and supporting the integration of emotion-related social expectations into the *Live Better* project.

I am grateful to the scientific committee of the IP PAN, and to the GSSR. Without their support, I could not have continued my doctoral studies. Special thanks go to Anna and Przemek, whose encouragement helped restore my sense of security in the value of what I had steadily built over time. Irina and Josh, through their summer school, seminars, and networks, exerted an indirect yet profoundly positive influence on my doctoral journey.

I would like to thank my collaborators—Vivian, my mentor and guiding light, who has consistently served as a model role throughout different phases of my academic life; Mohsen, for his insights and guidance on Papers 2 and 4, and for his deeply inspiring academic and practical advice, from which I have benefited immensely. There are many other collaborators to whom I am indebted—the list is too long to enumerate here, but no less meaningful in my gratitude.

My thanks extend to my comrades-in-arms throughout these years: Leung, Arek, Maciek (G.), Milosz, Olya, Hodar, Hubert, and friends beyond academia—Adrian, Mariia, ChungYi, and Zoe—along with many others whose presence, in ways large and small, helped sustain me. Without you, it would have been difficult to stay both healthy and steady during my time in Poland.

I am deeply thankful to my supervisor, Maciek (K.S.), whose sharpness in both theorisation, methodology, statistics, and application is exceptional. I consider myself

fortunate to have participated in the Ohio State University conference and workshop, where our paths first crossed and a mentor–mentee relationship later blossomed. Although our time working together was not long, I learned a great deal from him—both intellectually and professionally—and came to see in him a model of the kind of supervisor I hope to become.

I owe profound thanks to my mother. During the course of my doctoral studies, she has twice battled cancer, despite my being far from home. Her survival and continuing presence in my life are a source of immense gratitude. I also wish to thank Cho, who stood by me through the most painful period of my life—when I was searching for a new supervisor, when my Polish residence permit was under review and I was unable to return home, and when my only close family member was gravely ill. In the midst of this crisis, your practical and emotional support sustained me. Through you, I came to understand one of the simplest yet most complex of human emotions: love.

Finally, I would like to thank myself—for not giving up and for making it to this point. And to you, the reader, for staying with me to the end.

Written at Tobaco Park, Łódź, on 6 June 2025.

About the Author

June Yeung was born in Hong Kong. She received her Bachelor's in Social Sciences at Lingnan University, stream in Behavioural Science with a concentration in Psychology and minor in Philosophy. Then graduated in the Chinese University of Hong Kong with a Master of Philosophy in Psychology, specialising in Social Psychology. She is currently affiliated with the *Cross-National Studies: Interdisciplinary Research and Training Program* (CONSIRT), lead by Prof. dr hab. Kazimierz Slomczynski, at the Ohio State University and Institute of Philosophy and Sociology, Polish Academy of Sciences, and *Cultural Psychology and Cross-cultural Research Laboratory*, headed by Prof. dr hab. Anna Kwiatkowska, at the Institute of Psychology, Polish Academy of Sciences.

Her early studies showed that materials that promoted emotional positivity may not only fail to improve mood for some East Asian individuals, but also induced blame toward those suffering from depression. These findings prompted questions about how affective norms are culturally shaped and how emotional messages operate within broader sociocultural contexts. Motivated by these concerns, she explored whether depressive moods serve functional roles in cognition, particularly in enhancing the accuracy of self-referent judgements. This became the focus of her M.Phil. research, during which she conducted a meta-analysis on the "depressive realism" hypothesis and received rigorous training in quantitative methods.

Over time, her focus expanded to how affect—especially emotional expression and expectations—is socially and culturally constructed. This shift laid the foundation for her current doctoral dissertation on emotional environments, congruence, and discrepancies across nations from a macro-level perspective. Due to the research directions and an unexpected vantage point for examining affect in times of personal and sociopolitical transition, she moved to Poland to undertake her doctoral research at the Polish Academy of Sciences, where she joined a team working on cross-national studies of emotion, social norms, and societal development.

To date, June has published 13 peer-reviewed articles on emotion, well-being, and cross-cultural psychology. Her work has appeared in the *Journal of Positive Psychology*, *Journal of Cross-Cultural Psychology*, and *Frontiers in Psychology.* She is currently an Academic Editor for *PLoS One* and a Junior Consulting Editor for the *European Journal of Social Psychology.*

Portfolio

This section offers an overview of my academic contributions during and/or related to my doctoral studies (2021–2025), including published and in-progress research, selected conference presentations, and professional activities.

Published Research Articles

- Wasiel, A., Górski, M. R., Bond, M. H., Yeung, V. W. L., Akaliyski, P., Akello, G., ... **Yeung, J. C.**, ... & Krys, K. (2025). Examining the connection between position-based power and social status across seventy cultures. *British Journal of Social Psychology. 62*(2). https://doi.org/10.1111/bjso.12871
- Affum-Osei, E., Goto, S. G., **Yeung, J. C.**, Wang, R., Lam, H., Inusah, A. N., & Chan, D. K.-S. (2024). A cross-cultural study of entrepreneurial motivation and entrepreneurial intentions amongst university students: the roles of individualism and collectivism. *Journal of Global Entrepreneurship Research. 14*(34). https://doi.org/10.1007/s40497-024-00405-4
- Li, L. M. W., Lun, V. M. C., Bond, H. M., **Yeung, J. C.**, Igou, R. E., Haas, B. W., ... & Uchida, Y. (2024). The role of cultural heterogeneity in strengthening the link between family relationships and life satisfaction in 50 societies. *Journal of Happiness Studies. 25*(6). 1-25. https://doi.org/10.1007/s10902-024-00768-1
- Krys, K., Kostoula, O., van Tilburg, W. A. P., Mosca, O., Lee, J. H., Maricchiolo, F., ... **Yeung, J. C.**, ... & Uchida, Y. (2024). Happiness maximization is a WEIRD way of living. *Perspectives on Psychological Science*. Advance online publication. https://doi.org/10.1177/17456916231208367
- **Yeung, J. C.**, Roczniewska, M., & Krys, K. (2024). Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction. *Frontiers in Psychology*, 15, 1305812. https://doi.org/10.3389/fpsyg.2024.1305812
- Krys, K., **Yeung, J. C.**, Haas, B. W., van Osch, V., Kosiarczyk, A., Kocimska-Zych, A., ... & Uchida, Y. (2023). Family first: Evidence of consistency and variation in the value of family versus personal happiness across 49 different cultures. *Journal of Cross-Cultural Psychology*, 54(3), 323–339. https://doi.org/10.1177/00220221221134711
- Larsen, M., Witoszek, N., & **Yeung, J. C.** (2023). A multilevel selection model for prosocial well-being. *Frontiers in Psychology.* 14:1068119. https://doi.org/10.3389/fpsyg.2023.1068119

- Lun, V. M. C., **Yeung, J. C.**, & Ku, K. Y. L. (2023). Effects of mood on critical thinking. *Thinking Skills and Creativity*, 47. https://doi.org/10.1016/j.tsc.2023.101247
- Krys, K., **Yeung, J. C.**, Capaldi, C. A., Lun, V. M. C., Torres, C., van Tilburg, W. A., ... & Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *Journal of Positive Psychology*, *17*(1), 117-130. https://doi.org/10.1080/17439760.2020.1858332

Presentations (Selected)

- **Yeung, J. C.**, Roczniewska, M., & Krys, K. (2023, September). Is it okay to feel? A cross-national study on the effects of (in)congruence between emotional experiences and social expectancies. In **J. C. Yeung** (Chair), *Macropsychological Perspectives on Well-being: Investigations on Societal Happiness, Emotional Fit, Meritocratic Beliefs, and Happiness Maximisation*, presented at the 18th Annual Meeting of the Polish Social Psychological Society, Lodz, Poland.
- **Yeung, J. C.**, Krys, K., members of the Happiness Meanders project (2023, March). *Cross-national differences in expression-experience discrepancies: Examining the effects of emotional norms and societal development.* Poster presented at the 2023 SAS Annual Convention, Society for Affective Science, Long Beach, California, USA.
- **Yeung, J. C.** & Krys, K. (2023, July). *The moderation effect of ideal well-being on the pathway from emotion to actual well-being.* Paper presented at the 15th Biennial Conference of the Asian Association of Social Psychology, Hong Kong.
- **Yeung, J. C.** (2023, February). *What we feel, what we express, what we are expected to feel, and what are the in-betweens.* Presented at the Joint-Lab Seminar of Institute for the Future of Human Society, Kyoto University, Japan.
- **Yeung, J. C.**, Krys, K., members of the Happiness Meanders project (February 2022). *Societal Emotional Environments explain Latin American happiness, but also document that individual pathways to happiness may not necessarily promote the happiness of others.* In Atherton, O.E., *Personality, Affect, Health, and Well-being Across the Lifespan and Cultures*, the 2022 SPSP Annual Convention, Society for Personality and Social Psychology, San Francisco, California, USA.

Awards

- Winner, the 15th edition of the 2024 Competition for the Best Sociological Photo Essay, awarded by *Qualitative Sociology Review*. March 2025.

Title of the work: *Fluid Identity: Selection of an Expat's Self-Portraits in Łódź.*

- International Academic Exchange Award (under NAWA PROM Short-term Academic Exchange Program), Graduate School for Social Research in Polish Academy of Sciences, co-financed by Polish National Agency for Academic Exchange. July 2025
- International Scholarship Award (under the NAWA STER Best PhD Student Scholarships framework), Graduate School for Social Research in Polish Academy of Sciences, co-financed by Polish National Agency for Academic Exchange. April 2023 - December 2024.

Other Education and Training

- Joint Research Centre. Science for Policy [Workshop]. European Commission and Polish Academy of Sciences. April 2024. Warsaw, Poland.
- Graduate School for Social Research Interdisciplinary Summer School, Polish Academy of Sciences. September 10-15, 2023. Wierzba, Poland.
- Multilevel Modeling [Workshop]. Cross-National Studies: Interdisciplinary Research and Training Program (CONSIRT), The Ohio State University and Polish Academy of Sciences. May 2023. Columbus, Ohio, USA.
- Graduate School for Social Research Interdisciplinary Summer School, Polish Academy of Sciences. September 5-10, 2022. Smardzewice, Poland.

Academic and Professional Activities

- **Editorial Roles:**
  – Academic Editor for *PLOS One* (2024 - 2025)
  – Junior Consulting Editor for the *European Journal of Social Psychology* (2025)
- **Ad-hoc Reviewing:**
  Asian Journal of Social Psychology, *BMC Psychology*, *Current Psychology*, *European Journal of Social Psychology*, *Frontiers in Psychology*, *International Journal of Psychology*, *Journal of Happiness Studies*, *PLOS One*, and *Scientific Reports*
- **Conference Services:**
  – Jury Member for the Global Flourishing Conference (2022, 2023)
  – Conference Assistant at the 15th Biennial Conference of the AASP (2023)

Appendix - Published Articles, Preprint, and Working Paper

This section includes all the published articles or pre-prints. The published papers (Krys et al., 2022; Yeung et al., 2024) are licensed under the *Creative Commons Attribution License* (CC BY) https://creativecommons.org/licenses/by/4.0/, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The pre-print and the working paper are licensed under the *Creative Commons Attribution–NonCommercial–NoDerivatives License* (CC BY-NC-ND) https://creativecommons.org/licenses/by-nc-nd/4.0/, which allows sharing with proper attribution but prohibits modifications and commercial use without prior permission.

The included articles are:

1. Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M. C., Torres, C., van Tilburg, W. A., ... & Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *Journal of Positive Psychology*, *17*(1), 117–130. https://doi.org/10.1080/17439760.2020.1858332

2. Yeung, J. C., Lun, V. M.-C., Li, L. M. W., Bond, M. H., Joshanloo, M., Górski, M. R., Kalinowski, M., Yeung, V. W. L., Yau, E. K., ..., Krys, K. (2025). Is societal progress muting the expression of negative emotions? Evidence from two multinational studies [pre-print]. *PsyArXiv*. https://doi.org/10.31234/osf.io/ab5p6_v1

3. Yeung, J. C., Roczniewska, M., & Krys, K. (2024). Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction. *Frontiers in Psychology*. 15:1305812. https://doi.org/10.3389/fpsyg.2024.1305812

4. Yeung, J. C. [author list forthcoming] (n.d.). Emotional misfit and well-being: Direction-sensitive incongruence in negative emotions across 48 societies [working manuscript].

THE JOURNAL OF POSITIVE PSYCHOLOGY
2022, VOL. 17, NO. 1, 117–130
https://doi.org/10.1080/17439760.2020.1858332

Routledge
Taylor & Francis Group

Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study

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Supplemental data for this article can be accessed here

ABSTRACT
In this paper, we introduce the concept of 'societal emotional environment': the emotional climate of a society (operationalized as the degree to which positive and negative emotions are expressed in a society). Using data collected from 12,888 participants across 49 countries, we show how societal emotional environments vary across countries and cultural clusters, and we consider the potential importance of these differences for well-being. Multilevel analyses supported a 'double-edged sword' model of negative emotion expression, where expression of negative emotions predicted higher life satisfaction for the expresser but lower life satisfaction for society. In contrast, partial support was found for higher societal life satisfaction in positive societal emotional environments. Our study highlights the potential utility and importance of distinguishing between positive and negative emotion expression, and adopting both individual and societal perspectives in well-being research. Individual pathways to happiness may not necessarily promote the happiness of others.

ARTICLE HISTORY
Received 30 May 2019
Accepted 23 November 2020

KEYWORDS
Societal emotional environment; societal well-being; emotion regulation; emotion expression; life satisfaction; culture; Latin America

The emotions people express around us influence our well-being. If people around us frequently express joy and gratitude, or anger and anxiety, then these emotions create our 'emotional environment'. Up to now, emotion regulation research has largely focused on the *intrapersonal* and *interpersonal* effects of emotion expression, attempting to answer questions about the *well-being of people who express emotions* and the *quality of interactions of people who express emotions*, respectively. Here, we seek to further the understanding of the consequences of emotion expression by examining the possible *extrapersonal* effects of emotional expression: we ask *how the expression of emotions might affect the well-being of people around the expresser*. In order to do so, we take a cross-cultural approach and introduce the concept of a 'societal emotional environment' (SEE). With data collected from 12,888 participants in 49 countries, we investigate how the SEE varies across countries and cultural clusters. We test a 'double-edged sword' model of negative emotion expression, where the expression of negative emotions is predicted to be beneficial for the well-being of the individual expressing negative emotions but detrimental to the well-being of the broader society. We also examine whether those who inhabit SEEs high in positive emotion expression tend to have higher levels of well-being.

Societal emotional environment

People across cultures differ in their overall emotional expressivity (Matsumoto et al., 2008) and in their valuation of emotions of different intensity (Tsai et al., 2006). For instance, Confucian Asians tend to prefer low arousal positive emotions (e.g., serenity, calmness; Tsai et al., 2006) and are more likely to inhibit their expression of emotions (Matsumoto et al., 2008; Nam et al., 2018; Potter, 1998). Latin Americans, in contrast, tend to prefer high arousal positive emotions (e.g., excitement, elatedness; Ruby et al., 2012), and free, frequent, and intensive emotional expression is considered a constitutive feature of Latin American cultures (Garza, 1978; Triandis et al., 1984). These cultural differences in emotion expression are particularly interesting when one considers societal rankings of life satisfaction: Confucian countries tend to occupy lower positions of these rankings, whereas Latin Americans are typically near the top (Diener et al., 1995; Krys et al., 2018; cf. Helliwell et al., 2019).

We propose that in order to better comprehend societal and individual well-being, positive psychologists may need to study the SEE: the emotional climate in a given society that is constituted by the frequency of expressed positive emotions (what we refer to as the positive societal emotional environment; PSEE) and the frequency of expressed negative emotions (what we refer to as the negative societal emotional environment; NSEE). While various forms of emotional climates have been investigated in positive psychology (e.g., group positive affect; Peñalver et al., 2019), organisational psychology (e.g., organisation climate; Bennett, 2011), sociology (e.g., cultures of negativity; Wojciszke, 2005), education (e.g., emotional environment in a class; Harvey et al., 2012), etc., we take a uniquely cross-cultural approach in the current paper and apply the idea of emotional climates to entire societies. Differing emotional climates across societies may help explain why some countries have higher life satisfaction on average compared to other countries.

Individual subjective well-being is typically thought of as involving three components: cognitive evaluations of one's life (most often life satisfaction), frequent positive emotions, and infrequent negative emotions. In studies on individuals, these three components are recognised as distinct, but mutually reinforcing factors (Busseri, 2018). Following this at the cultural level of analysis, we propose that SEE and societal life satisfaction (understood as the average sense of life satisfaction in a given society) constitute non-orthogonal but distinct constructs.[1] Although causality is probably

bidirectional, we posit that SEE might influence societal life satisfaction more than societal life satisfaction might influence SEE. Because the expression of emotions is directly observable, it can have a direct impact on the sense of life satisfaction of people around the expresser. In contrast, one's sense of life satisfaction is not as easily perceptible and may have a more limited impact on the affect of people around (and on affect expression in particular).

Next, we theorise that even though PSEE and NSEE might be related (i.e., some cultures are generally more expressive emotionally than others; Matsumoto et al., 2008), they are two distinct phenomena. Various studies suggest that some societies are governed by positivity norms; cultures of indulgence (Hofstede et al., 2010), cultures of affirmation (Wojciszke, 2005), cultures of smiling (Krys et al., 2016) and cultures of maximization (Hornsey et al., 2018) may serve as examples. Studies also document that other cultures – cultures of complaining (Wojciszke, 2005), cultures of restraint (Hofstede et al., 2010), and cultures where smiling is perceived less favorably (Krys et al., 2016) – are governed by negativity norms. Importantly, PSEE and NSEE seem to carry divergent consequences for the well-being of people living in them. Previous studies on emotional climate provide evidence that living in a PSEE may facilitate well-being (Bennett, 2011), and living in an NSEE may have detrimental effects for well-being (Wojciszke, 2005). Research on emotional contagion (Hatfield et al., 1993), and on the consequences of positive and negative social interactions (Berry & Hansen, 1996; Lincoln, 2000) may further support our theorising that SEE may carry consequences for well-being. However, the emotion regulation literature appears to offer a more nuanced perspective when it comes to the consequences of emotion expression for well-being (particularly when it comes to the expression of negative emotions). We provide a brief review of this body of research below.

The intrapersonal and interpersonal consequences of emotion expression

Studies on emotion regulation show that emotion expression in general (without distinguishing between positive and negative emotions) enhances affective, cognitive, and social functioning (e.g., Chervonsky & Hunt, 2017; Gross, 2014). Research that takes the valence of emotions into account has found positive intrapersonal and interpersonal consequences for positive emotion expression as well (e.g., Chervonsky & Hunt, 2017; Nezlek & Kuppens, 2008). Expression of negative emotions also appears to have positive intrapersonal effects for the expresser: negative emotional expression helps coping with stressful life-events (Stanton & Low, 2012), decreases sympathetic activation of the cardiovascular system (Gross, 2014), and improves memory (Johns et al., 2008; Richards & Gross, 2000). Negative emotion expression may have these benefits for the expresser by reducing distress and facilitating insight (Kennedy-Moore & Watson, 2001).

The consequences of expressing negative emotions, however, are more mixed in the interpersonal context. On the one hand, expression of negative emotions solicits support, expands social networks, facilitates intimacy (Graham et al., 2008), and, in effect, leads to closer relationships with others (Baker et al., 2014; Srivastava et al., 2009). On the other hand, expressers of negative emotions are judged as less social, less popular (Sommers, 1984), and are liked less (Gross & John, 2003). A meta-analysis on the interpersonal effects of emotion expression (Chervonsky & Hunt, 2017) confirmed that the expression of negative emotions brings mixed interpersonal consequences (but the overall effect size indicated poor social outcomes in general of small magnitude, $d = -.08$; in contrast, $d = .17$ was found for the interpersonal consequences of positive emotion expression).

Taken together, emotion regulation researchers tend to conclude that the advantages of negative emotion expression outweigh its disadvantages (Graham et al., 2008; Gross, 2014). This reasoning is also popular in folk (Rodriguez, 2013) and clinical (Kennedy-Moore & Watson, 2001) discourse. Here, we suggest that the picture remains incomplete without also considering the consequences of negative emotion expression for the wider society of the expresser. Surprisingly, these extrapersonal consequences of negative emotion expression have received limited empirical attention in the emotion regulation literature (cf. Locke & Horowitz, 1990).

The double-edged sword of negative emotion expression

By adopting a multilevel approach, two seemingly contradictory effects of negative emotion expression on well-being – one from the emotion regulation literature, and the second from studies on cultures and emotional climates – can be combined into a single comprehensive model. We predict that the expression of negative emotions may simultaneously be associated with positive and negative consequences: positive for the expresser, but negative for society. Separating out the individual and societal (or the intrapersonal and extrapersonal, respectively) consequences of negative emotion expression allows for an examination of its potential 'double-edged' nature.

At least three other lines of research lend some initial support for our prediction that living in an NSEE may be associated with lower life satisfaction. First, research on emotional contagion documents that the expression of emotional states can lead others to experience the same emotions (Hatfield et al., 1993; Kramer et al., 2014). Therefore, living in an NSEE may foster negative emotions and impoverish life satisfaction, while living in a PSEE may foster positive emotions and promote life satisfaction. Second, expressed negative emotions can induce stress in observers and stressful stimuli have been shown to lower life satisfaction (Lazarus & Folkman, 1984). Third, research indicates that negative social interactions have a potent detrimental effect on well-being (Lincoln, 2000); these types of social interactions may be more common in NSEEs, which may lead to lower overall levels of life satisfaction.

The present study

The first goal of the current paper is to describe how the SEE varies across countries and cultural clusters. We attempt to replicate previous research that has found that some cultures are more emotionally expressive than others (e.g., Matsumoto et al., 2008), albeit we do so with data from a larger number of countries, and an expanded list of positive and negative emotions. The second goal is to investigate whether individual and societal differences in the degree to which positive and negative emotions are expressed matter for the well-being of individuals and societies. We hypothesize that even if negative emotion expressivity is good for the expresser, being a member of a society where negative emotions are frequently expressed will be associated with lower well-being. To test this hypothesis, we used two-level modelling to compare associations of negative emotion expression with life satisfaction at individual and societal levels of analysis (while also simultaneously comparing associations of positive emotion expression with life satisfaction at both levels of analysis). The two-level modelling let us also explore the cross-level interactions between SEE and expression of emotions on life satisfaction (we had no *a priori* formulated hypotheses on cross-level interactions).

Method

The current study was part of a larger cross-cultural investigation, which was approved by research ethics committees, of the cultural antecedents of happiness, family well-being, and the valuation of different types of well-being (see also Krys et al., 2020). Measures of frequency of experience and frequency of expression of 30 different emotions were included to study a society's 'emotional environment' – we used these data to investigate our current research questions.

Participants and countries

We aimed to collect data in at least 40 countries. At the time of writing, our data set contained 12,888 participants from 49 countries from 10 cultural clusters (Gupta et al., 2002; House et al., 2004; Mensah & Chen, 2013): (1) Anglo (Australia, Canada, Ireland, United Kingdom, USA), (2) Latin Europe (France, Italy, Portugal, Romania), (3) Nordic Europe (Estonia, Iceland, Lithuania, Norway), (4) Germanic Europe (Austria, Germany, Luxembourg, Netherlands, Switzerland), (5) Eastern Europe (Croatia, Czech Republic, Georgia, Greece, Hungary, Poland, Russia, Serbia, Slovakia, Ukraine), (6) Latin America (Argentina, Brazil, Chile, Colombia, El Salvador, Guatemala, Mexico), (7) Sub-Saharan Africa (Ghana, Nigeria), (8) Middle East (Saudi Arabia, Turkey), (9) Southern Asia (Bhutan, Indonesia, Iran, Malaysia, Pakistan), and (10) Confucian Asia (China, Hong Kong, Japan, South Korea, Taiwan).[2]

As a rule of thumb, we aimed to recruit 200 individuals in each country (some authors, however, collected more and others collected fewer). A power analysis revealed that a total of 4,201 participants would have been sufficient in this research to obtain a desired power of .80 (for more details, see supplemental online material S1). Overall, 59.6% of participants identified as female, 39.3% as male, 0.4% as other, and 0.7% left the question about gender blank; the mean age of participants was 25.18 years ($SD = 9.51$). Due to convenience and budgetary restrictions, we mainly collected samples of post-secondary students, but some authors managed to complement their student sample with a general population sample. Table in the supplemental online material S2 contains demographic characteristics by country.

Measures

Participants separately assessed two characteristics of their emotions: frequency of experience and frequency of expression. Distinguishing between emotional experience and expression let us estimate the effect of emotional expression while controlling for emotional experience. Furthermore, because cultures vary in their intensity of emotion suppression/expression (Butler et al., 2007; Matsumoto et al., 2008; Wong et al., 2008), we could use the explicit judgments of emotional

expression – averaged for each society separately – to estimate the actual characteristics of a society's 'emotional environment'.

The list of emotions we assessed was partially based on Tsai and collaborators' (2006) Affect Valuation Index (AVI). Eleven items from the AVI were excluded because they were more related to affective arousal and less to emotional valence per se (i.e., strong, idle, aroused, rested, astonished, quiet, surprised, lonely, still, passive, and inactive). Another four items from the AVI that were directly associated with (un)happiness (i.e., content, happy, satisfied, and unhappy) were excluded as they were confounded with other measures that we included that were the main interest in this project (i.e., various forms of well-being). Thus, 15 AVI items were retained (i.e., calm, dull, elated, enthusiastic, euphoric, excited, fearful, hostile, nervous, peaceful, relaxed, sad, serene, sleepy, and sluggish). Next, we added 12 emotional feelings that are not listed in the AVI questionnaire, but which are commonly recognised and/or experienced across cultures: proud, in love, hopeful, respectful, grateful, depressed, bored, embarrassed, ashamed, hateful, angry, and disgusted (some of these feelings are recognised as basic emotions; Ekman, 1992). Because we incorporated emotional feelings described in the literature as being especially important in non-Western cultures (e.g., the Confucian triad: proud, embarrassed, respectful), we also included three feelings that are potentially important in dignity cultures (i.e., amused [Krys, 2010; Krys et al., 2017], self-confident [Scherer et al., 1973], and authentic [Smallenbroek et al., 2017]) to maintain a balanced approach. Thus, we formed a list of 30 emotional feelings that were sensitive to various cultural contexts and reflected the palette of important feelings for each contemporary society.

Participants rated the frequency of experiencing and expressing these emotions on a 1–9 Likert-type scale. We modified the approach of Kuppens et al. (2008), whose emotion frequency scale ranged from 1 (*not at all*), through 5 (*half the time*), to 9 (*all the time*). Instead, we included the following response options as they refer to exact time periods and leave less room for ambiguity when responding: 1 (*never*), 2 (*a couple of times a year*), 3 (*a couple of times a month*), 4 (*a couple of times a week*), 5 (*once a day*), 6 (*a couple of times a day*), 7 (*almost every single hour*), 8 (*a couple of times an hour*), and 9 (*all the time*).

We grouped the emotion items into those of positive valence (i.e., enthusiastic, excited, elated, euphoric, calm, relaxed, peaceful, serene, amused, proud, in love, hopeful, respectful, grateful, self-confident, and authentic; average Cronbach's alpha for experience = .90 and expression = .90; reliabilities in each country ≥ .75; see Table S1), and those of negative valence (i.e., sleepy, dull, sad, sluggish, fearful, nervous, hostile, depressed, bored, embarrassed, ashamed, hateful, angry, and disgusted; Cronbach's alpha for experience = .91 and expression = .89; reliabilities in each country ≥ .81; see Table S1). All four emotion measures showed acceptable evidence of metric invariance across cultural clusters and metric isomorphism across levels of analysis in multilevel confirmatory factor analyses (see supplemental online material S3).

To assess potential consequences of emotional expression, we asked participants to report their subjective well-being. We used the Satisfaction With Life Scale (Diener et al., 1985; if available we relied on its previously validated translations; Cronbach's alpha = .86; reliabilities in each country ≥ .71; see Table S1). Following Vignoles et al.'s (2016) approach, participants rated items on a nine-point Likert-type scale with five labelled points: 1 (*doesn't describe me at all*), 3 (*describes me a little*), 5 (*describes me moderately*), 7 (*describes me very well*), 9 (*describes me exactly*). Multilevel confirmatory factor analyses revealed acceptable evidence of metric invariance across cultural clusters and metric isomorphism across levels of analysis (see supplemental online material S3).

At the end of the questionnaire, we collected information on participants' sociodemographic background (e.g., parental education, age, and gender); we control for these three sociodemographic variables in some analyses to test the robustness of our findings. Please see supplemental online materials S4 and S5 for a more detailed description of, and a link to, the full questionnaire.

Results

Mapping SEE across countries and cultural clusters

PSEE and NSEE scores were calculated by taking the average self-reported frequency of positive emotion expression and the average self-reported frequency of negative emotion expression, respectively, for each country. PSEE and NSEE scores for all 49 sampled countries are visualized in Figure 1. Positive emotions appeared to be expressed more frequently than negative emotions across all countries, although this difference seemed to be smaller in some countries than others. There also appeared to be considerable variability in the degree to which positive and negative emotions were expressed across countries. For instance, those in countries with the lowest PSEE scores (e.g., United Kingdom, Hong Kong, Japan) reported expressing positive emotions only around 'a couple of times a week' on average, while those in countries with the highest PSEE scores (e.g., Ghana, El Salvador, Italy) reported expressing positive emotions around 'a couple of times a day' on average. Moreover, those in countries with the lowest

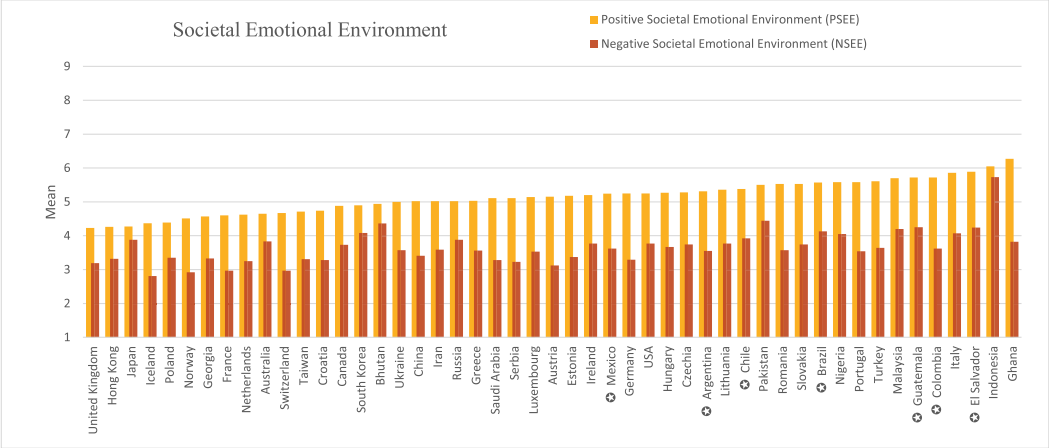

Figure 1. Comparing mean positive societal emotional environment (PSEE) and negative societal emotional environment (NSEE) scores across countries. Countries are arranged from lowest mean PSEE scores (on the left) to highest mean PSEE scores (on the right). Higher PSEE and NSEE scores represent more frequent expression of positive emotions and more frequent expression of negative emotions, respectively. Latin American countries are marked with stars (✪).

NSEE scores (e.g., Iceland, Norway, Switzerland) reported expressing negative emotions only around 'a couple of times a month' on average, while those in countries with the highest NSEE scores (e.g., Pakistan, Bhutan, Guatemala) reported expressing negative emotions around 'a couple of times a week' on average. The Indonesian sample had an especially high NSEE scores that was more than four standard deviations from the mean of the rest of the countries. Because it was an extreme outlier, we excluded the Indonesian sample from all subsequent analyses in this paper.[3] Lastly, there are hints in Figure 1 that the SEE might be more similar in countries that belong to the same cultural cluster. For instance, all the Latin American countries that we sampled were on the right side of Figure 1 (i.e., they had relatively high PSEE scores), while all the Confucian countries that we sampled were on the left side (i.e., they had relatively low PSEE scores).

To more formally test the veracity of the observations in the previous paragraph, we conducted a mixed-design ANOVA. Cultural cluster (Anglo vs. Latin Europe vs. Nordic Europe vs. Germanic Europe vs. Eastern Europe vs. Latin America vs. Sub-Saharan Africa vs. Middle East vs. Southern Asia vs. Confucian Asia) was included as the between-country factor and valence of emotion expression (positive vs. negative) was included as the within-country factor (see Table 1 for descriptive statistics). Results revealed a significant effect of cultural cluster, $F(9, 38) = 3.88$, $p = .001$, $\eta_p^2 = .479$. Countries in the Latin America, Sub-Saharan Africa, and Southern Asia cultural clusters tended to be significantly more emotionally expressive than countries in the Anglo, Nordic Europe, Germanic Europe, Eastern Europe, and Confucian Asia cultural clusters ($ps < .05$). No other significant differences between cultural clusters were observed. Results also revealed a significant effect of the valence of emotion expression, $F(1, 38) = 987.31$, $p < .001$, $\eta_p^2 = .963$, with positive emotions being more frequently expressed in general ($M = 5.12$, $SD = 0.48$) than negative emotions ($M = 3.62$, $SD = 0.39$). Finally, a significant interaction between cultural cluster and valence of emotion expression was found as well, $F(9, 38) = 4.60$, $p < .001$, $\eta_p^2 = .521$. To help unpack this interaction, we calculated the difference between the PSEE and NSEE scores for each country so that we could compare the relative positivity of SEEs across cultural clusters (higher relative SEE scores represent more frequent expression of positive emotions compared to negative emotions; see column 4 of Table 1). In general, the least relatively positive SEEs tended to be in countries in the Confucian Asia, Southern Asia, and Anglo cultural clusters, while the most relatively positive SEEs tended to be in countries in the Latin America, Nordic Europe, Germanic Europe, Latin Europe, Middle East, and Sub-Saharan Africa cultural clusters.

SEE and life satisfaction

Main analyses

To comprehensively investigate the potential effect of emotion expression at both the individual and societal levels while controlling for emotional experience (and sociodemographic characteristics), we conducted multilevel modeling. This allowed us to formally test our

Table 1. Comparing cultural clusters on PSEE, NSEE, relative SEE, and societal life satisfaction.

Satisfaction	(1)	(2)	(3)	(4)	(5)
	Number of countries	PSEE	NSEE	Relative SEE	Societal life satisfaction
	N	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Anglo	5	4.84 (0.42)	3.66 (0.26)	1.18 ^{ab} (0.28)	5.38 (0.37)
Latin Europe	4	5.39 (0.55)	3.54 (0.45)	1.86 ^{d} (0.18)	5.76 (0.20)
Nordic Europe	4	4.86 (0.49)	3.22 (0.44)	1.64 ^{cd} (0.11)	5.97 (0.12)
Germanic Europe	5	4.97 (0.30)	3.23 (0.21)	1.73 ^{cd} (0.27)	6.13 (0.22)
Eastern Europe	10	4.99 (0.34)	3.54 (0.23)	1.46 ^{bc} (0.27)	5.38 (0.70)
Latin America	7	5.55 (0.24)	3.90 (0.31)	1.64 ^{cd} (0.23)	5.85 (0.34)
Sub-Saharan Africa	2	5.92 (0.48)	3.93 (0.16)	1.99 ^{d} (0.65)	4.70 (0.46)
Middle East	2	5.36 (0.35)	3.46 (0.25)	1.90 ^{cd} (0.10)	5.65 (0.10)
Southern Asia	4	5.29 (0.37)	4.15 (0.39)	1.14 ^{ab} (0.42)	5.13 (0.31)
Confucian Asia	5	4.63 (0.35)	3.60 (0.36)	1.03 ^{a} (0.49)	4.66 (0.42)

PSEE, positive societal emotional environment; NSEE, negative societal emotional environment; Relative SEE = PSEE − NSEE (relative positivity of social emotional environment). Cultural clusters with superscripts that differ across rows in column 4 are significantly different at $p < .05$.

hypothesis that the individual-level benefit of expressing negative emotions would be reversed at the societal level. We were also able to examine how emotion expression at the societal level may moderate the effect of individual-level emotion expression through cross-level interaction. Life satisfaction was the criterion variable. Frequency of positive and negative emotion expression, and frequency of positive and negative emotion experience, were included as individual-level predictors and were grand-mean centered. Country-level averages of the frequency of positive emotion expression (PSEE scores) and negative emotion expression (NSEE scores) were centered by the mean of the country-level averages and were included as country-level predictors.[4] The multilevel model was tested following the procedures recommended by Aguinis, Gottfredson and Culpepper (2013). Table 2 summarizes the results pertaining to all four steps in the model-testing, namely, *null model, random intercept and fixed slope model, random intercept and random slope model*, and *cross-level interaction model*. In the null model, the intra-class correlation (ICC) of life satisfaction was .124, meaning that cross-country differences account for about 12.4% of the variability in individuals' life satisfaction. This value is comparable to those reported in other multilevel studies (see Aguinis et al., 2013).

Following the suggestion by Aguinis et al. (2013), we used full information maximum likelihood (FIML) in the estimation so we could compare the relative fit between the *random intercept and fixed slope model* and the *random intercept and random slope model* (i.e., Step 2 and Step 3). As shown in Table 2, the model in Step 3 fits the data significantly better than the model in Step 2 (deviance of 43,385–43,314 = 71, $p < .001$), suggesting that there is significant variation in the relations between emotional expression and life satisfaction. In Step 4, we tested the *cross-level interaction model*, which showed that the interaction effects NSEE × individual-level negative emotion expression and PSEE × individual-level positive emotion expression are significant. These results indicated that at least some of the variation in the relations between individual emotional expression and life satisfaction is influenced by the societal emotional environment.

We also conducted a second analysis where we controlled for sociodemographics. Specifically, we included log transformed GDP per capita (centered by the mean of the country-level averages) as a country-level predictor, and age (grand-mean centered), gender (female = −0.5, male = 0.5), and parental education (both parents having higher education = 1, one parent only = 0, none = −1) as individual-level predictors. Results from these multilevel models are reported in Table 3. A slight difference in the null models in Table 2 and 3 was noted because the model in Table 3 excluded the sample from China as not all sociodemographic questions were administered to the Chinese participants. Nevertheless, the ICC of life satisfaction in this model was .127, which was highly similar to that in the first multilevel model.

Results from both models supported previous findings on the intrapersonal benefits of expressing negative emotions. At the individual level of analysis, expression of negative emotions predicted higher life satisfaction, $ps < .001$. However, at the societal level, both models showed that living in a society where negative emotions are expressed more often predicted lower life satisfaction, $ps < .01$. Meanwhile, expressing positive emotions did not predict individuals' life satisfaction in either model, $ps > .10$. Living in a society where positive

Table 2. Multilevel model predicting life satisfaction from emotional experience and expression at the individual level, and societal emotional environment at the country level.

	Null (Step 1)			Random intercept and fixed slope (Step 2)			Random intercept and random slope (Step 3)			Cross-level interaction (Step 4)		
Level & Variable	Estimate		SE	Estimate		SE	Estimate		SE	Estimate		SE
Level 1 – Individual Level												
Intercept	5.494	***	0.085	5.467	***	0.068	5.470	***	0.068	5.461	***	0.067
Positive emotion experiences				0.601	***	0.021	0.595	***	0.021	0.593	***	0.021
Negative emotion experiences				−0.422	***	0.017	−0.424	***	0.018	−0.423	***	0.018
Positive emotion expressions				−0.031		0.020	−0.023		0.024	−0.022		0.024
Negative emotion expressions				0.099	***	0.019	0.083	***	0.023	0.082	***	0.022
Level 2 – Country Level												
Positive societal emotional environment (PSEE)				0.308	†	0.176	0.408	*	0.171	0.388	*	0.169
Negative societal emotional environment (NSEE)				−0.771	***	0.215	−0.702	**	0.210	−0.823	***	0.211
Cross-level interaction												
Positive emotion expressions × PSEE										−0.084	*	0.032
Negative emotion expressions × NSEE										0.136	**	0.043
Variance Components												
Within-country variance	2.388			1.783			1.761			1.761		
Intercept variance	0.337			0.208			0.212			0.203		
Slope variance (Positive emotion expressions)							0.008			0.006		
Slope variance (Negative emotion expressions)							0.007			0.006		
Intercept-slope covariance (Positive emotion expressions)							0.004			0.002		
Intercept-slope covariance (Negative emotion expressions)							−0.014			−0.011		
−2 log likelihood (FIML)	47,094			43,385	***		43,314	***		43,298	***	

FIML, full information maximum likelihood estimation. Analysis based on data from 12,654 participants and 48 countries. *** p < .001, ** p < .01, * p < .05, † p < .10

Table 3. Multilevel model predicting life satisfaction from emotional experience and expression at the individual level, and societal emotional environment at the country level, controlling for sociodemographics.

	Null (Step 1)			Random intercept and fixed slope (Step 2)			Random intercept and random slope (Step 3)			Cross-level interaction (Step 4)		
Level & Variable	Estimate		SE	Estimate		SE	Estimate		SE	Estimate		SE
Level 1 – Individual Level												
Intercept	5.507	***	0.087	5.471	***	0.064	5.470	***	0.063	5.465	***	0.063
Positive emotion experiences				0.601	***	0.021	0.595	***	0.021	0.593	***	0.021
Negative emotion experiences				−0.424	***	0.018	−0.425	***	0.018	−0.423	***	0.018
Positive emotion expressions				−0.029		0.021	−0.022		0.024	−0.020		0.024
Negative emotion expressions				0.097	***	0.019	0.082	***	0.023	0.080	***	0.022
Parents' education level				0.149	***	0.016	0.142	***	0.016	0.142	***	0.016
Gender				−0.118	***	0.026	−0.115	***	0.026	−0.111	***	0.026
Age				0.000		0.002	0.000		0.002	0.000		0.002
Level 2 – Country Level												
Positive societal emotional environment (PSEE)				0.463	*	0.173	0.507	**	0.170	0.486	**	0.168
Negative societal emotional environment (NSEE)				−0.645	**	0.213	−0.628	**	0.210	−0.663	**	0.207
log transformed GDP per capita				0.175	*	0.070	0.174	*	0.069	0.173	*	0.068
Cross-level interaction												
Positive emotion expressions × PSEE										−0.080	*	0.032
Negative emotion expressions × NSEE										0.140	**	0.044
Variance Components												
Within-country variance	2.377			1.757			1.737			1.737		
Intercept variance	0.346			0.181			0.178			0.172		
Slope variance (Positive emotion expressions)							0.007			0.006		
Slope variance (Negative emotion expressions)							0.007			0.006		
Intercept-slope covariance (Positive emotion expressions)							0.004			0.004		
Intercept-slope covariance (Negative emotion expressions)							−0.004			−0.003		
−2 log likelihood (FIML)	45,073			41,395	***		41,335	***		41,319	***	

FIML, full information maximum likelihood estimation. Analysis based on data from 12,126 participants and 47 countries. *** p < .001, ** p < .01, * p < .05, † p < .10.

emotions are expressed predicted higher life satisfaction, but this effect appeared stronger when sociodemographics were controlled for in the analysis.

As shown in Tables 2 and 3, the results of both models are similar. The interaction effects between societal emotional environment and individual emotion expression on life satisfaction are plotted in Figures 2 and 3 based on the model that controls for sociodemographic variables. As shown in these figures, positive emotion expression became negatively related to life satisfaction

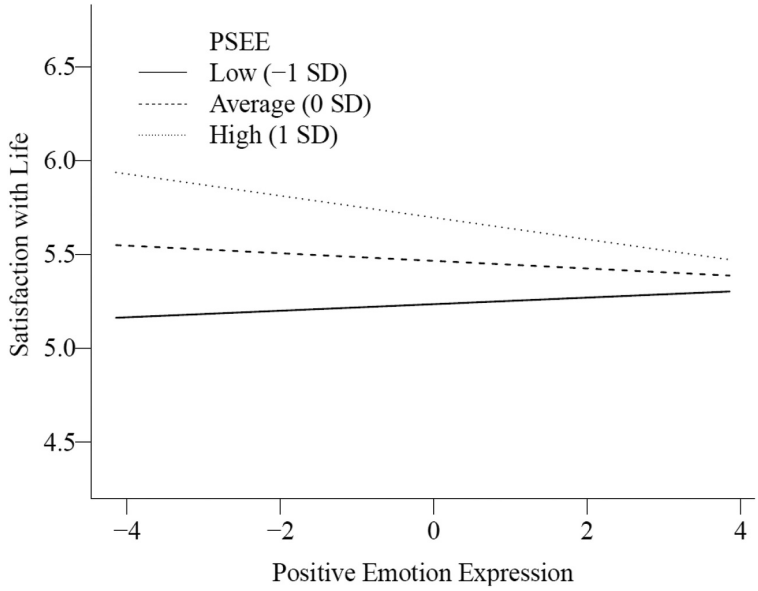

Figure 2. Interaction between positive emotion expression and positive societal emotional environment (PSEE).

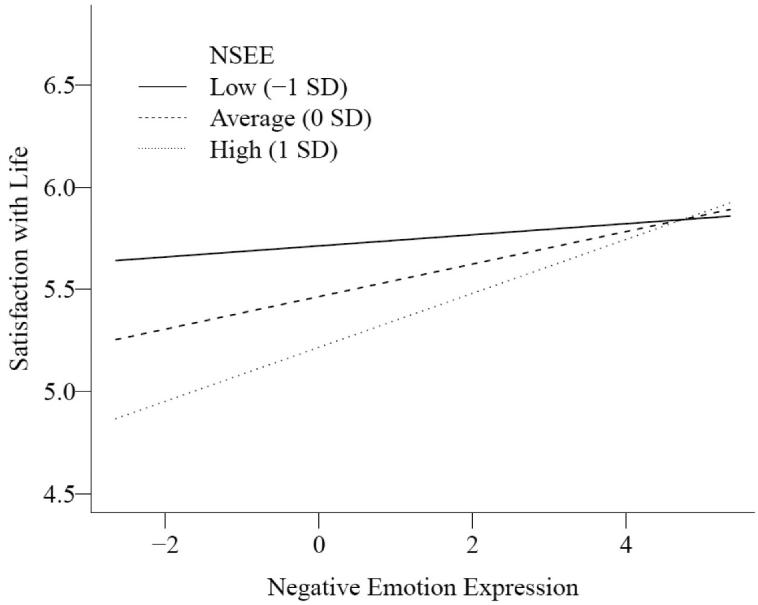

Figure 3. Interaction between negative emotion expression and negative societal emotional environment (NSEE).

in societies with high PSEE, whereas the positive association of negative emotion expression with life satisfaction became significantly stronger in societies with high NSEE.

Additional analyses

We construe the SEE as the average frequency of expression of positive and negative emotions in a given society. However, one may have concerns that country-level experience of emotions may need to be controlled for in the model. In other words, what is the effect of living in a societal environment where others experience more or less frequent positive or negative emotions, even if they do not express these emotions? For our main analyses, we assume that emotions need to be expressed to create a SEE, but in order to test this alternative reasoning we also carried out additional analyses

with country-level frequency of emotional experience included in the models as Level 2 predictors. Although these additional analyses were burdened by problems with multicollinearity and therefore their results should be treated with caution, they still supported our hypotheses about negative emotion expression.[5] Specifically, NSEE remained a significant predictor of lower life satisfaction and negative emotion expression at the individual level also remained a significant predictor of higher life satisfaction. PSEE, however, was not a significant predictor of higher life satisfaction in these additional analyses. For a full discussion on additional analyses, see supplemental online material S6.

Discussion

This paper introduces the concept of 'societal emotional environment' (SEE), and it describes the first large-scale study – involving participants from 49 countries – exploring the potential utility of the SEE in well-being studies. The current study hints that the examination of the SEE and its potential societal consequences may be a promising new area of well-being research. Up to now, positive psychologists have mainly studied positive and negative emotions as antecedents of life satisfaction for individuals (e.g., Chang et al., 2019; Kuppens et al., 2008). Although positive psychology and other fields recognise the concepts of emotional climate (e.g., of organisations, in a classroom) and group-level emotions, country-level characteristics of positive and negative emotionality have not been commonly considered as possible antecedents of societal or individual satisfaction. Our results suggest that the emotions people in our society frequently express, especially negative emotions, might matter for our sense of satisfaction. In the remainder of the discussion section we consider how a PSEE may help explain high levels of life satisfaction in Latin America, and how an NSEE may help us understand the complexity of how emotion regulation influences well-being.

PSEE may help explain high levels of satisfaction in Latin America

Top positions in various rankings of life satisfaction tend to be occupied by Western European and Latin American societies (e.g., Jasielska et al., 2018; Minkov et al., 2009 ; Veenhoven, 2009; also current study), but in contrast to Western European societies, Latin American societies tend to score low to moderate on major country-level predictors of societal well-being. In particular, Latin American countries are in the middle of the open society ranking (Krys et al., 2018), they are more collectivistic than individualistic (Minkov, Minkov et al., 2017), and they are not the richest societies (World Bank, 2017). Thus, none of the important qualities that are typically thought to facilitate societal well-being characterise Latin America.

What Latin American societies are known for, however, is their frequent and free expression of positive emotions (Ruby et al., 2012). Some describe high emotional expression, and in particular the expression of positive emotions, as a constitutive feature of Latin American cultures; through vibrant positive emotions Latin Americans connect and reinforce their social connections (Triandis et al., 1984). Our study confirmed that Latin American countries rank high on PSEE (see Figure 1 and Table 1). Vibrant, intensive, and expressed positive emotions may make life in Latin America exceptionally satisfactory, and our study lends initial support to this explanation (although PSEE was admittedly not a significant predictor of life satisfaction in every model like NSEE was).

NSEE may bring a new perspective on emotion regulation processes

We replicated previous findings from emotion regulation literature that expressing negative emotions may improve the well-being of the expresser. Crucially, however, we also documented that negative emotion expression by others in one's societal environment is associated with significantly lower well-being. By expanding our focus beyond the intra- and interpersonal consequences to the extra-personal consequences of emotion expression, we were able to test and find support for our proposed 'double-edged sword' model of negative emotion regulation. Depending on the level of analysis, negative emotion expression is simultaneously associated with positives (for the individual) and negatives (for others in society).

Our findings question the idea that expression of emotions is unambiguously beneficial; we show that (negative) emotion expression may carry more than minor negative consequences (c.f., Chervonsky & Hunt, 2017). We hope that this nuanced perspective on emotion expression finds its way into the emotion regulation literature, as well as in discourse in clinical, positive, and popular psychology more broadly. Moreover, while some research combines positive and negative emotion expression into one general factor of emotional expressivity (Gross & John, 2003; Srivastava et al., 2009), our results suggest that there is utility in studying the unique consequences of positive and negative emotion expression as PSEE and NSEE seem to carry different consequences for well-being.

Such complexity is highlighted by the significant cross-level interaction effects between individual emotion expression and SEE on life satisfaction. In particular, we

note that in high SEE cultures, individual positive emotion expression is associated with decreased life satisfaction, while individual negative emotion expression is related to increased life satisfaction. These effects were observed when individual emotion experiences were kept statistically constant. SEEs suggest the display rules of emotion, which individuals living in that environment would learn through socialization. In high PSEE cultures, individuals are *expected* to express positive emotion regardless of their actual emotional experience, so the expression of positive emotion more likely represents an individual's compliance to the display rule rather than their actual experience. In high NSEE cultures, the expression of negative emotion is more likely to be accepted as a norm, rather than a signal of norm violation (e.g., Hareli et al., 2015); consistency between emotional experience and response is likely to benefit an individual's well-being (e.g., Brown et al., 2019).

A new argument in discussions on individual-group discontinuity of well-being

Lastly, this paper may contribute to discussions in positive psychology on individual-group discontinuity in predictors of well-being (Oishi, 2012; Steel et al., 2018), and to discussions in cross-cultural psychology on cultural isomorphism or homology (Alessandri et al., 2017; Fischer et al., 2010). For example, although Veenhoven (2009) concluded that individual and societal values regarding well-being tend to be in harmony, other studies show that predictors of country-level life satisfaction and individual-level life satisfaction are different (Krys et al., 2018; Okulicz-Kozaryn et al., 2014). The current study provides a new example of individual-group discontinuity, with the opposite direction of associations (between well-being and a potential antecedent [i.e., negative emotion expression]) for individual and for country levels of analysis.

Limitations and future research

The current research increases understanding of the potential consequences of the emotional environment on well-being, but we must acknowledge its limitations and the need for further studies. Our findings rely on participants' self-ratings of their emotion expression (and experience) and well-being; participants were asked to indicate the frequency with which they experience and express specific emotional states over time. Future research that includes different methods of recording such variables (e.g., other-ratings, experience sampling) could potentially strengthen conclusions about the relations found and minimize concerns about the (in)accuracy of retrospective judgments. Other discrete emotions not assessed in the current study (e.g., awe; Koh et al., 2019), and/or other aspects of emotional experience/expression beyond emotional valence (e.g., arousal) may lead to novel predictions and could be an important task for future research, as would examining emotional suppression in addition to emotional expression (Cameron & Overall, 2018). More refined conceptualization of the emotion measures would be desirable in future research too. Further research is also required to establish the causal role that positive and negative emotional environments may have on life satisfaction; the current research is only correlational. Our research is also limited by the fact that most of the samples consisted mainly of college/university students. Future studies need to cover more countries from regions that were underrepresented in our study (e.g., Africa and the Middle East). Finally, investigating the effect of PSEE and NSEE on other types of well-being (e.g., meaning in life, family well-being; Krys et al., 2019a, 2019b) could be another fruitful avenue for future research.

Final remarks

Our own happiness, fulfillment, and flourishing sometimes enhance and sometimes oppose the happiness, fulfillment, and flourishing of the people around us. With the current paper, we find partial evidence that the expression of positive emotions may enhance the life satisfaction of people around, with Latin American societies serving as an exemplar. In contrast, we show the 'transactional' nature between the well-being of 'me' and the well-being of others when negative emotions are expressed. Expression of negative emotions appears to benefit the expresser, but the NSEE it contributes to may detract from the happiness of people around.

Our study is another important argument (Krys et al., 2018; Radkiewicz & Skarżyńska, 2019) for the utility of adopting a societal (or more generally communal) perspective in the study of well-being. If we want to live in happy societies, in happy local communities, and in happy families, individuals might want to consider how their pathway to happiness impacts the people around them.

Notes

1. Previous large cross-cultural studies have reported country-level averaged frequencies of positive or negative affect, but have treated them as dependent variables (i.e., instances of well-being; Diener, Tay, & Oishi, 2013) or approached them as person-level variables only (e.g., Kuppens et al., 2008).

2. Additional data from a Bulgarian sample were excluded from the current analyses as emotion measures were not administered in that sample. Also see supplemental online material S5 for exclusion criteria used in data screening.
3. When we re-ran analyses with Indonesian data included, the picture of results remained substantially the same.
4. Our reasoning behind centering decisions is described in the supplemental online material (S6). In supplementary analyses using alternative centering decisions, NSEE remained a significant negative predictor of life satisfaction in every model tested (see Tables S4 to S7 and S9 to S12).
5. Correlations between expression and experience of emotions reached r = .96 for positive emotions, and r = .92 for negative emotions at the country-level of analysis.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Polish National Science Centre under grant 2016/23/D/HS6/02946; the Japan Society for the Promotion of Science under grants P17806 and 17F17806; the Hungarian OTKA under grant K-111 789; the Brazilian National Council for Scientific and Technological Development – CNPq under grant 301298/2018-1; the Czech Science Foundation CSF under grant 20-08583S; the National Natural Science Foundation of China under grant 71873133; and the Department of Educational Studies, University of Roma Tre under biannual Grant DSF 2017-2018.

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References

Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, *39*(6), 1490–1528. https://doi.org/10.1177/0149206313478188

Alessandri, G., Cenciotti, R., Łaguna, M., Różycka-Tran, J., & Vecchione, M. (2017). Individual-level and culture-level self-esteem: A test of construct isomorphism. *Journal of Cross-cultural Psychology*, *48*(9), 1328–1341. https://doi.org/10.1177/0022022117722633

Baker, L. R., McNulty, J. K., & Overall, N. C. (2014). When negative emotions benefit relationships. In G. S. Parrot (Ed.), *The positive side of negative emotions* (pp. 101–125). Guilford.

Bennett, O. (2011). Culture of optimism. *Cultural Sociology*, *5*(2), 301–320. https://doi.org/10.1177/1749975511401270

Berry, D., & Hansen, J. (1996). Positive affect, negative affect, and social interaction. *Journal of Personality and Social Psychology*, *71*(4), 796–809. https://doi.org/10.1037/0022-3514.71.4.796

Brown, C. L., Van Doren, N., Ford, B. Q., Mauss, I. B., Sze, J. W., & Levenson, R. W. (2019). Coherence between subjective experience and physiology in emotion: Individual differences and implications for well-being. *Emotion*, *20*(5), 818–829. Advance online publication.https://doi.org/10.1037/emo0000579

Busseri, M. (2018). Examining the structure of subjective well-being through meta-analysis of the associations among positive affect, negative affect, and life satisfaction. *Personality and Individual Differences*, *122*, 68–71. https://doi.org/10.1016/j.paid.2017.10.003

Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Emotion*, *7*(1), 30–48. https://doi.org/10.1037/1528-3542.7.1.30

Cameron, L. D., & Overall, N. C. (2018). Suppression and expression as distinct emotion-regulation processes in daily interactions: Longitudinal and meta-analyses. *Emotion*, *18*(4), 465–480. https://doi.org/10.1037/emo0000334

Chang, E., Chang, O., Li, M., Xi, Z., Liu, Y., Zhang, X., … Chen, X. (2019). Positive emotions, hope, and life satisfaction in Chinese adults: A test of the broaden-and-build model in accounting for subjective well-being in Chinese college students. *The Journal of Positive Psychology, 14*(6), 829–835. https://doi.org/10.1080/17439760.2019.1579358 Advance online publication

Chervonsky, E., & Hunt, C. (2017). Suppression and expression of emotion in social and interpersonal outcomes: A meta-analysis. *Emotion*, *17*(4), 669–683. https://doi.org/10.1037/emo0000270

Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, *69*(5), 851–864. https://doi.org/10.1037/0022-3514.69.5.851

Diener, E., Emmons, R., Larsen, R., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Tay, L., & Oishi, S. (2013). Rising income and the subjective well-being of nations. Journal of Personality and Social Psychology, 104(2), 267–276. https://doi.org/10.1037/a0030487

Ekman, P. (1992). An argument for basic emotions. *Cognition and Emotion, 6*(3-4), 169–200. https://doi.org/10.1080/02699939208411068

Fischer, R., Vauclair, C.-M., Fontaine, J. R. J., & Schwartz, S. H. (2010). Are individual-level and country-level value structures different? Testing Hofstede's legacy with the Schwartz value survey. *Journal of Cross-cultural Psychology*, *41*(2), 135–151. https://doi.org/10.1177/0022022109354377

Garza, R. (1978). Affective and associative qualities in the learning styles of Chicanos and Anglos. *Psychology in the Schools*, *15*(1), 111–115. https://doi.org/10.1002/1520-680719780115:1

Graham, S. M., Huang, J. Y., Clark, M. S., & Helgeson, V. S. (2008). The positives of negative emotions: Willingness to express negative emotions promotes relationships. *Personality & Social Psychology Bulletin*, *34*(3), 394–406. https://doi.org/10.1177/0146167207311281

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–20). Guilford Press.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: Methodology and findings. *Journal of World Business*, *37*(1), 11–15. https://doi.org/10.1016/S1090-95160100070-0

Hareli, S., Kafetsios, K., & Hess, U. (2015). A cross-cultural study on emotion expression and the learning of social norms. *Frontiers in Psychology*, *6*, 1501. https://doi.org/10.3389/fpsyg.2015.01501

Harvey, S., Bimler, D., Evans, I., Kirkland, J., & Pechtel, P. (2012). Mapping the classroom emotional environment. *Teaching and Teacher Education*, *28*(4), 628–640. https://doi.org/10.1016/j.tate.2012.01.005

Hatfield, E., Cacioppo, J., & Rapson, R. (1993). Emotional contagion. *Current Directions in Psychological Sciences*, *2*(3), 96–99. https://doi.org/10.1111/1467-8721.ep10770953

Helliwell, J., Layard, R., & Sachs, G. (2019). *World happiness report*. SDSN.

Hofstede, G., Hofstede, G., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind*. McGraw-Hill.

Hornsey, M., Bain, P., Harris, E., Lebedeva, N., Kashima, E., Guan, Y., … Blumen, S. (2018). How much is enough in a perfect world? Cultural variation in ideal levels of happiness, pleasure, freedom, health, self-esteem, longevity, and intelligence. *Psychological Science, 29*(9), 1393–1404. https://doi.org/10.1177/0956797618768058 Advance online publication

House, R., Hanges, P., Javidan, M., Dorfman, P., & Gupta, V. (Eds.). (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage.

Jasielska, D., Stolarski, M., & Bilewicz, M. (2018). Biased, therefore unhappy: Disentangling the collectivism-happiness relationship globally. *Journal of Cross-cultural Psychology*, *49*(8), 1227–1246. https://doi.org/10.1177/0022022118784204

Johns, M., Inzlicht, M., & Schmader, T. (2008). Stereotype threat and executive resource depletion: Examining the influence of emotion regulation. *Journal of Experimental Psychology. General*, *137*(4), 691–705. https://doi.org/10.1037/a0013834

Kennedy-Moore, E., & Watson, J. C. (2001). How and when does emotional expression help? *Review of General Psychology*, *5*(3), 187–212. https://doi.org/10.1037//1089-2680.5.3.187

Koh, A., Tong, E., & Yuen, A. (2019). The buffering effect of awe on negative affect towards lost possessions. *The Journal of Positive Psychology*, *14*(2), 156–165. https://doi.org/10.1080/17439760.2017.1388431

Kramer, A., Guillory, J., & Hancock, J. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences of the United States of America*, *111*, 8788–8790. https://doi.org/10.1073/pnas.1320040111

Krys, K. (2010). May amusement serve as a social courage engine? *Polish Psychological Bulletin*, *41*(2), 67–73. https://doi.org/10.2478/v10059-010-0009-z

Krys, K., Capaldi, C. A., Zelenski, J. M., Park, J., Nader, M., Kocimska- Zych, A., … Uchida, Y. (2019a). Family well-being is valued more than personal well-being: A four-culture study. *Current Psychology*. Advance Online Publication. https://doi.org/10.1007/s12144-019-00249-2

Krys, K., Park, J., Kocimska-Zych, A., Kosiarczyk, A., Selim, H. A., Wojtczuk-Turek, A., … &Adamovic, M., & . (2020). Personal life satisfaction as a measure of societal happiness is an individualistic presumption: Evidence from fifty countries. *Journal of Happiness Studies*, Advance online publication. https://doi.org/10.1007/s10902-020-00311-y

Krys, K., Uchida, Y., Oishi, S., & Diener, E. (2018). Open society fosters satisfaction: Explanation to why individualism associates with country level measures of satisfaction. *The Journal of Positive Psychology, 14*(6), 768–778. Advance online publication.https://doi.org/10.1080/17439760.2018.1557243

Krys, K., Vauclair, M., Capaldi, C., Lun, V. M.-C., Bond, M. H., Dominguez-Espinosa, A., … Yu, A. (2016). Be careful where you smile: Culture shapes judgments of intelligence and honesty of smiling individuals. *Journal of Nonverbal Behavior*, *40*(2), 101–116. https://doi.org/10.1007/s10919-015-0226-4

Krys, K., Xing, C., Zelenski, J. M., Capaldi, C. A., Lin, Z., & Wojciszke, B. (2017). Punches or punchlines? Honor, face, and dignity cultures encourage different reactions to provocation. *Humor*, *30*(3), 303–322. https://doi.org/10.1515/humor-2016-0087

Krys, K., Zelenski, J. M., Capaldi, C. A., Park, J., van Tilburg, W., van Osch, Y., … Uchida, Y. (2019b). Putting the "we" into well-being: Using collectivism-themed measures of well-being attenuates well-being's association with individualism. *Asian Journal of Social Psychology, 22*(3), 256–267. https://doi.org/10.1111/ajsp.12364 Advance online publication

Kuppens, P., Realo, A., & Diener, E. (2008). The role of positive and negative emotions in life satisfaction judgment across nations. *Journal of Personality and Social Psychology*, *95*(1), 66–75. https://doi.org/10.1037/0022-3514.95.1.66

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

Lincoln, K. (2000). Social support, negative social interactions, and psychological well-being. *Social Service Review*, *74*(2), 231–252. https://doi.org/10.1086/514478

Locke, K. D., & Horowitz, L. M. (1990). Satisfaction in interpersonal interactions as a function of similarity in level of dysphoria. *Journal of Personality and Social Psychology*, *58*(5), 823–831. https://doi.org/10.1037/0022-3514.58.5.823

Matsumoto, D., Yoo, S. H., & Nakagawa, S., & 37 members of MSCDR. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology*, *94*(6), 925–937. 10.1037/0022-3514.94.6.925

Mensah, Y. W., & Chen, H.-Y. (2013). Global clustering of countries by culture – An extension of the GLOBE study. Rutgers University. SSRN. http://ssrn.com/abstract=2189904

Minkov, M. (2009). Predictors of differences in subjective well-being across 97 nations. *Cross-Cultural Research, 43*, 152–179. https://doi.org/10.1177/1069397109332239

Minkov, M., Dutt, P., Schachner, M., Morales, O., Sanchez, C., Jandosova, J., … Mudd, B. (2017). A revision of Hofstede's individualism-collectivism dimension: A new national index from a 56-country study. *Cross Cultural & Strategic Management*, *24*(3), 386–404. https://doi.org/10.1108/CCSM-11-2016-0197

Nam, Y., Kim, Y.-H., & Tam, K. K.-P. (2018). Effects of emotion suppression on life satisfaction in Americans and Chinese. *Journal of Cross-cultural Psychology*, *49*(1), 149–160. https://doi.org/10.1177/0022022117736525

Nezlek, J. B., & Kuppens, P. (2008). Regulating positive and negative emotions in daily life. *Journal of Personality*, *76*(3), 561–580. https://doi.org/10.1111/j.1467-6494.2008.00496.x

Oishi, S. (2012). *The psychological wealth of nations: Do happy people make a happy society*. John Wiley.

Okulicz-Kozaryn, A., Holmes, O., & Avery, D. R. (2014). The subjective well-being political paradox: Happy welfare states and unhappy liberals. *The Journal of Applied Psychology*, *99*(6), 1300–1308. https://doi.org/10.1037/a0037654

Peñalver, J., Salanova, M., Martínez, I., & Schaufeli, W (2019). Happy-productive groups: How positive affect links to performance through social resources. *The Journal of Positive Psychology, 14*, 377-392. doi: 10.1080/17439760.2017.1402076

Radkiewicz, P., & Skarżyńska, K. (2019). Freedom, freedom, but what kind of freedom? Intrinsic and extrinsic sense of freedom as predictors of preferences for political community and attitudes towards democracy. *Social Psychological Bulletin*, *14*(3), 1–27. https://doi.org/10.32872/spb.v14i3.37565

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, *79*(3), 410–424. https://doi.org/10.1037/0022-3514.79.3.410

Rodriguez, T. (2013). Negative emotions are key to well-being. *Scientific American Mind*, *24*(2), 26–27. https://doi.org/doi:10.1038/scientificamericanmind0513-26

Ruby, M., Falk, C., Heine, S., Villa, C., & Silberstein, O. (2012). Not all collectivisms are equal: Opposing preferences for ideal affect between East Asians and Mexicans. *Emotion*, *12*(6), 1206–1209. https://doi.org/10.1037/a0029118

Scherer, K. R., London, H., & Wolf, J. J. (1973). The voice of confidence: Paralinguistic cues and audience evaluation. *Journal of Research in Personality*, *7*(1), 31–44. https://doi.org/10.1016/0092-65667390030-5

Smallenbroek, O., Zelenski, J. M., & Whelan, D. C. (2017). Authenticity as a eudaimonic construct: The relationships among authenticity, values, and valence. *The Journal of Positive Psychology*, *12*(2), 197–209. https://doi.org/10.1080/17439760.2016.1187198

Sommers, S. (1984). Reported emotions and conventions of emotionality among college students. *Journal of Personality and Social Psychology*, *46*(1), 207–215. https://doi.org/10.1037/0022-3514.46.1.207

Srivastava, S., Tamir, M., McGonigal, K. M., John, O. P., & Gross, J. J. (2009). The social costs of emotional suppression: A prospective study of the transition to college. *Journal of Personality and Social Psychology*, *96*(4), 883–897. https://doi.org/10.1037/a0014755

Stanton, A. L., & Low, C. A. (2012). Expressing emotions in stressful contexts: Benefits, moderators, and mechanisms. *Current Directions in Psychological Science*, *21*(2), 124–128. https://doi.org/10.1177/0963721411434978

Steel, P., Taras, V., Uggerslev, K., & Bosco, F. (2018). The happy culture: A theoretical, meta-analytic, and empirical review of the relationship between culture and wealth and subjective well-being. *Personality and Social Psychology Review*, *22*(2), 128–169. https://doi.org/10.1177/1088868317721372

Triandis, H., Marin, G., Lisansky, J., & Betancourt, H. (1984). Simpatía as a cultural script of Hispanics. *Journal of Personality and Social Psychology*, *47*(6), 1363–1375. https://doi.org/10.1037/0022-3514.47.6.1363

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90*(2), 288–307. https://doi.org/10.1037/0022-3514.90.2.288

Veenhoven, R. (2009). Well-being in nations and well-being of nations. *Social Indicators Research*, *91*(1), 5–21. https://doi.org/10.1007/s11205-008-9323-7

Vignoles, V. L., Owe, E., Becker, M., Smith, P. B., Easterbrook, M. J., Brown, R., … Bond, M. H. (2016). Beyond the 'East West' dichotomy: Global variation in cultural models of selfhood. *Journal of Experimental Psychology. General*, *145*(8), 966–1000. https://doi.org/10.1037/xge0000175

Wojciszke, B. (2005). The negative social world: The Polish culture of complaining. *International Journal of Sociology*, *34*(4), 38–59. https://doi.org/10.1080/00207659.2004.11043140

Wong, S., Bond, M. H., & Rodriguez Mosquera, P. M. (2008). The influence of cultural value orientations on self-reported emotional expression across cultures. *Journal of Cross Cultural Psychology*, *39*(2), 224–229. https://doi.org/10.1177/0022022107313866

World Bank (2017). GDP per capita, PPP (current international $). *International Comparison Program* [Database]. https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD

Is Societal Progress Muting the Expression of Negative Emotions? Evidence from Two Multinational Studies

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Contemporary theories of emotion emphasize the dual role of emotions as both personal experiences and communicative signals during social interactions. However, the impact of macro-level societal structures on emotional expression remains underexplored. This study investigates the experience-expression discrepancy for self-reported emotions across nations, focusing on how societal development influences this discrepancy, which captures expressivity. Using meta-analysis and multilevel modelling with a multinational sample (N_{sample} = 12,549, k_{nation} = 48, Study 1), we assessed the directions and variabilities in the frequency of expression of both positive and negative emotions, relative to the frequency of experiencing them. Negative emotions were more likely to be under-expressed. Further analyses revealed that societal trust, system quality and fairness, and the human development index significantly predicted the size of these discrepancies. Surprisingly, these effects were not associated with traditional cultural dimensions such as individualism versus collectivism, providing new insights into the social functionality of emotions from a macro perspective. These findings were replicated in an extended multinational sample (N_{sample} = 19,690, k_{nation} = 65, Study 2). Our findings highlight the importance of considering structural and societal factors in emotion research and provide a foundation for future explorations into the relations between cultural contexts and the expression of emotions.

Keywords: emotional expression, emotional experience, societal development, culture

The social-functional approach to emotions considers that the social context guides people to the affective reactions needed to function in their world (Haidt & Keltner, 1999). Emotional expression is integral to human interaction, functioning as a complex communicative system that conveys information beyond the capacity of words. The emotions-as-social-information model posits that observers can infer emotions' the expresser's intentions from the emotions expressed, and subsequently use this information to guide their own behavior in response (Van Kleef & Dreu, 2010).

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Emotions, therefore, serve a dual role: they are both experienced by individuals and perceived by others, acting as a social signal that can influence interpersonal interactions and group processes (Haidt & Keltner, 1999; Van Kleef, 2017).

The expression of emotions is often seen as an essential element of communication to facilitate attaining one's social needs (Keltner & Kring, 1998). Specifically, emotional expressions evoke complementary responses, including the observers' feelings and actions (Keltner et al., 2022). For instance, positive emotions such as happiness and gratitude are often used to build and maintain interpersonal relationships, fostering cooperation and a sense of trust (Fredrickson, 2001; Sauter, 2017). Conversely, negative emotions such as anger and sadness can serve to express dissatisfaction or alert oth-

ers to potential social issues of concern, thereby prompting collective action or eliciting support from others (Tiedens, 2001; Van Kleef & Côté, 2022).

Cultural background significantly influences the social function of emotional expression. Different cultural logics guide varying interpretations, modes of expression, and evaluations of emotions, thereby affecting their role in social interactions (Matsumoto et al., 2008; Mesquita & Frijda, 1992). For example, a smile symbolizes competence in some countries while being perceived as a signal of lower intelligence in others (Krys et al., 2016); expressing negative emotions might be seen as a sign of weakness in some countries (Gross et al., 2006), whereas doing so may be viewed as an expression of sympathy in others (Koopmann-Holm & Tsai, 2014).

Researchers in emotion and cultural psychology are aware of the distinct social effects of positive and negative emotional expressions, and how these effects are influenced by macro-level contexts, such as culture (Greenaway et al., 2018). However, the macro-level emotional expressivity and the impact of cultural factors have rarely been addressed. Assuming a social functionalist perspective, emotional expression is more than a reflection of personal experience; it also serves as a tool for social communication, designed to facilitate and meet social needs among individuals (Keltner & Haidt, 1999). This perspective suggests that, if a well-developed society is to effectively meet its needs, its emotional expressivity might reflect or be associated with its level of societal development. Our study aims to explore this potential association, examining how societal development might influence the ways emotions are expressed. By investigating this relation, we seek to offer new insights into the role emotions and their expression play in human societies.

Emotion Expressiveness and Societal Development

As argued by Putnam and colleagues (1993), "... features of social organisation, such as trust, norms and networks ... can improve the efficiency of society by facilitating coordinated actions." (p. 167). According to Knack and Keefer (1997), a developed society is synonymous with a trusting society. In close relationships, trust has been shown to be negatively associated with emotional suppression; to avoid conflict, people with low trust in their partners suppress emotions, whereas those with high trust expect constructive feedback and are more emotionally expressive (Righetti et al., 2015). Although individual-level phenomena often cannot transfer to the macro-level (Lavrakas, 2008), the research on trust may provide insights into the possible mechanism by which a trusting and efficient society might facilitate the alignment of individuals' emotional expressions with their emotional experiences.

However, an alternative perspective suggests that, in a trusting and efficient society, individuals' expression of experienced emotion might instead be suppressed. Emotional expressions, especially negative ones, function as a signal for social concerns (Van Kleef & Côté, 2022). For instance, expressions of sadness could be a plea for assistance (Fridlund, 1994), and expression of anger could denote a determination to counter injustice (Sinaceur & Tiedens, 2006). In societies where the system operates efficiently, injustice is minimal and reliance on institutional support is prevalent, so that the necessity for emotional signaling may be reduced. This reduction can be attributed to individuals in such societies favoring problem-focused coping strategies, as outlined by Lazarus and Folkman's (1987) transaction model on emotion and coping.

These strategies, employed when individuals perceive a higher degree of control over their circumstances, involve tackling problems directly instead of expressing negative emotions. For example, in a society with a responsive system, a person mistreated at a public service facility might opt to report the issue rather than emotionally expressing their discontent. By contrast, in less efficient societies, emotional expressions might be more commonly used to signal unresolved issues. Furthermore, in light of the transaction model on emotion and coping, individuals in more developed societies might not need to rely on emotional coping strategies but instead adopt problem-focused coping (Lazarus & Folkman, 1987). Hence, under-expression of negative emotions results.

This study considers two competing hypotheses regarding the societal impact on emotional expression. The first hypothesis posits that societal development may not influence or could even increase emotional expressivity due to enhanced trust and openness among its members. Conversely, the second hypothesis suggests that a well-developed society decreases the need for negative emotional expression by providing systematic support and problem-solving mechanisms. This contrast also raises the question of how positive emotions are handled in such societies—whether similar mechanisms also shape the expression of positive emotions, fostering an environment where these are more freely expressed or differently regulated.

In the context of emotional functions and their societal roles, the expression of emotions serves multiple purposes. Expressing negative emotions can be a way for individuals to signal social concerns, calling for attention to potential problems (Van Kleef & Dreu, 2010). On the other hand, positive emotions such as happiness or gratitude act as signals of a favorable condition and engagement with the surrounding environment (Shiota et al., 2021). These expressions are not merely responses to immediate stimuli but are deeply embedded within the societal context, influenced by developmental factors that either constrain or encourage various forms of emotional display. According to the emotion family approach (Sauter, 2017), specific positive emotions

also carry distinct prosocial functions; for example, love promotes commitment to intimate relationships (Campos et al., 2013), while gratitude is seen as a mechanism that fosters social bonds (Algoe & Haidt, 2009).

However, it is unclear how societal development is associated with the expression of positive emotions. As discussed by Matsumoto and colleagues (2008), the cultural influences on positive expression are generally weaker compared to negative expression. Additionally, Manokara et al. (2023) found that cultural norms shape the display rules for the expression of specific positive emotions. These norms vary significantly based on the social context; for instance, the acceptability of expressing certain positive emotions is influenced by the physical setting or social environment in which they are expressed, as well as the nature of the relationship between the expresser and the perceiver. Thus, the direction of the relation between societal development and expression of positive emotions may not be straightforward and needs further exploration.

While it is important to understand how societal development influences the expression of emotions, it is crucial to differentiate between mere expression and expressivity. In various cultures, emotions might be expressed to different extents (Krys et al., 2022), but this does not necessarily indicate whether these emotions are genuinely felt or are being over-expressed or under-expressed (Matsumoto et al., 2008). For instance, a society that frequently displays positive emotions might not necessarily experience these emotions to the same extent, which could indicate a cultural norm of masking true feelings with positive displays.

Therefore, our study extends beyond examining mere expressions to exploring expressivity—how much of the experienced emotion is actually expressed, adjusted for the actual emotional experience. This approach allows us to dissect to what extent emotional expressions in different societies are reflections of personal experience and are shaped by societal expectations and norms.

The Present Study

The present study investigates emotional expressivity, manifested by the discrepancy between the self-perceived experience and the expression of emotions. First, it aims to determine whether individuals in different cultural contexts over-express, under-express, or align their perceived emotional expressions with their experiences. Importantly, as we expect to find variance in the emotion-expression discrepancy, this study explores societal development and possible cultural indicators to explain this variance. Based on the exploratory results we obtained from cross-national Study 1, we tested the hypothesis that well-developed societies tend to under-express negative emotions more in Study 2.

Method

Participants

The current dataset was part of a cross-cultural study on happiness (Krys et al., 2022). The final dataset consisted of 12,549 individuals with valid responses (M_{age} = 24.84; SD_{age} = 4.19; Female% = 60.38%) from 48 nations and regions[1]. For simplicity, the term 'nation' used throughout this document refers to both nations and regions. The data collection was conducted from 2016 to 2018. The average national sample size was M_n = 261, SD_n = 131, varying between 101 (Germany) and 831 (Hungary). The study was performed in accordance with the ethical standards of the institutional and/or national research committees concerned. Table S1 shows the brief and detailed descriptive statistics of the demographic and focal variables used in the present study.

Measures

Emotional experience and social expectations for negative emotions

Participants rated their perceived frequency of emotional experiences and expressions of 30 emotions on a 9-point Likert scale with time periods specified (Krys et al., 2022: 1 = *never*; 2 = *a couple of times a year*; 3 = *a couple of times a month*; 4 = *a couple of times a week*; 5 = *once a day*; 6 = *a couple of times a day*; 7 = *almost every single hour*; 8 = *a couple of times an hour*; and 9 = *all the time*). The positive emotions rated were *amused, authentic, calm, elated, enthusiastic, euphoric, excited, grateful, hopeful, in love, peaceful, proud, relaxed, respectful, self-confident*, and *serene*. The negative emotions rated were *angry, ashamed, bored, depressed, disgusted, dull, embarrassed, fearful, hateful, hostile, nervous, sad, sleepy*, and *sluggish*. The average reliabilities for the emotional expressions and experiences were high, αs > .81. In the original study, Krys et al. (2022) found support for metric invariance across cultural clusters (e.g., Anglo, Latin Europe, Confucian Asia, etc.) and weak metric isomorphism (high congruence of the loadings between individual and national levels), following Tay et al. (2014) approach.

Societal Development

To capture societal development, we evaluate three primary indicators: Societal Trust, Societal System Quality and Fairness, and the Human Development Index.

[1]The term 'nations and regions' is used to acknowledge the inclusion of distinct cultural and administrative entities such as Hong Kong, which are considered separate for the purpose of this cross-cultural analysis. The current paper excluded one nation (Indonesia) from the data source due to the emotional norms for negative emotions being more than 4 SD from the means of the rest of the nations, as described in Krys et al. (2022)

Societal Trust. Social trust captures an intangible facet of society. The focus of this assessment is to measure the level of perceived trustworthiness among members of the community. In order to assess this societal feature, data were obtained from two primary sources, namely the World Value Survey (WVS, Haerpfer et al., 2022) and the Human Understanding Measured Across National (HUMAN) Surveys (Klassen, 2018).

The WVS captured general trust as reported by individuals across different countries. The present study primarily employed data from wave 7 in the year 2022, as reported by Haerpfer et al. (2022). In instances where data were unavailable for certain nations in the current wave, we resorted to utilizing data from WVS, wave 6. The nation's trust was assessed by the percentage of participants who expressed agreement with the statement that "most people can be trusted," providing a brief representation of the prevalent level of trust throughout these communities. The HUMAN Surveys, conducted by Klassen (2018), provides a metric of social trust that distinguishes between a broad trust in individuals and a tendency towards caution in interpersonal interactions. Trust is measured using a numerical scale ranging from 0, representing the minimum amount of trust, to 100, indicating the maximum level of trust.

Both sources assess the attitude of participants regarding their level of confidence in others, specifically examining their belief in the trustworthiness of most individuals against their tendency to assume caution while interacting with others. Both instruments possess a scale range spanning from 0 to 100. The correlation between the two measures was r = .82, p < .001, with a confidence interval of [.69 to .90], suggesting a strong overlap among these two variables. In our analysis, the mean of these two variables is utilized as an indicator of societal trust.

Societal system quality and fairness. Societal system quality and fairness encompasses the perceived effectiveness and integrity of governance structures. This measure was derived from the Worldwide Governance Indicators (WGI; Kaufmann & Kraay, 2023) and assesses how the public perceives the efficiency, fairness, and quality of governmental institutions and legal frameworks. By examining factors such as government efficiency, the rule of law, and the accessibility of fair systems, this measure reflects citizens' views on the extent to which their societal systems facilitate fairness, accountability, and effective governance. Such perceptions are crucial in understanding the overall functionality and trustworthiness of a society's institutional framework, directly impacting the degree of trust and cooperation among its members.

We focused on five WGI dimensions, capturing key aspects of societal governance and quality of institutions: Voice and Accountability (VA), highlighting citizens' participatory rights and freedom; Government Effectiveness (GE), reflecting the quality of public services and policy formulation; Regulatory Quality (RQ), assessing the ability of the government to frame and implement sound policies; Rule of Law (RL), signifying the quality of contract enforcement, property rights, and the judiciary; and Control of Corruption (CC), measuring the extent to which public power is used for private gain. A principal component analysis revealed that a dominant single factor accounted for 89.37% of the variance across these dimensions. Loadings of each dimension on this factor were substantial (loadings = 0.959 – 0.980), indicating their significant contribution to the primary component of system quality and governance.

Human Development Index. The Human Development Index (HDI, United Nations Development Programme, 2018) is a composite statistic of life expectancy, education (measured by mean years of schooling and expected years of schooling), and per capita income indicators, which can be used to rank countries into four tiers of human development. The HDI provides insight into a nation's societal and economic development, reflecting the tangible standard of living. In our study, we chose HDI as a representative measure of societal development because it encompasses not only economic aspects but also educational and health outcomes, offering a broad perspective on societal progress. By including HDI, we aim to capture a multifaceted view of societal development, avoiding redundancy and overlap that might arise from economic development by using GDP as a single indicator.

Other Cultural Dimensions

Demographic features of the data included the student sample ratio, female ratio, and mean age of the sample (Krys et al., 2022). These were used to examine if they were associated with the experience–expression discrepancies. In addition, some cultural dimensions, such as Individualism (Hofstede, 2010) and Self-expression values (vs. survival values; Inglehart, 2006), have been proposed to influence emotional expression (Greenaway et al., 2018). For exploratory purposes, the additional cultural dimensions of Cultural Heterogeneity (World Migration Matrix, Putterman & Weil, 2010) and Tightness-Looseness (Gelfand et al., 2011) were also included. These cultural dimensions, while not the central focus of our investigation, serve as potential indicators to ensure a comprehensive understanding of the cultural factors influencing emotional expressivity across diverse contexts.

Analytical strategies

To quantitatively assess the discrepancies between emotional experience and expression for positive and negative emotions within each nation, we conducted within-sample t-tests. These tests compare the mean scores of expressed and experienced emotions for each nation. Cohen's d was

then employed to measure the effect size of these discrepancies. A positive Cohen's d indicates that emotions are predominantly over-expressed (i.e., expressed more frequently than experienced), whereas a negative Cohen's d suggests under-expression (i.e., expressed less frequently than experienced). This method allows us to evaluate the magnitude of experience-expression discrepancies within each cultural context and to compare these across different nations.

We conducted a cross-cultural meta-analysis (Smith et al., 2013) with a random-effects mode. This method accommodates the heterogeneity across the dataset, enabling us to explore both between- and within-nation effects. Then we employed meta-regression models to explain the cross-national differences in the over-expression, neutral, or under-expression effects for both positive and negative emotions.

All the analyses were conducted under the R statistical environment (R version 4.2.2, R Core Team, 2022) and the metafor package (version 3.8.1, Viechtbauer, 2010) for main effect size estimation and meta-regression analyses. This study was not pre-registered.

Results

Experience–expression discrepancies (EED) estimates

We firstly computed the experience–expression discrepancies for positive and negative emotions (hereafter, posEED and negEED, respectively) by using the standardized mean difference (Cohen's d, with Cohen's interpretation, 1988) between the aggregated frequency of emotional experience and that of emotional expression. A random-effect meta-analysis revealed that, overall, both positive and negative emotions were under-expressed; the effect was small in posEED ($d = -0.24[-0.29, -0.19], p < .001$), while medium to large in negEED ($d = -0.60[-0.66, -0.53], p < .001$). The complete list of EED is available in Table 1 (sorted alphabetically by nation) and in Figure 1 (sorted by effect size).

For positive emotions, most countries demonstrated under-expression of positive emotions. Italy exhibited significant over-expression with a small effect ($d = 0.21, p < .001$), whereas China showed the greatest under-expression with a medium to large difference ($d = -0.67$). In terms of negative emotions, Switzerland showed the greatest under-expression with a large effect ($d = -1.16$), and Ghana displayed the least under-expression with a small effect ($d = -0.13$). These findings highlight substantial variations in the emotional experience-expression discrepancy across countries, which may be influenced by distinct societal contexts. The correlation between EED for positive and negative emotions and nation-level variables is in Table 2 and the correlation among all variables used is found in Table S1 of the Supplementary Materials.

To examine if the between-nation variation is large enough for further moderation analyses, we performed heterogeneity tests. The between-nation variations were large, posEED: $Q(47) = 386.08, p < .001, I^2 = 88.27\%$; negEED: $Q(47) = 602.24, p < .001, I^2 = 92.42\%$, indicating the need for and suitability of performing moderation analyses to explain the between-nation variations.

Potential cultural and demographic impacts on EED

Prior to examining the effects of societal development on emotional expression discrepancies, we assessed the potential impact of sample characteristics, such as the student ratio, gender ratio, and mean age, along with various cultural dimensions including Individualism, Self-expression values, Cultural Heterogeneity, and Tightness-Looseness on EED. As shown in Table 3, these variables generally did not significantly influence the EED for either positive or negative emotions, except for a marginally significant effect of Self-expression values on the negEED ($p = .07$). The analysis revealed minimal impact from sample characteristics and other cultural dimensions on EED, thus the following sections will focus on the effects of societal development.

EED and Societal Development

We found that the more a given society was developed, the larger was the effect of under-expression of negative emotions. Specifically, people under-expressed their negative emotions more in nations with greater societal development, trust: $Q_M(df = 1) = 14.88, p < .001, R^2 = 24.95\%$; system quality and fairness: $Q_M(df = 1) = 13.83, p < .001, R^2 = 23.45\%$; HDI: $Q_M(df = 1) = 15.82, p < .001, R^2 = 26.47\%$. In contrast, when examining posEED, only societal trust showed a significant effect, $Q_M(df = 1) = 4.85, p < .05, R^2 = 8.97\%$. This suggests that while societal trust correlates with the expression of both positive and negative emotions, the magnitude of its effect is notably more pronounced in negEED. The full meta-regression results for the moderation effects on posEED and negEED can be found in Table 3 and the regressions are illustrated in Figure **??**. These effects remained significant after controlling the effects of study characteristics, i.e., the mean age of the sample, the portion of students in the sample, and the portion of females in the sample, for posEED, trust: Estimate = −0.004, $SE = 0.002, p = .02$; for negEED, trust: Estimate = −0.001, $SE = 0.001, p = .002$; system quality and fairness: Estimate = −0.14, $SE = 0.04, p < .001$; HDI: Estimate = −1.25, $SE = 0.29, p < .001$.

As a sensitivity check, we also employed multilevel modeling which specify the individual difference scores (i.e., EED) as the outcome variables, and individual demographics and emotional experience as covariates, and evaluated if the effect of societal development remains after introducing these controls. The results based on multilevel analysis controlling for demographics and emotional experiences at the

Table 1

Descriptive statistics of the demographic and focal variables by nation (Study 1)

					Positive Emotion					Negative Emotion				
Nations	*n*	F%	S%	M_{age}	Xpr	Xpe	*d*	V_d	*r*	Xpr	Xpe	*d*	V_d	*r*
Argentina	174	74.14	100	32.44	5.31	5.47	-0.29	.006	.89	3.55	3.83	-0.40	.006	.84
Australia	336	57.74	42.56	38.04	4.65	4.73	-0.16	.003	.95	3.83	4.01	-0.34	.003	.93
Austria	316	80.38	66.77	28.47	5.14	5.31	-0.34	.003	.91	3.12	3.53	-0.75	.003	.83
Bhutan	119	61.34	100	22.62	4.92	4.98	-0.13	.008	.91	4.36	4.54	-0.32	.008	.89
Brazil	604	54.47	55.46	27.44	5.57	5.68	-0.19	.002	.90	4.12	4.53	-0.52	.002	.82
Canada	236	72.03	100	21.89	4.89	4.94	-0.09	.004	.92	3.70	4.02	-0.55	.004	.85
Chile	214	56.54	100	21.58	5.39	5.53	-0.22	.005	.87	3.90	4.42	-0.59	.005	.69
China	196	71.43	100	20.60	5.01	5.53	-0.67	.005	.84	3.38	3.98	-0.77	.006	.76
Colombia	459	51.63	100	32.89	5.72	5.82	-0.13	.002	.84	3.61	3.81	-0.25	.002	.83
Croatia	140	84.29	100	30.69	4.74	4.86	-0.21	.007	.91	3.28	3.62	-0.57	.007	.85
Czech Rep.	198	51.01	100	22.22	5.29	5.34	-0.07	.005	.83	3.72	4.21	-0.79	.006	.81
El Salvador	237	58.65	100	26.90	5.90	5.97	-0.10	.004	.81	4.23	4.46	-0.25	.004	.77
Estonia	198	71.21	100	28.80	5.18	5.36	-0.31	.005	.83	3.37	3.90	-0.76	.006	.72
France	214	83.18	100	31.73	4.59	4.94	-0.44	.005	.76	2.97	3.50	-0.83	.005	.78
Georgia	234	53.42	100	20.05	4.57	4.73	-0.23	.004	.79	3.33	3.88	-0.72	.005	.70
Germany	101	81.19	96.04	22.43	5.28	5.31	-0.07	.01	.89	3.32	3.79	-0.71	.011	.78
Ghana	258	52.33	100	22.21	6.31	6.25	0.12	.004	.90	3.85	3.96	-0.13	.004	.79
Greece	425	59.76	53.65	24.71	5.03	5.14	-0.19	.002	.90	3.56	4.06	-0.73	.003	.82
Guatemala	107	71.03	100	20.51	5.70	6.04	-0.36	.01	.73	4.24	4.94	-0.69	.011	.66
Hong Kong	291	37.11	100	21.16	4.26	4.25	0.04	.003	.96	3.32	3.67	-0.51	.004	.76
Hungary	831	73.16	100	20.89	5.27	5.42	-0.23	.001	.86	3.67	4.20	-0.68	.001	.68
Iceland	350	80.57	78.86	30.91	4.37	4.84	-0.55	.003	.79	2.81	3.55	-1.01	.004	.73
Iran	191	48.17	100	34.42	5.01	5.17	-0.21	.005	.80	3.58	3.91	-0.40	.005	.75
Ireland	237	59.49	100	20.96	5.17	5.35	-0.26	.004	.80	3.77	4.28	-0.69	.005	.75
Italy	286	53.85	100	25.15	5.86	5.69	0.21	.004	.80	4.06	4.20	-0.16	.004	.78
Japan	198	38.89	100	19.56	4.27	4.48	-0.43	.005	.92	3.88	4.26	-0.57	.005	.85
South Korea	208	47.6	100	22.43	4.90	5.13	-0.44	.005	.91	4.08	4.37	-0.49	.005	.86
Lithuania	294	73.47	75.85	25.65	5.35	5.50	-0.22	.003	.80	3.76	4.23	-0.53	.004	.61
Luxembourg	211	69.19	80.57	25.83	5.11	5.26	-0.23	.005	.88	3.55	4.08	-0.72	.005	.80
Malaysia	190	67.89	100	20.82	5.70	5.89	-0.32	.005	.89	4.20	4.63	-0.61	.006	.82
Mexico	172	56.98	100	20.79	5.26	5.49	-0.35	.006	.88	3.63	4.15	-0.67	.007	.73
Netherlands	194	9.79	100	19.41	4.62	4.89	-0.55	.005	.87	3.25	3.79	-1.04	.006	.77
Nigeria	130	82.31	100	19.82	5.51	5.53	-0.04	.008	.94	4.03	4.16	-0.19	.008	.88
Norway	249	78.71	100	22.66	4.52	4.68	-0.22	.004	.79	2.92	3.62	-0.97	.005	.63
Pakistan	239	46.86	100	21.78	5.50	5.52	-0.04	.004	.88	4.44	4.73	-0.36	.004	.81
Poland	470	68.94	51.7	32.55	4.39	4.40	-0.02	.002	.93	3.34	3.62	-0.46	.002	.86
Portugal	256	66.41	59.77	28.60	5.59	5.65	-0.09	.004	.83	3.55	3.95	-0.53	.004	.77
Romania	289	49.83	100	22.31	5.54	5.72	-0.29	.003	.88	3.57	3.87	-0.49	.004	.87
Russia	270	62.96	100	19.76	5.02	5.12	-0.16	.004	.83	3.88	4.19	-0.36	.004	.76
Saudi Arabia	177	80.79	100	39.37	5.11	5.59	-0.53	.006	.86	3.28	3.78	-0.57	.006	.72
Serbia	210	50.48	100	20.11	5.11	5.40	-0.48	.005	.89	3.23	3.96	-1.10	.006	.84
Slovakia	310	52.58	100	21.55	5.53	5.73	-0.33	.003	.85	3.75	4.18	-0.59	.003	.77
Switzerland	333	20.12	95.8	25.92	4.69	4.94	-0.54	.003	.88	2.96	3.45	-1.16	.004	.82
Taiwan	210	64.29	100	19.99	4.71	4.80	-0.20	.005	.92	3.31	3.74	-0.68	.005	.81
Turkey	201	53.23	100	32.02	5.62	5.69	-0.17	.005	.93	3.64	3.94	-0.47	.005	.87
Ukraine	204	55.39	100	18.97	4.98	5.22	-0.44	.005	.89	3.55	4.10	-0.66	.005	.74
UK	139	30.94	100	20.75	4.25	4.38	-0.29	.007	.90	3.20	3.67	-0.80	.008	.79
USA	443	70.43	100	21.37	5.24	5.28	-0.07	.002	.89	3.77	4.16	-0.55	.002	.83

Note. F% = percentage of female participants; S% = percentage of student participants; Xpr = Emotional Expression; Xpe = Emotional Experience; *d* = expression-experience discrepancy for positive (posEED) and negative (negEED) emotions (expression - experience); *Vd* = variance of *d*; *r* = strength of association between emotional expression and experience.

individual level was consistent with those based on the meta-analytic approach. Stronger under-expression of both positive and negative emotions was associated with higher frequency of experiencing those emotions (Estimates ranged from −.25 to −.09, $p < .001$). For negative emotions, societal trust, societal system quality and fairness, and the Human Development Index were negatively associated with individual EED (Estimates ranges from −.686 to −.004, $p < .01$), whereas for positive emotions, only societal trust was significantly and negatively associated (Estimate = −.003, $p < .01$). Details of model specification may be found in the Table S4 in the Supplementary Materials.

Analyses on Specific Emotions

Not all emotions would show the signaling response related to societal development. To assess this possibility, separate post-hoc meta-regression models for all the specific emotions were conducted. Specifically, we calculated the experience-expression discrepancy for each emotion item and examined whether societal development is associated with the strength of the discrepancy. Given that conducting multiple analyses can elevate the risk of Type I errors, only those results that remained significant after the application of a Bonferroni correction were considered for interpretation. The meta-regression results are in Table 4, and the full list of specific emotion analyses is in the Supplementary Materials.

For positive emotion items, only the experience-expression discrepancy of *grateful* was significantly moderated by societal development. It indicated that the more the society is developed, the greater the under-expression gap between the frequency of the societal expression and societal experience in *grateful*, trust: $Q_M(df = 1) = 13.27$, $p < .001$,$R^2 = 26.16\%$; system quality and fairness: $Q_M(df = 1) = 16.52$, $p < .001$, $R^2 = 31.4\%$; HDI: $Q_M(df = 1) = 12.54$, $p < .001$, $R^2 = 25.7\%$.

For negative emotion items, the EED of anger was not significantly associated with societal development. However, the complex forms of anger (Shaver et al., 1987), such as hostility, disgust, and hate, as well as emotions related to fear, including fearful and nervous feelings, were associated with societal development indicators. To illustrate, the EED of hostility was moderated by trust ($Q_M[df = 1] = 13.68$, $p < .001$), by system quality and fairness ($Q_M[df = 1] = 12.98$, $p < .001$), and by HDI ($Q_M[df = 1] = 11.23$, $p < .001$), each indicating a considerable percentage of variance explained ($R^2 = 24.82\%$, 23.72%, and 20.78%, respectively). Similarly, the emotion of nervousness showed a significant association with societal development in terms of trust ($Q_M[df = 1] = 18.93$, $p < .001$, $R^2 = 32.33\%$), system quality and fairness ($Q_M[df = 1] = 14.8$, $p < .001$, $R^2 = 26.53\%$), and HDI ($Q_M[df = 1] = 16.76$, $p < .001$, $R^2 = 29.06\%$).

Some negative emotions that cannot be grouped based

Table 2

Correlations among national level indicators in the main analyses (Study 1)

Variables	*M*	*SD*	1	2	3	4	5	6	7	8
1. posEED	-0.24	0.18								
2. negEED	-0.6	0.24	.68***							
3. Positive Emotional Expression	5.12	0.48	.37*	.51***						
4. Negative Emotional Expression	3.61	0.39	.42**	.68***	.58***					
5. Positive Emotional Experience	5.27	0.45	0.11	.35*	.96***	.49***				
6. Negative Emotional Experience	4.03	0.34	0.18	.38**	.52***	.92***	.50***			
7. Societal Trust	33.37	16.46	.30*	.49***	.56***	.46**	.51***	.38**		
8. System Quality & Fairness	0.62	0.85	0.08	.48***	.51***	.47***	.54***	.42**	.71***	
9. Human Development Index	0.82	0.11	0.22	.51***	.55***	.57***	.54***	.50***	.65***	.80***

*** $p < .001$, ** $p < .01$, * $p < .05$. posEED/negEED = Expression–Experience Discrepancy for Positive/Negative Emotions.

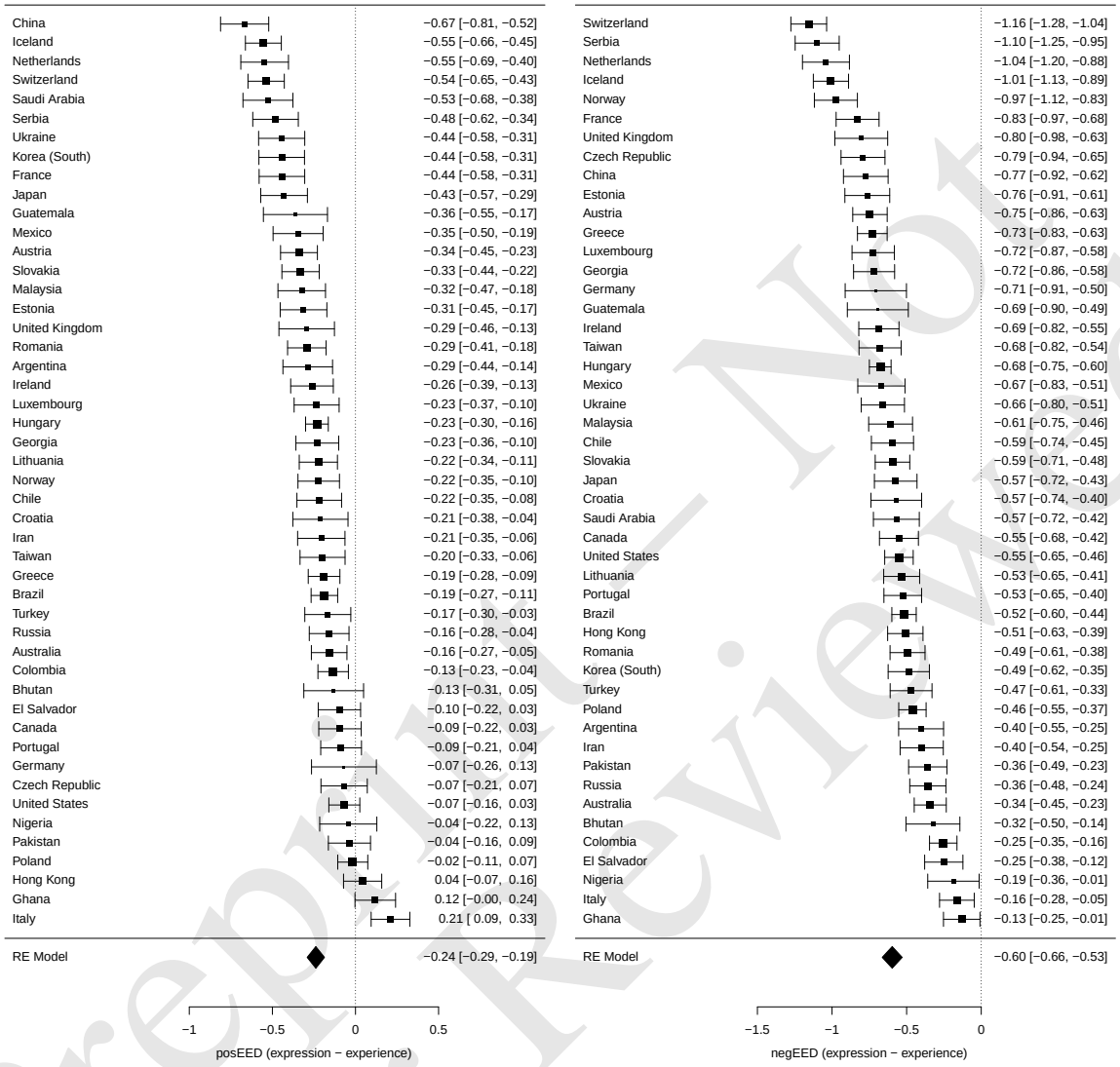

Figure 1

Forest plot of the integrated effect sizes of the posEED (left) & negEED (right) across 48 nations (Study 1)

on emotion families, such as feeling ashamed, depressed, sleepy, and sluggish, were also found to be significantly associated with societal development. For example, the EED of feeling ashamed was notably moderated by societal development, $Q_M(df = 1) = 19.99$, $p < .001$, $R^2 = 35.88\%$ for trust, $Q_M(df = 1) = 12.21$, $p < .001$, $R^2 = 24.35\%$ for system quality and fairness, and $Q_M(df = 1) = 12.69$, $p < .001$, $R^2 = 25.68\%$ for HDI.

Study 2

Method

Participants

The current dataset was part of a cross-cultural study on societal development and ideal types of well-being conducted between 2022 and 2024. The final dataset consisted of 19,690 individuals with valid responses (M_{age} = 28.48; SD_{age} = 4.24; $M_{Female\%}$ = 61.06%) from 65 nations and regions. The average national sample size was $M_n = 304.16, SD_n = 264.06$, varying between 112 (Brazil)

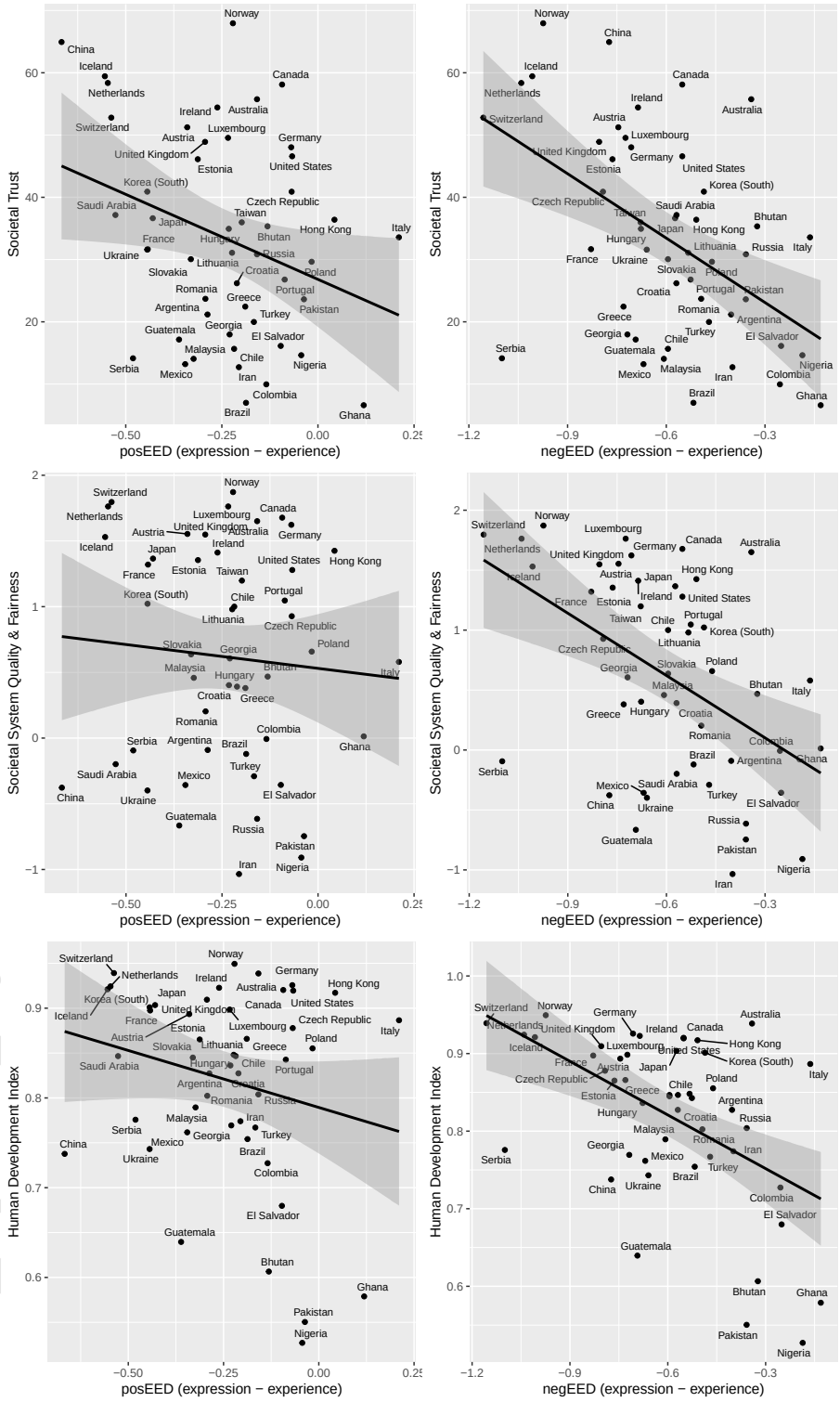

Figure 2

The Association Between posEED & negEED and Societal Development (Study 1)

Table 3

Meta-regression results for the moderation effects of different indicators on posEED and negEED (Studies 1 & 2)

			Dependent Variables						
			posEED				negEED		
Moderators	*k*	data source	Q_M	*B* (*S E*)	*CI*	R^2%	Q_M	*B* (*S E*)	*CI*	R^2%
					Study 1					
Sample characteristics										
Student sample ratio	48	K	0.69	-0.14 (0.17)	-0.47, 0.19	0.00	0.03	-0.04 (0.22)	-0.47, 0.39	0.00
Gender ratio	48	K	0.22	0.001 (0.002)	-0.003, 0.004	0.00	0.55	0 (0)	0, 0.01	0.00
Sample mean age	48	K	0.00	0 (0.01)	-0.01, 0.01	0.00	1.68	0.01 (0.01)	0, 0.02	1.58
Societal developmental level										
Societal Trust	48	H&W	4.85*	-0.003 (0.002)	-0.01, 0	8.97	14.88***	-0.01 (0.002)	-0.01, -0.003	24.95
Societal System Quality Fairness	48	WGI	0.35	-0.019 (0.032)	-0.08, 0.04	0.00	13.83***	-0.13 (0.036)	-0.21, -0.064	23.45
Human Development Index	47	UNDP	2.32	-0.39 (0.26)	-0.89, 0.11	3.35	15.82***	-1.15 (0.29)	-1.71, -0.58	26.47
Other Cultural Dimensions										
Heterogeneity	48	WMM	0.23	0.001 (0.002)	-0.002, 0.004	0.00	0.05	0 (0.002)	-0.004, 0.005	0.00
Hofstede Individualism	41	Hof	0.31	0.001 (0.001)	-0.002, 0.003	0.00	2.26	-0.002 (0.001)	-0.005, 0.001	3.27
Self-expression (vs. survival)	37	I	0.34	-0.03 (0.04)	-0.11, 0.06	0.00	3.27†	-0.11 (0.06)	-0.22,0.01	6.37
Tightness (vs. Looseness)	25	G	0.11	0.01 (0.02)	-0.03, 0.04	0.00	1.01	0.02 (0.02)	-0.01, 0.05	0.00
					Study 2 (Replication)					
Societal developmental level										
Societal Trust	61	H&W	3.73†	0.004 (0.002)	0, 0.008	6.20	11.82***	-0.009 (0.003)	-0.014, -0.004	18.50
Societal System Quality Fairness	63	WGI	1.61	0.049 (0.039)	-0.027, 0.125	1.99	14.46***	-0.181 (0.047)	-0.274, -0.088	22.24
Human Development Index	64	UNDP	1.07	0.263 (0.255)	-0.236, 0.762	0.20	9.76**	-1.007 (0.322)	-1.639, -0.375	14.02

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. *k* = number of nations. QM = test of moderator. K = aggregated data from Krys et al. (2022); H = Human Understanding Measured Across National (HUMAN) Surveys; W = World Value Survey wave 7; WGI = World Government Index; UNDP = United Nations Development Programme; G = Gelfand et al. (2011); WMM = World Migration Matrix (Putterman & Weil, 2010); Hof = Hofstede (2001); I = Inglehart (2006)

and 1800 (Malaysia). Table S2 show the descriptive statistics of the demographic and focal variables used in the present study[2].

Measures

Frequency of Negative Emotional Experiences and Expressions. As in Study 1, participants rated their frequency of emotional experiences and expressions on a 9-point Likert scale with the same time periods specified (Krys et al., 2022), but with a shortened list of emotion items (positive: *gratitude*, *excitement*, *relaxed*, and *in love*; negative: *fear*, *anger*, *sadness*, and *shame*).

Societal Development. We used the same measures for societal development from Study 1 to maintain consistency, including data from the World Value Survey (Haerpfer et al., 2022). The HUMAN Surveys (Klassen, 2018) were again used to assess societal trust, reflecting the community's perceived trustworthiness. Similarly, the perception of societal system quality and fairness was evaluated using the Worldwide Governance Indicators (Kaufmann & Kraay, 2023), which measure public opinion on government efficiency, fairness, and integrity. Additionally, the Human Development Index (United Nations Development Programme, 2022) was employed to provide a comprehensive measure of life expectancy, education, and income.

Result

Before proceeding with the main analysis, we conducted tests for measurement invariance of emotional constructs across cultures. We specified multi-group confirmatory analysis between 10 cultural clusters (Gupta et al., 2002; Mensah & Chen, 2013), namely Anglo, Latin Europe, Nordic Europe, Germanic Europe, Eastern Europe, Latin America, Sub-Saharan Africa, Middle East, Southern Asia, and Confucian Asia. These tests demonstrated metric equivalence, indicating that the factor loadings and the relations among items and their corresponding latent structures were consistent across cultures. Details of these analyses can be found in the Supplementary Materials.

In Study 2, we replicated the main findings from Study 1 regarding under-expression of negative emotions across different societal contexts. Consistent with the initial results, our analysis confirmed that more developed societies show a greater tendency towards under-expression of negative emotions. The statistical significance of this effect remained robust across measures of societal development, mirroring the significant associations found in Study 1: trust: $Q_M(df = 1) = 11.82$, $p < .001$, $R^2 = 18.50\%$; system quality and fairness: $Q_M(df = 1) = 14.46$, $p < 001$, $R^2 = 22.24\%$; HDI: $Q_M(df = 1) = 9.76$, $p = .001$, $R^2 = 14.02\%$.

Regarding positive emotions, societal trust showed a marginally significant effect, $Q_M(df = 1) = 3.73$, $p = .053$, $R^2 = 6.20\%$. Consistent with Study 1, other indicators of societal development did not significantly predict experience-expression discrepancy for positive emotions ($p > .20$).

These results reaffirm the findings observed in Study 1, suggesting the robustness of our findings across a larger and more diverse sample. The full meta-regression results for the moderation effects on posEED and negEED can also be found in Table 3.

General Discussion

There is a discrepancy between what we feel and what we express. In the present study, we examined and documented this discrepancy across two studies– one covering 48 nations, another 65– and find out if people express less than what they feel, for both positive and especially negative emotions. Importantly, we also explored three indicators of societal development that can predict the difference between the frequency of emotional experience and emotional expression shown across nations. The consistency of results across two different large-scale cross-cultural studies highlights the robustness of our findings and lends support to the reasoning that societal development may have pervasive impact on inhibiting negative-emotion expressivity.

The Incremental Value of the Current Approach

The decision to focus on the experience-expression discrepancy using Cohen's *d* has yielded significant insights that may not have been illuminated through correlation analysis alone. While correlation coefficients indicate the strength of the association between emotional expression and experience, the directional difference in magnitude between these two measures is not explicitly revealed. This study's approach has allowed for a more directly interpretable analysis of emotional expression norms, revealing that the extent of under-expression of negative emotions can vary dramatically even between nations. For example, in Study 1, the substantial difference in negEED values between Switzerland ($d = -1.16$) and Malaysia ($d = -0.61$), despite their identical correlation coefficients ($r = .82$), highlights that Swiss individuals' under-express negative emotions to a far greater extent than Malaysians. By quantifying the discrepancies between emotional expression and emotional experience, this research sheds light on the underlying cultural mechanisms that govern emotional behaviour, offering a more precise manifestation of emotional expressivity that extends beyond linear associations.

Our analysis reveals some intriguing patterns showing within-cultural cluster variance. For instance, within the

[2] We included only participants who self-reported ages between 18 and 60, excluded responses deemed of low quality (e.g., random or non-compliant with instructions), and considered only data from nations contributing more than 100 valid responses.

Table 4

Meta-regression results for the moderation effects of societal development on EED of specific emotions (Study 1)

	Moderators								
	Societal Trust			System Quality Fairness			Human Development Index		
Emotions	Q_M	$B\,(SE)$	R^2%	Q_M	$B\,(SE)$	R^2%	Q_M	$B\,(SE)$	R^2%
				Positive Emotions					
amused	4.61*	0.00 (0.00)	13.71	0.86	-0.02 (0.02)	1.51	0.18	-0.06 (0.15)	0
authentic	6.76**	0.00 (0.00)	15.89	1.58	-0.03 (0.02)	2.61	2.68	-0.32 (0.19)	5.96
calm	0.85	0.00 (0.00)	0	1.25	0.03 (0.03)	0.17	0.29	0.12 (0.23)	0
elated	0.17	0.00 (0.00)	0	0.03	0.00 (0.02)	0	0.42	-0.12 (0.18)	0
enthusiastic	0.2	0.00 (0.00)	0	0.56	0.01 (0.02)	0	0.28	0.08 (0.15)	0
euphoric	1.26	0.00 (0.00)	0.07	0.04	0.00 (0.02)	0	0.1	0.05 (0.15)	0
excited	2.62	0.00 (0.00)	3.93	0.35	-0.01 (0.02)	0	1.95	-0.28 (0.20)	2.38
grateful	**13.27*** **	**0.00 (0.00)**	**26.16**	**16.52*** **	**-0.09 (0.02)**	**31.4**	**12.54*** **	**-0.68 (0.19)**	**25.67**
hopeful	2	0.00 (0.00)	2.75	0.09	-0.01 (0.03)	0	0.96	-0.21 (0.22)	0
in love	3.17†	0.00 (0.00)	5.54	2.47	-0.04 (0.02)	3.48	5.69*	-0.46 (0.19)	10.77
peaceful	7.17**	0.00 (0.00)	14.52	0.04	0.01 (0.03)	0	0.82	-0.21 (0.23)	0
proud	3.07†	0.00 (0.00)	5.41	2.04	-0.03 (0.02)	3.14	4.17*	-0.39 (0.19)	8.01
relaxed	6.31*	0.00 (0.00)	14.61	0.18	-0.01 (0.02)	0	2.63	-0.28 (0.17)	4.92
respectful	7.46**	0.00 (0.00)	16.37	4.54*	-0.05 (0.02)	9.94	6.35*	-0.48 (0.19)	13.56
self-confident	1.36	0.00 (0.00)	1.81	0.25	0.01 (0.02)	0	0.11	-0.06 (0.18)	0
serene	2.49	0.00 (0.00)	3.68	0.66	0.03 (0.03)	0	0.01	-0.02 (0.25)	0
				Negative Emotions					
angry	5.7*	0.00 (0.00)	11.77	3.97*	-0.05 (0.02)	8.12	2.6	-0.32 (0.20)	4.94
ashamed	**19.99*** **	**-0.01 (0.00)**	**35.88**	**12.21*** **	**-0.09 (0.02)**	**24.35**	**12.69*** **	**-0.71 (0.20)**	**25.68**
bored	**8.91** **	**0.00 (0.00)**	**17.82**	6.95**	-0.06 (0.02)	13.69	7.07**	-0.51 (0.19)	13.89
depressed	**11.42*** **	**0.00 (0.00)**	**23.83**	**10** **	**-0.07 (0.02)**	**21.22**	**14.77*** **	**-0.69 (0.18)**	**29.57**
disgusted	**13.73*** **	**0.00 (0.00)**	**30.79**	**12.31*** **	**-0.07 (0.02)**	**28.2**	**8.82** **	**-0.49 (0.16)**	**22.16**
dull	8.28**	0.00 (0.00)	16.76	7.26**	-0.07 (0.03)	14.47	**11.53*** **	**-0.71 (0.21)**	**22.33**
embarrassed	7.17**	0.00 (0.00)	14.92	3.74†	-0.05 (0.03)	7.45	6.2*	-0.52 (0.21)	12.73
fearful	7.58**	0.00 (0.00)	14.28	**9.05** **	**-0.08 (0.03)**	**16.9**	**14.46*** **	**-0.82 (0.22)**	**26.15**
hateful	**10.51** **	**0.00 (0.00)**	**22.79**	7.51**	-0.06 (0.02)	16.87	**10.57** **	**-0.54 (0.17)**	**23.27**
hostile	**13.68*** **	**-0.01 (0.00)**	**24.82**	**12.98*** **	**-0.1 (0.03)**	**23.72**	**11.23*** **	**-0.75 (0.22)**	**20.78**
nervous	**18.93*** **	**-0.01 (0.00)**	**32.33**	**14.8*** **	**-0.1 (0.03)**	**26.53**	**16.76*** **	**-0.89 (0.22)**	**29.6**
sad	5.27*	0.00 (0.00)	10.59	6.19*	-0.07 (0.03)	12.67	**9.61** **	**-0.68 (0.22)**	**19.5**
sleepy	**11.93*** **	**0.00 (0.00)**	**22.47**	**9.8** **	**-0.08 (0.03)**	**18.64**	**9.42** **	**-0.65 (0.21)**	**17.88**
sluggish	**17.49*** **	**0.00 (0.00)**	**32.5**	**10.4** **	**-0.08 (0.02)**	**20.91**	**11.27*** **	**-0.65 (0.19)**	**22.79**

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. EED = Expression-Experience Discrepancy. Significant after Bonferroni correction ($p < .05/i$) in bold.

Confucian Asia cluster, China stands out, demonstrating a significant tendency to under-express positive emotions, which contrasts sharply with that of Hong Kong. Despite their geographical proximity and shared cultural heritage, Hong Kong displays a different trend, with data suggesting that its citizens express positive emotions at a level closer to their experience. When examining negative emotional expression (negEED) within the Latin Europe cluster, the data for France and Italy are particularly telling. France demonstrates notable under-expression of negative emotions, suggesting a cultural trend towards restraint in negative emotional displays. Italy shows a milder under-expression, indicating a slighter deviation from the experience baseline in negative emotional expression. These differences within the Latin Europe cluster, especially between France and Italy, suggest that the expressiveness pattern extends beyond cluster categorizations to other macro-level characteristics.

Implications of the Current Findings

Our analysis revealed a substantial correlation between negEED and posEED with a noteworthy distinction arising from the influence of societal development on these discrepancies. While societal development appeared to be consistently associated with negEED, the association with posEED was less pronounced. These findings at the macro, societal level are consistent with the negative-positive asymmetry (Gross et al., 2000; Jordan et al., 2011) in emotion research that has been mainly based on individual and group

levels, which suggest that individuals are naturally inclined to address negative events or signals due to their stronger and lasting effects compared to positive events, as emphasized by the principle that "bad is stronger than good" (Baumeister et al., 2001).

Our finding reveals the relatively under-documented topic of how structural context is associated with emotion dynamics from a macro perspective. Trust and efficiency of the societal system moderate the strength of under-expression for negative emotions. In societal systems with efficient institutions and trusting citizens, people under-express negative emotions more (i.e., they less frequently express negative emotions that they feel). This finding suggests that in societies with relatively inefficient institutions, people may rely more on negative emotional expressions to signal and communicate with others about the problems they encounter, in order to provoke ameliorative responses from others.

Surprisingly, in predicting the between-nation variation of negative-emotion expressivity, typical cultural indicators, including tightness (vs. looseness), heterogeneity, individualism (vs. collectivism), and self-expression (vs. survival) values, did not explain the emotional experience-expression discrepancy for negative emotion, while only societal development indicators and their related constructs did so, indicating a unique and crucial role of societal development on negative expressiveness.

Theoretically, this finding may provide insights for research on emotion regulation regarding the effectiveness of using negative emotional expression as a social strategy. These insights are pivotal for better practices in multicultural contexts, such as industrial/organizational or mental health practices involving individuals with mixed cultural backgrounds, where the need for cultural sensitivity in communication is emphasized. For instance, a study focusing on Iranian immigrants in Germany found significant differences in how anger is expressed among Germans, Iranians, and Iranian migrants, depending on their cultural adaptation strategy (Gilan et al., 2022). This indicates that immigrants from certain cultures might seem under-expressive to members of some over-expressive cultures, which might lead to intercultural misunderstanding and even dispute, especially when the consequences of under-expression for some emotions are different across cultures (Butler et al., 2007).

There were some inconclusive patterns regarding the impact of societal development on the expressivity of specific emotions. For instance, among all the experience-expression discrepancies (EED) for positive emotions, only the EED for gratitude was significantly correlated with societal development after Bonferroni correction. The significant moderation of gratitude by societal development indicates that, as societies become more advanced, there may be a greater under-expression of gratitude. Among the prosocial positive emotions such as love and compassion, gratitude is regarded as facilitating reciprocity (Sauter, 2017). In certain cultural contexts, the act of expressing gratitude may also give rise to feelings of indebtedness, creating an obligation to reciprocate the favour received from the benefactor and hence be suppressed (Oishi et al., 2019).

This selective under-expression of gratitude can be contrasted with the non-significant association of societal development with the experience-expression discrepancy for anger. Anger is often regarded as a basic and universal emotion (Ekman, 1999) and rooted in ancestral mechanisms optimized for small-scale societal interactions, rather than the nuanced dynamics of modern, developed societies (Sell et al., 2009). Hence, it may exhibit a relatively stable pattern of expression that transcends variations in societal development levels. In contrast, hostility, disgust, and hate are associated with long-term social issues and biases (Allport, 1954; Rozin et al., 2009). Thus, they might be more subject to societal and cultural influences over time.

Limitations & Future Research

Regarding constraints on the generality of the current study (Simons et al., 2017), we acknowledged that most of our participants were drawn from convenient, student samples (89.66%). Although we did not observe that demographic characteristics moderated the effect of our focal variables, the current findings may only describe or be applicable to the younger adult generation across our target nations.

The present study relied on emotional self-report using a retrospective time frame (as opposed to momentary experience), which is one type of access to emotion knowledge (Robinson & Clore, 2002). Such emotion self-reports may represent "holistic constructions of key emotional events" (Thomas & Diener, 1990, p. 296) rather than direct recall of emotional experiences.

Retrospective self-reports of one's emotions tend not to be extremely accurate over time (Thomas & Diener, 1990). Implementing a reliable self-reported, retrospective emotional measure with a specific time frame (e.g., "once a week/day") could enhance the consistency and comparability of data across different nations. This approach might mitigate some of the limitations associated with broader retrospective accounts and provide more precise insights into emotional expressivity across diverse cultural settings.

As for the measures used, our emotion items were measured as retrospective frequencies of experiences and expressions in general. Other dimensions of emotional behaviours, such as intensity and event-specificity, however, were not within the scope of the current study. Hence, we cannot know whether under-expression of negative emotion is due to different emotional regulation strategies (Gross, 1998), such as emotional suppression (one does not express the corresponding emotion that one feels) and/or down-regulation of

negative emotion (one does not express emotion after reappraisal).

In addition, as this study is correlational in nature, some speculations implied by the study need further experimental and/or longitudinal investigations. For example, studies with experience sampling method that capture people's daily emotional experiences, expressions, and emotion-triggering events would help investigate the above-discussed speculations.

Acknowledgement

The first author was supported by the Polish National Agency for Academic Exchange (Narodowej Agencji Wymiany Akademickiej, NAWA) under STER BPI/STE/2021/1/00030/U/00001. This work was supported by the National Science Centre of Poland (Narodowe Centrum Nauki, NCN) under GRIEG 2019/34/H/HS6/00597; Hungarian NKFIH- OTKA- K 135963; Brazilian National Council for Scientific and Technological Development Grant 301,298/2018–1; NPO "Systemic Risk Institute" Grant LX22NPO5101 funded by the European Union–NextGeneration EU (Ministry of Education, Youth and Sports, NPO: EXCELES, Czechia); HSE University Basic Research Program; and University of Roma Department of Educational Studies Grant DSF 2017–2018.

The study was approved by the Research Ethics Committee of the Institute of Psychology of the Polish Academy of Sciences (approval no. #22/XI/2019).

References

Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The 'other-praising' emotions of elevation, gratitude, and admiration. *The Journal of Positive Psychology*, *4*(2), 105–127. https://doi.org/10.1080/17439760802650519

Allport, F. H. (1954). The structuring of events: Outline of a general theory with applications to psychology. *Psychological Review*, *61*(5), 281–303. https://doi.org/10.1037/h0062678

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*(4), 323–370. https://doi.org/10.1037/1089-2680.5.4.323

Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Emotion*, *7*(1), 30–48. https://doi.org/10.1037/1528-3542.7.1.30

Campos, B., Shiota, M. N., Keltner, D., Gonzaga, G. C., & Goetz, J. L. (2013). What is shared, what is different? core relational themes and expressive displays of eight positive emotions. *Cognition & Emotion*, *27*(1), 37–52. https://doi.org/10.1080/02699931.2012.683852

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

Ekman, P. (1999). Basic emotions. In *Handbook of cognition and emotion* (pp. 45–60). John Wiley & Sons, Ltd. Retrieved January 26, 2024, from https://onlinelibrary.wiley.com/doi/abs/10.1002/0470013494.ch3

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Fridlund, A. J. (1994). *Human facial expression: An evolutionary view*. Academic Press.

Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., Duan, L., Almaliach, A., Ang, S., Arnadottir, J., Aycan, Z., Boehnke, K., Boski, P., Cabecinhas, R., Chan, D., Chhokar, J., D'Amato, A., Subirats Ferrer, M., Fischlmayr, I. C., ... Yamaguchi, S. (2011). Differences between tight and loose cultures: A 33-nation study. *Science*, *332*(6033), 1100–1104. https://doi.org/10.1126/science.1197754

Gilan, D., Werner, A. M., Hahad, O., Lieb, K., Frankenberg, E., & Bongard, S. (2022). Acculturation and anger expression among iranian migrants in germany. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.715152

Greenaway, K. H., Kalokerinos, E. K., & Williams, L. A. (2018). Context is everything (in emotion research). *Social and Personality Psychology Compass*, *12*(6), e12393. https://doi.org/10.1111/spc3.12393

Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237. https://doi.org/10.1037/0022-3514.74.1.224

Gross, J. J., John, O. P., & Richards, J. M. (2000). The dissociation of emotion expression from emotion experience: A personality perspective. *Personality and Social Psychology Bulletin*, *26*(6), 712–726. https://doi.org/10.1177/0146167200268006

Gross, J. J., Richards, J. M., & John, O. P. (2006). Emotion regulation in everyday life. In *Emotion regulation in couples and families: Pathways to dysfunction and*

health (pp. 13–35). American Psychological Association.

Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: Methodology and findings. *Journal of World Business*, *37*(1), 11–15. https://doi.org/10.1016/S1090-9516(01)00070-0

Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2022). World values survey: Round seven—country-pooled datafile version 5.0. *JD Systems Institute: Madrid, Spain*.

Haidt, J., & Keltner, D. (1999). Culture and facial expression: Open-ended methods find more expressions and a gradient of recognition. *Cognition and Emotion*, *13*(3), 225–266. https://doi.org/10.1080/026999399379267

Hofstede, G. (2010, May 24). *Cultures and organizations: Software of the mind, third edition* (3rd edition). McGraw Hill.

Inglehart, R. (2006). Mapping global values. *Comparative Sociology*, *5*(2), 115–136. https://doi.org/10.1163/156913306778667401

Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin*, *37*(1), 120–135. https://doi.org/10.1177/0146167210390822

Kaufmann, D., & Kraay, A. (2023). *Worldwide governance indicators*. World Bank Group.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion*, *13*(5), 505–521. https://doi.org/10.1080/026999399379168

Keltner, D., & Kring, A. M. (1998). Emotion, social function, and psychopathology. *Review of General Psychology*, *2*(3), 320–342. https://doi.org/10.1037/1089-2680.2.3.320

Keltner, D., Sauter, D., Tracy, J. L., Wetchler, E., & Cowen, A. S. (2022). How emotions, relationships, and culture constitute each other: Advances in social functionalist theory. *Cognition and Emotion*, *36*(3), 388–401. https://doi.org/10.1080/02699931.2022.2047009

Klassen, Andrew. (2018). Human understanding measured across national (HUMAN) surveys: Country-year data. https://doi.org/10.7910/DVN/QXZV3E

Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? a cross-country investigation. *The Quarterly Journal of Economics*, *112*(4), 1251–1288. https://doi.org/10.1162/003355300555475

Koopmann-Holm, B., & Tsai, J. L. (2014). Focusing on the negative: Cultural differences in expressions of sympathy. *Journal of Personality and Social Psychology*, *107*(6), 1092–1115. https://doi.org/10.1037/a0037684

Krys, K., Vauclair, C. .-., Capaldi, C. A., Lun, V. M.-C., Bond, M. H., Domínguez-Espinosa, A., Torres, C., Lipp, O. V., Manickam, L. S. S., Xing, C., Antalíková, R., Pavlopoulos, V., Teyssier, J., Hur, T., Hansen, K., Szarota, P., Ahmed, R. A., Burtceva, E., Chkhaidze, A., … Yu, A. A. (2016). Be careful where you smile: Culture shapes judgments of intelligence and honesty of smiling individuals. *Journal of Nonverbal Behavior*, *40*(2), 101–116. https://doi.org/10.1007/s10919-015-0226-4

Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M.-C., Torres, C., van Tilburg, W. A. P., Bond, M. H., Zelenski, J. M., Haas, B. W., Park, J., Maricchiolo, F., Vauclair, C.-M., Kosiarczyk, A., Kocimska-Zych, A., Kwiatkowska, A., Adamovic, M., Pavlopoulos, V., Fülöp, M., Sirlopu, D., … Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *The Journal of Positive Psychology*, *17*(1), 117–130. https://doi.org/10.1080/17439760.2020.1858332

Lavrakas, P. J. (2008, September 12). *Encyclopedia of survey research methods*. SAGE Publications.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3), 141–169. https://doi.org/10.1002/per.2410010304

Manokara, K., Fischer, A., & Sauter, D. (2023). Display rules differ between positive emotions: Not all that feels good looks good. *Emotion*, *23*(1), 243–260. https://doi.org/10.1037/emo0001078

Matsumoto, D., Seung Hee Yoo, & Fontaine, J. (2008). Mapping expressive differences around the world: The relationship between emotional display rules and individualism versus collectivism. *Journal of Cross-Cultural Psychology*, *39*(1), 55–74. https://doi.org/10.1177/0022022107311854

Mensah, Y. M., & Chen, H.-Y. (2013, April 14). Global clustering of countries by culture – an extension of the GLOBE study. https://doi.org/10.2139/ssrn.2189904

Mesquita, B., & Frijda, N. H. (1992). Cultural variations in emotions: A review. *Psychological Bulletin*, *112*(2), 179–204. https://doi.org/10.1037/0033-2909.112.2.179

Oishi, S., Choi, H., Buttrick, N., Heintzelman, S. J., Kushlev, K., Westgate, E. C., Tucker, J., Ebersole, C. R., Axt, J., Gilbert, E., Ng, B. W., & Besser, L. L. (2019). The psychologically rich life questionnaire. *Jour-*

nal of Research in Personality, *81*, 257–270. https://doi.org/10.1016/j.jrp.2019.06.010

Putnam, R. D., Leonardi, R., & Nonetti, R. Y. (1993). *Making democracy work: Civic traditions in modern italy*. Princeton University Press. Retrieved January 29, 2025, from https://doi.org/10.2307/j.ctt7s8r7

Putterman, L., & Weil, D. N. (2010). Post-1500 population flows and the long-run determinants of economic growth and inequality*. *The Quarterly Journal of Economics*, *125*(4), 1627–1682. https://doi.org/10.1162/qjec.2010.125.4.1627

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Righetti, F., Balliet, D., Visserman, M., & Hofmann, W. (2015). Trust and the suppression of emotions during sacrifice in close relationships. *Social Cognition*, *33*(5), 505–519. https://doi.org/10.1521/soco.2015.33.5.505

Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, *128*(6), 934–960. https://doi.org/10.1037/0033-2909.128.6.934

Rozin, P., Haidt, J., & McCauley, C. (2009). Disgust: The body and soul emotion in the 21st century. In *Disgust and its disorders: Theory, assessment, and treatment implications* (pp. 9–29). American Psychological Association.

Sauter, D. A. (2017). The nonverbal communication of positive emotions: An emotion eamily approach. *Emotion Review*, *9*(3), 222–234. https://doi.org/10.1177/1754073916667236

Sell, A., Tooby, J., & Cosmides, L. (2009). Formidability and the logic of human anger. *Proceedings of the National Academy of Sciences*, *106*(35), 15073–15078. https://doi.org/10.1073/pnas.0904312106

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology*, *52*(6), 1061–1086. https://doi.org/10.1037/0022-3514.52.6.1061

Shiota, M. N., Sauter, D. A., & Desmet, P. M. (2021). What are 'positive' affect and emotion? *Current Opinion in Behavioral Sciences*, *39*, 142–146. https://doi.org/10.1016/j.cobeha.2021.03.007

Simons, D. J., Shoda, Y., & Lindsay, D. S. (2017). Constraints on generality (COG): A proposed addition to all empirical papers. *Perspectives on Psychological Science*, *12*(6), 1123–1128. https://doi.org/10.1177/1745691617708630

Sinaceur, M., & Tiedens, L. Z. (2006). Get mad and get more than even: When and why anger expression is effective in negotiations. *Journal of Experimental Social Psychology*, *42*(3), 314–322. https://doi.org/10.1016/j.jesp.2005.05.002

Smith, P. B., Bond, M. H. H., Vignoles, V. L., & Fischer, R. (2013). *Understanding social psychology across cultures: Engaging with others in a changing world*. SAGE Publications Ltd. http://digital.casalini.it/9781446286012

Tay, L., Woo, S. E., & Vermunt, J. K. (2014). A conceptual and methodological framework for psychometric isomorphism: Validation of multilevel construct measures. *Organizational Research Methods*, *17*(1), 77–106. https://doi.org/10.1177/1094428113517008

Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*(2), 291–297. https://doi.org/10.1037/0022-3514.59.2.291

Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology*, *80*(1), 86–94. https://doi.org/10.1037/0022-3514.80.1.86

United Nations Development Programme. (2018). Human development report – statistical update 2018. https://hdr.undp.org/content/statistical-update-2018

United Nations Development Programme. (2022, September 8). *Human development report 2021-22: Uncertain times, unsettled lives: Shaping our future in a transforming world*. United Nations. Retrieved January 19, 2025, from https://hdr.undp.org/content/human-development-report-2021-22

Van Kleef, G. A. (2017, September 7). Emotions as agents of social influence: Insights from emotions as social information theory. In S. G. Harkins, K. D. Williams, & J. Burger (Eds.), *The oxford handbook of social influence* (pp. 237–256). Oxford University Press. Retrieved December 28, 2023, from https://doi.org/10.1093/oxfordhb/9780199859870.013.19

Van Kleef, G. A., & Côté, S. (2022). The social effects of emotions. *Annual Review of Psychology*, *73*(1), 629–658. https://doi.org/10.1146/annurev-psych-020821-010855

Van Kleef, G. A., & Dreu, C. K. D. (2010). Longer-term consequences of anger expression in negotiation: Retaliation or spillover? *Journal of Experimental Social Psychology*, *46*(5), 753–760. https://doi.org/10.1016/j.jesp.2010.03.013

Viechtbauer, W. (2010). Conducting meta-analyses in r with the metafor package. *Journal of Statistical Software*, *36*(3). https://doi.org/10.18637/jss.v036.i03

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Is Progress Muting the Expressivity of Negative Emotions? Evidence from Two Large Multinational Studies

Supplementary Materials

Results for Multilevel Modelling for Study 1

This section provides a detailed description of the multi-level modeling conducted to supplement the analyses from the main text. To examine the consistency of results with those in the main analysis, which used a within-paper meta-analytic approach, we specified six separate sets of models. The results for the six models are available in Tables S4, results for each step can be available upon request.

We use the individual-level experience-expression discrepancy (EED) as the outcome variable for both negative and positive emotions. Three societal development indicators serve as Level 2 predictors, analyzed separately due to high intercorrelations. The EED is calculated by subtracting expression from experience; a positive sign indicates over-expression, while a negative sign indicates under-expression. We focus on this discrepancy as the dependent variable because our interest lies in the actual difference in expressions relative to experiences, rather than merely the strength of linear relationships. For instance, a person could exhibit a perfect correlation if they consistently and proportionally under-express their emotions.

For each model set, we specified a null model to check the intra-class correlation (ICC). For these six models, the ICCs ranged from .039 to .043, indicating that the percentage of Level 2 variance was small. This result is consistent with the typical notion that emotions are predominantly influenced by individual emotionality. Then we specified a model that included demographic variables (age and gender) and grand means centered individual emotional experience as covariates. If someone frequently experiences emotions, they might be more likely to under-express if they express emotions as frequently as others (experiencing more but expressing typically). Then we included the national level societal development indicator separately by three models (namely, Societal Trust, System Quality and Fairness, and Human Development Index).

As shown in Table S4, There were negative relationships between the frequency of individual emotional experience and EED (for negative emotions: Estimates = -0.25; for positive emotions: Estimates = -0.09), indicating that those who experience emotions more frequently are more likely to under-express them. Three societal development indicators, which were significant for negative emotions (ps < .01). Specifically, all three indicators were negatively associated: Societal Trust (Estimate = -0.004, SE = .001); Societal System Quality and Fairness (Estimate = -0.068, SE = .024); Human Development Index (Estimate = -0.686, SE = .189). This indicates that in more developed societies, the discrepancy between experienced and expressed negative emotions is smaller.

For positive emotions, only Societal Trust was significantly and negatively associated (Estimate = -0.003, SE = .001, p < .01), suggesting that in more trustworthy societies, the discrepancy between experienced and expressed positive emotions is smaller.

Results of the cross-cultural measurement invariance test for Study 2

A multigroup confirmatory factor analysis (MGCFA, Van de Schoot et al., 2012) were conducted to examine whether the scales measuring positive emotional experiences, positive emotion expression, negative emotional experiences and negative emotion expression were invariant across studied cultures. Because finding invariance in a large number of groups (in our case, 65) is very rare (Welzel et al., 2023), we compared 10 cultural clusters (Gupta et al., 2002; Mensah & Chen, 2013) instead of countries. The clusters include (1) Anglo (Australia, Canada, Ireland, United Kingdom, USA), (2) Latin Europe (France, Italy, Portugal, Romania, Spain), (3) Nordic Europe (Estonia, Iceland), (4) Germanic Europe (Austria, Germany, Luxembourg), (5) Eastern Europe (Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Poland, Russia, Serbia, Slovakia, Ukraine), (6) Latin America (Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Suriname, Trinidad and Tobago, Venezuela), (7) Sub-Saharan Africa (Angola, Burkina Faso, Ghana, Kenya, Madagascar, Nigeria, Senegal, South Africa, Uganda), (8) Middle East (Algeria, Azerbaijan, Jordan, Morocco, Palestine, Saudi Arabia, Turkey, United Arab Emirates), (9) Southern Asia (Bangladesh, India, Indonesia, Malaysia, Pakistan, Philippines), and (10) Confucian Asia (China, Hong Kong, Japan, South Korea, Vietnam).

We evaluated whether the items within all ten cultural clusters correctly aligned with the intended constructs, assessing configural invariance and equal factor loadings (metric invariance). To assess the fit of these models, we employed several fit indices: the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). We followed the recommendations set by Chen (2007), namely that a change of $\geq$ -.010 in CFI, complemented by either an RMSEA change $\geq$ .015 or an SRMR change $\geq$ .030 would indicate non-invariance. Given the

large size of our sample, the $\chi 2$ differences test was not interpreted as a definitive measure of invariance.

In our study, we specified a MGCFA model to examine the factor structure of emotional experiences and expressions for positive and negative categories. The model consists of four distinct latent factors: positive emotional experience, positive emotional expression, negative emotional experience, and negative emotional expression. For positive emotions, the factors included experiences and expressions of gratitude, excitement, relaxation, and love; for negative emotions, including experiences and expressions of sadness, shame, fear, and anger. We further specified that each emotional experience was directly linked to its corresponding expression, allowing us to assess the covariance between experiencing and expressing each specific emotion.

The configural model had a satisfactory fit, CFI = .981, RMSEA = .046, SRMR = .047, and all items loaded positively on the constructs they were intended to measure. Therefore, configural invariance was established. The metric model also had a satisfactory fit, CFI = .978, RMSEA = .047, SRMR = .054, and it did not significant differ from the configural model, ΔCFI = -.003, ΔRMSEA = .001, ΔSRMR = .007, using the cutoff interpretation by Chen (2007). Therefore, the scales we used in the current study were metric invariance was established.

References

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464-504. https://doi.org/10.1080/10705510701301834

Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: Methodology and findings. *Journal of World Business*, *37*(1), 11-15. https://doi.org/10.1016/S1090-9516(01)00070-0

Mensah, Y. M., & Chen, H. Y. (2013). Global clustering of countries by culture – an extension of the GLOBE study. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2189904

Van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology*, *9*(4), 486-492. http://dx.doi.org/10.1080/17405629.2012.686740

Welzel, C., Brunkert, L., Kruse, S., & Inglehart, R. F. (2023). Non-invariance? An overstated problem with misconceived causes. *Sociological Methods & Research*, *52*(3), 1368-1400. https://doi.org/10.1177/0010414016628275

Table S1

Correlations among national level indicators in Study 1

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Student%	0.93	0.16															
2. Female%	60.34	16.13	.15		`												
3. Sample mean age	24.83	5.30	.43**	.28†													
4. posEED	-0.24	0.18	.12	.07	.												
5. negEED	-0.60	0.24	.03	.12	.19	.68***											
6. Pos. Emo. Xpr	5.12	0.48	.11	.14	.02	.37*	.51***										
7. Neg. Emo. Xpr	3.61	0.39	.06	.08	.24	.42**	.68***	.58***									
8. Pos. Emo. Xpe	5.27	0.45	.15	.17	.01	.11	.35*	.96***	.49***								
9. Neg. Emo. Xpe	4.03	0.34	.10	.04	.37**	.18	.38**	.52***	.92***	.50***							
10. Societal Trust	33.37	16.46	.06	.04	.04	.30*	.49***	.56***	.46**	.51***	.38**						
11. SQF	0.62	0.85	.20	.08	.03	.08	.48***	.51***	.47***	.54***	.42**	.71***					
12. HDI	0.82	0.11	.21	.06	.16	.22	.51***	.55***	.57***	.54***	.50***	.65***	.80***				
13. Heterogeneity	6.56	2.77	.27	.03	.12	.07	.21	.15	.29	.15	.26	.10	.12	.27			
14. Individualism	13.17	16.65	.05	.01	.08	.06	.03	.03	.07	.01	.05	.13	.20	.25†	.29		
15. Self-expression	47.41	24.36	.14	.00	.10	.10	.24	.36*	.34*	.41**	.36*	.63***	.63***	.73***	.54**	.39*	
16. Tightness	0.06	0.64	.20	.01	.22	.10	.29†	.34*	.28†	.35*	.29†	.65***	.68***	.61***	.03	.44**	.61***

*** p <.001, ** p <.01, * p <.05. posEED/negEED = Expression-Experience Discrepancy for Positive/Negative Emotions, Xpr = Expression, Xpe = Experience, SQF = Societal System Quality Fairness, HDI = Human Development Index, Individualism = Hofstede Individualism, Self-expression = Self-expression vs. survival, Tightness = Tightness vs. Looseness

Table S2

Descriptive statistics of the demographic and focal variables by nation in Study 2

					Positive Emotion					Negative Emotion				
Nation	n	Female%	Student%	Mage	Xpr	Xpe	*d*	*Vd*	*r*	Xpr	Xpe	*d*	*Vd*	*r*
Algeria	929	54.36	48.76	34.25	4.75	4.81	0.08	0.02	0.88	3.71	3.77	0.07	0.01	0.83
Angola	125	54.40	100.00	24.26	5.06	4.89	-0.25	0.19	0.91	4.28	4.07	-0.30	0.14	0.88
Australia	344	54.36	22.38	38.22	4.39	4.21	-0.39	0.09	0.94	3.18	2.74	-0.59	0.03	0.79
Austria	245	75.10	94.69	26.39	4.91	4.59	-0.48	0.05	0.83	3.56	2.96	-0.77	0.03	0.69
Azerbaijan	172	18.60	75.00	24.77	4.32	4.28	-0.06	0.14	0.91	4.06	3.86	-0.27	0.10	0.87
Bangladesh	239	56.90	80.33	27.48	4.69	4.63	-0.08	0.06	0.83	4.32	4.22	-0.13	0.06	0.85
Bosnia and Herzegovina	371	77.09	70.08	29.78	4.34	4.22	-0.23	0.06	0.91	3.28	2.82	-0.71	0.02	0.75
Brazil	112	58.04	94.64	30.01	4.84	4.31	-0.70	0.15	0.87	4.64	3.57	-0.82	0.05	0.58
Bulgaria	203	49.26	100.00	33.17	5.07	4.87	-0.29	0.10	0.90	3.63	3.18	-0.54	0.06	0.81
Burkina Faso	181	32.04	93.92	25.09	3.81	3.81	-0.01	0.30	0.96	3.08	3.11	0.05	0.20	0.94
Canada	307	74.92	99.67	21.66	4.80	4.57	-0.43	0.08	0.92	4.18	3.59	-0.73	0.04	0.82
Chile	164	71.34	95.12	29.41	5.30	5.17	-0.20	0.13	0.90	3.88	3.31	-0.63	0.04	0.65
China	240	49.58	59.58	26.63	5.03	4.93	-0.11	0.06	0.85	3.48	3.22	-0.32	0.05	0.83
Colombia	232	49.14	57.33	28.58	5.85	5.56	-0.34	0.07	0.87	3.93	3.55	-0.35	0.03	0.67
Croatia	201	83.08	45.77	34.16	4.15	3.88	-0.45	0.07	0.85	3.31	2.91	-0.66	0.04	0.73
Czechia	180	76.11	56.18	32.19	4.51	4.21	-0.55	0.10	0.88	3.73	2.92	-0.92	0.04	0.64
Ecuador	343	45.19	54.09	26.65	5.31	5.29	-0.03	0.05	0.88	4.09	3.77	-0.34	0.03	0.78
Estonia	215	73.02	75.35	35.11	4.27	3.94	-0.64	0.09	0.89	3.33	2.78	-0.85	0.04	0.70
France	231	78.79	74.46	33.88	4.55	4.32	-0.36	0.07	0.86	3.51	3.13	-0.48	0.04	0.72
Georgia	178	76.40	51.69	31.81	4.53	4.37	-0.26	0.14	0.92	3.58	2.96	-0.67	0.05	0.72
Germany	282	59.22	84.75	28.13	5.00	4.70	-0.52	0.06	0.88	3.71	3.15	-0.89	0.05	0.85

Ghana	205	51.22	91.67	24.83	5.86	5.83	-0.04	0.06	0.80		3.94	3.63	-0.27	0.04	0.74
Hong Kong	240	64.17	97.92	22.36	4.53	4.48	-0.10	0.14	0.94		3.94	3.67	-0.41	0.07	0.87
Hungary	572	71.85	98.43	23.89	4.90	4.63	-0.33	0.02	0.77		3.86	3.43	-0.49	0.01	0.65
Iceland	276	70.29	97.10	29.17	4.31	3.78	-0.73	0.04	0.82		3.04	2.43	-0.88	0.03	0.72
India	195	61.54	93.85	23.93	4.75	4.61	-0.23	0.10	0.89		3.96	3.72	-0.29	0.06	0.79
Indonesia	250	75.20	98.40	20.62	5.12	5.02	-0.17	0.08	0.90		4.23	3.92	-0.37	0.03	0.71
Ireland	300	60.33	98.33	25.85	4.40	4.21	-0.37	0.07	0.91		3.53	2.93	-0.75	0.03	0.73
Italy	184	58.15	60.33	31.09	5.04	4.83	-0.29	0.09	0.87		3.60	3.33	-0.35	0.06	0.80
Japan	179	74.86	100.00	21.71	4.32	4.34	0.05	0.17	0.93		3.21	3.07	-0.21	0.07	0.81
Jordan	239	65.97	41.42	33.50	4.24	4.30	0.07	0.06	0.84		3.59	3.54	-0.07	0.06	0.84
Kazakhstan	201	72.64	69.65	27.49	4.93	4.57	-0.41	0.05	0.77		4.06	3.27	-0.69	0.04	0.67
Kenya	276	41.30	33.70	28.25	5.57	5.59	0.02	0.10	0.92		3.81	3.60	-0.28	0.07	0.88
Korea South	200	60.00	100.00	22.44	5.43	5.05	-0.40	0.06	0.82		3.56	2.67	-0.85	0.03	0.60
Luxembourg	117	73.50	59.83	31.72	4.85	4.44	-0.72	0.15	0.87		3.45	2.85	-0.95	0.09	0.78
Madagascar	304	47.37	36.18	28.87	5.47	5.50	0.05	0.07	0.91		3.82	3.80	-0.03	0.06	0.89
Malaysia	1800	67.94	31.74	29.46	4.60	4.54	-0.10	0.01	0.92		3.63	3.34	-0.37	0.01	0.80
Mexico	131	70.77	57.25	31.04	5.63	5.42	-0.32	0.17	0.90		3.83	3.56	-0.40	0.13	0.87
Morocco	185	31.89	30.81	29.45	4.44	4.41	-0.05	0.11	0.90		3.59	3.47	-0.13	0.06	0.78
Nigeria	433	62.36	75.23	24.46	5.03	5.05	0.03	0.05	0.90		3.72	3.40	-0.36	0.02	0.78
Pakistan	166	47.59	51.81	29.79	5.01	4.94	-0.10	0.11	0.88		4.06	3.92	-0.16	0.08	0.82
Palestine	168	60.71	30.95	39.15	3.81	3.89	0.15	0.22	0.95		3.60	3.61	0.02	0.15	0.92
Peru	285	55.44	63.16	27.47	5.36	5.41	0.07	0.09	0.92		4.09	3.88	-0.31	0.06	0.87
Philippines	229	59.83	74.24	26.18	4.71	4.52	-0.31	0.08	0.89		3.92	3.41	-0.61	0.04	0.73
Poland	230	48.26	43.91	28.60	4.26	3.97	-0.47	0.08	0.88		3.69	2.95	-0.93	0.04	0.75
Portugal	201	74.13	50.25	34.69	4.56	4.17	-0.65	0.08	0.87		3.48	2.79	-0.91	0.04	0.71
Romania	228	62.28	79.39	26.27	4.32	4.04	-0.50	0.07	0.87		3.64	3.08	-0.82	0.05	0.78
Russia	576	55.38	98.61	23.55	4.63	4.40	-0.23	0.02	0.74		4.02	3.54	-0.43	0.01	0.70

Saudi Arabia	188	61.17	69.15	25.52	4.41	4.40	-0.01	0.08	0.86		3.71	3.63	-0.08	0.05	0.77
Senegal	744	45.16	99.33	24.52	5.15	5.22	0.08	0.03	0.89		3.77	3.76	0.00	0.02	0.87
Serbia	202	68.32	100.00	24.10	4.47	4.21	-0.43	0.09	0.88		3.64	3.00	-0.88	0.04	0.72
Slovakia	263	87.07	54.37	37.44	4.87	4.54	-0.57	0.08	0.90		3.56	3.12	-0.64	0.04	0.79
South Africa	479	49.69	42.17	30.37	5.01	4.83	-0.29	0.05	0.92		3.66	3.20	-0.50	0.02	0.76
Spain	265	69.81	87.17	25.43	5.05	4.80	-0.39	0.06	0.86		3.82	3.21	-0.85	0.03	0.69
Suriname	191	52.88	48.17	29.60	4.76	4.51	-0.29	0.09	0.87		3.65	3.25	-0.39	0.06	0.80
Taiwan	224	70.54	54.91	27.38	4.09	3.94	-0.27	0.10	0.90		3.11	2.71	-0.58	0.05	0.81
Trinidad and Tobago	218	72.48	99.08	27.85	5.02	4.93	-0.14	0.11	0.91		3.83	3.53	-0.31	0.04	0.77
Turkey	1254	57.26	49.28	30.38	4.21	3.98	-0.36	0.01	0.88		3.49	3.14	-0.45	0.01	0.72
Uganda	189	45.50	48.15	28.39	4.05	4.18	0.16	0.15	0.93		3.33	3.29	-0.04	0.07	0.83
Ukraine	240	74.17	76.25	29.58	4.51	4.27	-0.34	0.06	0.84		3.51	3.19	-0.44	0.04	0.74
United Arab Emirates	153	82.35	96.08	21.61	4.70	4.72	0.03	0.10	0.86		4.12	3.75	-0.38	0.07	0.78
UK	313	71.25	56.41	31.30	4.80	4.60	-0.28	0.05	0.87		3.78	3.01	-0.76	0.02	0.69
USA	381	65.35	69.55	29.02	4.95	4.86	-0.17	0.06	0.91		3.73	3.27	-0.58	0.03	0.80
Venezuela	315	46.03	29.84	35.33	5.59	5.58	-0.02	0.07	0.90		3.77	3.13	-0.59	0.02	0.68
Vietnam	207	61.84	59.90	24.83	5.06	4.73	-0.46	0.08	0.88		4.05	3.53	-0.70	0.07	0.86
Mean	302.92	61.43	69.81	28.46	4.77	4.61	-0.25	0.09	0.88		3.72	3.33	-0.48	0.05	0.77
SD	264.25	13.41	23.50	4.24	0.46	0.49	0.23	0.05	0.04		0.32	0.38	0.28	0.03	0.08
Min.	112	18.60	22.38	20.62	3.81	3.78	-0.73	0.01	0.74		3.04	2.43	-0.95	0.01	0.58
Max.	1800	87.07	100.00	39.15	5.86	5.83	0.16	0.30	0.96		4.64	4.22	0.07	0.20	0.94

Note. Female% = percentage of female participants; Student% = percentage of student participants; Xpr = Emotional Expression; Xpe = Emotional Experience; d = expression–experience discrepancy for positive (posEED) and negative (negEED) emotions (expression – experience); V d = variance of d; r = strength of association between emotional expression and experience.

Table S3

Correlations among national level indicators in Study 2

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Student%	69.81	23.5											
2. Female%	61.43	13.41	.21										
3. Sample mean age	28.46	4.24	-.67***	.1									
4. posEED	-0.09	0.26	-.07	-.01	-.02								
5. negEED	-0.27	0.36	-.30*	-.32*	.33*	-.37**							
6. Pos. Emo. Xpr	4.6	0.6	.02	-.17	-.18	.69**	-.26*						
7. Neg. Emo. Xpr	3.32	0.61	-.13	-.40***	.07	-.37***	.88***	-.08					
8. Pos. Emo. Xpe	4.77	0.46	.11	-.21	-.22	-.17	.07	.59***	.30*				
9. Neg. Emo. Xpe	3.72	0.32	.29*	-.27*	-.41**	-.09	-.08	.31*	.37**	.51***			
10. Societal Trust	29.73	15.27	.16	.25	.02	.23	-.41**	.03	-.46***	-.2	-.34**		
11. SQF	0.26	0.85	.23	.55***	.13	.16	-.41***	-.04	-.52***	-.23	-.35**	.58***	
12. HDI	0.79	0.13	.15	.53***	.21	.14	-.37**	-.02	-.41***	-.18	-.21	.52***	.79***

*** p <.001, ** p <.01, * p <.05. Student% = percentage of student participants, Female% = percentage of female participants, posEED/negEED = Expression-Experience Discrepancy for Positive/Negative Emotions, Xpr = Expression, Xpe = Experience, SQF = Societal System Quality

Table S4

Multilevel Model Predicting EED From Demographics and Emotional Experiences at Individual Level by Three Types of Societal Development at National Level in Study 1

Outcome Variable:	EED for Positive Emotions						EED for Negative Emotions					
	Societal Trust			System Quality and Fairness			Human Development Index			Societal Trust			System Quality and Fairness			Human Development Index		
Level & Variable	Estimate		SE	Estimate		SE	Estimate		SE	Estimate		SE	Estimate		SE	Estimate		SE
Level 1 - Individual Level																		
Intercept	-0.077		0.045	-0.149	***	0.036	0.08		0.161	-0.281	***	0.052	-0.353	***	0.04	0.167		0.159
Age	0		0.001	0		0.001	0		0.001	-0.001		0.001	-0.001		0.001	0		0.001
Gender	0.004		0.012	0.002		0.012	0.004		0.012	-0.015		0.013	-0.009		0.013	-0.01		0.013
Emotional Experience	-0.086	***	0.008	-0.089	***	0.008	-0.09	***	0.008	-0.254	***	0.015	-0.249	***	0.013	-0.248	***	0.013
Level 2 - Country Level																		
Societal Development	-0.003	**	0.001	-0.012		0.025	-0.292		0.193	-0.004	**	0.001	-0.068	**	0.024	-0.686	***	0.189
Variance Components																		
Within-country variance	0.361			0.369			0.372			0.423			0.435			0.437		
Intercept variance	0.014			0.02			0.019			0.027			0.03			0.028		
Slope variance	0.002			0.002			0.002			0.007			0.007			0.007		
Intercept-slope covariance	-0.001			-0.002			-0.002			0.01			0.011			0.01		
-2 log likelihood (FIML)	19748.0			22612.5			22311.6			21482.7			24615.5			24254.5		

Note. ** p <.001, ** p <.01. Grand means centering of individual emotional experience.

frontiers | Frontiers in Psychology

TYPE Brief Research Report
PUBLISHED 28 February 2024
DOI 10.3389/fpsyg.2024.1305812

OPEN ACCESS

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RECEIVED 24 October 2023
ACCEPTED 06 February 2024
PUBLISHED 28 February 2024

CITATION
Yeung JC, Roczniewska M and Krys K (2024) Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction. *Front. Psychol.* 15:1305812. doi: 10.3389/fpsyg.2024.1305812

Is it okay to feel this way? Exploring the joint effect of emotional experiences and expectations on life satisfaction

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This research investigates the joint effect of individual emotional experiences and societal expectations on life satisfaction. Inspired by the Affect Valuation Theory and Self-Discrepancy Theory, we explored how discrepancies between actual emotional experiences and what society believes we "ought" to feel are linked with life satisfaction. A total of 301 U.S. online participants rated their emotional experiences and societal expectations for emotions, along with measures of life satisfaction. Response surface analyses were used to assess the effect of emotional experience-norm congruence on life satisfaction. Findings revealed that the highest life satisfaction reported by individuals infrequently experiencing negative emotions but perceiving high societal expectations for these emotions, while congruence effects were not supported. These findings suggest the potential benefits of a societal shift toward greater acceptance of a wider range of negative emotions. The study may potentially stimulate interventions to enhance individuals' life satisfaction by reconsidering societal beliefs about emotions.

KEYWORDS

emotional experience, societal expectation, emotional norms, life satisfaction, response surface analysis

1 Introduction

Our emotional experiences are embedded in societal norms, creating a complicated environment that influences personal wellbeing, including its key component—life satisfaction. The Affect Valuation Theory (Tsai, 2007) and the Self-Discrepancy Theory (Higgins, 1987) have contributed valuable insights into the understanding of these dynamics. These theories highlight the significance of discrepancies between various emotions and self-concept, and their consequential effects on individual wellbeing. Nonetheless, there exists limited knowledge regarding the specific effects of the alignment between emotional experiences and societal expectations on individual wellbeing. Our objective is to investigate these dynamics and their effects on life satisfaction, one of the key facets of subjective wellbeing.

The Affect Valuation Theory, as developed by Tsai (2007), addresses the complexities surrounding emotions, particularly the differences between individuals' emotional experiences (actual affect) and the emotions that they are value and strive to experience (ideal affect). According to the study by Tsai et al. (2006), cultural structures play a pivotal role in shaping our ideal emotional states. Different cultures have varying preferences for prioritizing positive emotional states. For instance, Western cultures, such as the

United States, often prioritize high-arousal positive states like excitement, while East Asian cultures, like Hong Kong and Asian Americans, place more emphasis on low-arousal positive states such as calmness (Tsai et al., 2006). The study by De Almeida and Uchida (2021) further illustrates that in Latin American cultures, there is a tendency to value high-arousal positive emotions, whereas East Asian cultures favor low-arousal positive emotions. The Affect Valuation Theory also provides insight into the influence of cultural norms on individuals' emotional desires and, consequently, their overall wellbeing. Research conducted through Affect Valuation Theory has revealed that disparities between an individual's current emotional state and their desired emotional state can have a substantial impact on their wellbeing (Scheibe et al., 2013).

In terms of theoretical frameworks concerning discrepancy, the Self-Discrepancy Theory (Higgins, 1987) presents a comprehensive viewpoint on the internalized standards of persons. According to this theory, individuals are considered to act within three fundamental aspects of the self: the "actual self" (representing one's current state of being), the "ought self" (reflecting social or personal expectations for one's identity), and the "ideal self" (representing one's aspirations and desired identity). It is hypothesized that disparities or misalignments among these areas can result in different emotional consequences. For example, according to Higgins (1987), when there is a difference between an individual's actual self and their ought self, it can lead to the experience of guilt or worry. On the other hand, when there is a disparity between an individual's actual self and their ideal self, it can result in feelings of dejection or disappointment. Furthermore, some research on cultural variations in self-regulation highlights how different cultural contexts can influence the "ought self," affecting individuals' emotional regulation and experiences (Trommsdorff, 2009). The "ought self," which is strongly shaped by the contextual norms and expectations, holds particular significance in shaping emotional experiences.

The Affect Valuation Theory offers significant insights into the disparity that exists between individuals' experienced emotions and their desired or ideal feelings. In particular, Tsai (2007) examined the impact of cultural nuances on our emotional standards, which subsequently influences our interpretation of individual experiences. In contrast, the Self-Discrepancy Theory places emphasis on the emotional consequences that arise as a result of disparities between our present, desired, and idealized selves (Higgins, 1987). The ought-self represents the attributes that individuals believe they should possess, often influenced by societal expectations or obligations. While the impact of the actual-ideal discrepancy in feelings on wellbeing has been documented (e.g., Scheibe et al., 2013; Schlechter et al., 2022), to our knowledge, the effects of the actual-ought discrepancy in emotion remain unexplored (cf. Higgins et al., 1997 for the general actual-ought discrepancy effect).

The existence of this study gap does not imply that the examination of societal views of emotions on subjective wellbeing lacks significance in the scientific literature. Indeed, the act of exclusively esteeming happy emotions while diminishing unpleasant emotions might paradoxically result in feelings of sadness and impose societal drawbacks (Yeung and Lun, 2016, 2021). The avoidance of negative emotions has been found to have a detrimental impact on wellbeing (Bastian et al., 2012; Humphrey et al., 2022). Therefore, it is crucial to acknowledge the possible impact of "ought feelings" on an individual's subjective wellbeing (in our study, which is manifested by life satisfaction), and the way in which these expectations interact with actual emotional experiences can significantly shape it.

In order to examine the joint effect of experienced and expected emotions, a potential perspective to consider is the congruence or fit models (i.e., Chatman, 1989), which propose that when there is alignment or fit between multiple entities (e.g., person-job, person-organization, person-group fit), may lead to favorable outcomes (Kristof-Brown et al., 2005). Conversely, when there is misalignment, it can result in negative consequences (Ostroff, 2012). Within the scope of our research, the alignment between an individual's emotional encounters and the prevailing society norms can be examined through the use of this theoretical framework. If the principles of the fit model were to be fully applied to our study, one could hypothesize that a consistent alignment between an individual's emotional experiences and societal expectations around those emotions might lead to increased life satisfaction. Such congruence, where internal emotional states align with external social norms, could foster a sense of coherence, validation, and belonging. On the other hand, a misalignment, where genuine emotions diverge from societal norms, could potentially evoke feelings of isolation, incompetence, or anxiety.

Nevertheless, although the fundamental principles of the congruence model offer a persuasive framework, there exist intricacies in real-world scenarios that may pose obstacles to its direct implementation. For example, the inherent characteristics of emotions, such as their dynamic nature and subjective expressions, may render perfect alignment or congruence not always preferable. According to Gross and John (2003), there are instances where rigidly conforming to society norms may hinder the authentic expression of emotions, resulting in psychological distress. Furthermore, it is important to acknowledge the fluidity of social standards, as they undergo changes through time, across different cultures, and within various circumstances. This implies that the definition of "fit" might be temporary and subject to variation (Edwards, 2008). In the present investigation, it is possible that the congruence effect may not manifest in the conceptual sense. It is challenging to imagine the existence of an individual who consistently encounters bad emotional experiences while maintaining a high level of wellbeing, despite societal expectations that dictate otherwise. Therefore, although congruence models provide useful insights into the possible alignment between individual emotions and societal expectation, it is crucial to approach its implications with subtlety, recognizing the diverse circumstances that may impact the dynamics of this interaction in real-world scenarios.

To investigate the complex interplay between emotional experiences and societal expectations, we employed a rigorous analytical methodology. Traditional approaches for differences studies employed algebraic difference or residual scores to demonstrate the gaps between two constructs. While these methodologies have offered foundational understanding, they are not exempt from limitations. One of the main drawbacks involved with the utilization of difference score approaches is the possible

risk of information loss (Edwards, 2002). While the algebraic differences of (2 − 1) and (9 − 8) both result in a value of 1, their conceptual implications in the context of emotional expression and expectation congruence are significantly distinct. Consider the expression (2 − 1), where the societal expectation for an emotion is 2 and the actual emotional experience is 1. This represents a minor discrepancy within a low-level emotional profile, suggesting that both the emotion and its societal expectation are relatively trivial. In contrast, the expression (9 − 8), where the societal expectation is 9 and the actual experience is 8, indicates a minor discrepancy within a high-level emotional profile. This scenario implies a strong emotion being experienced that nearly matches an equally high societal expectation. This distinction demonstrates how differences of the same numerical value can have varying implications depending on the levels of emotional intensity and societal expectations involved, potentially influencing individual life satisfaction in different ways.

In contrast to conventional methodologies, polynomial regression with response surface analysis (RSA) offers a more accurate and comprehensive approach. As highlighted by Humberg et al. (2018), this is a statistical technique that can understand and interpret the relation between two independent variables and the dependent variable in a three-dimensional space, by considering both the direction and magnitude of discrepancies between these variables. This surface is a graphical representation that allows us to visualize the relation between these variables and their combination effects. This model considers not just the linear relation but also the quadratic and interaction terms, which are crucial when the relation between variables is not merely additive (Edwards, 2002).

In practice, RSA involves fitting a polynomial regression model to the data, which is essentially an extension of linear regression. It allows for the examination of nonlinear relations by considering higher-order terms (squares and products of the predictor variables). RSA specifically investigates congruence through the line where both predictors are equal (the line of congruence), and incongruence through the line where they are opposite (the line of incongruence) (Edwards, 2002). The line of congruence represents scenarios where both variables increase together, indicating a harmonic relationship, while the line of incongruence illustrates scenarios where one variable increases as the other decreases, suggesting a discordant relationship. This distinction is pivotal for understanding the dynamics between variables and their impact on the outcome of interest. Hence, we can test whether individuals experience the highest life satisfaction when their emotional experiences perfectly match societal expectations, or if there's a particular combination of variables that leads to optimal outcomes (Barranti et al., 2017). RSA also provides a visual representation of this relation, usually through 3D plots, which illustrate the outcome variable as a function of the two predictor variables (Barranti et al., 2017). This visual aid is instrumental in interpreting the interaction effects and in understanding the complexity of the data. Thus, we may gain a deeper and more accurate understanding of the dynamics between emotional experiences and expectation on life satisfaction.

In summary, our objective is to explore a comparatively unexplored domain of the actual-ought emotional discrepancy, comprehend its potential effects on life satisfaction, and consequently, potentially inform future therapies designed to improve individual life satisfaction. The utilization of response surface analysis in our technique enables us to investigate the combined impact of variables while minimizing the loss of data information. The present study holds the potential to establish a basis for broader discussions concerning the social perspectives and evaluations of emotions, as well as the potential for recalibrating these perceptions to enhance people's life satisfaction, and in consequence the overall societal wellbeing.

2 Method

2.1 Participants

The research had a sample size of 301 individuals residing in the United States who willingly participated in the study through the Prolific platform. The study population consisted of 145 female participants and 149 male participants, ranging in age from 18 to 50 years. The mean age was 34.41, with a standard deviation of 7.91. In order to enhance the representativeness of the online population in the United States, the selection of participants was conducted from a non-student, community sample.

2.2 Measures

2.2.1 Emotional experience and social expectations for emotions

In this study, participants were asked to report their emotional experiences and their perceived social expectations for emotions. The scale for emotional experiences was adapted from Krys et al. (2022), selecting a mix of 12 distinct emotions based on the factor loadings in the original study. These emotions were categorized into six positive (grateful, excited, peaceful, relaxed, in love, enthusiastic) and six negative emotions (fearful, angry, sad, ashamed, depressed, dull). Similarly, the items for perceived societal expectations were inspired and adapted from Bastian et al. (2012). Participants reported both the frequency of their emotional experiences (e.g., "your frequency of experience: grateful") and their perception of societal expectations for each emotion (e.g., "Your society expects you should feel: grateful"). The scale's responses ranged from 1 to 9 (1 = *none in a week*, 5 = *once a day*, 9 = *all the time*). The reliability of this scale was substantiated by Cronbach's alpha, with scores ranging from 0.79 for Positive Emotional Experiences to 0.88 for Expectation for Negative Emotions (see Table 1).

2.2.2 Life satisfaction

Life satisfaction, a key component of subjective wellbeing, was assessed in our study using the Satisfaction with Life Scale (Diener et al., 1985). Recognized as a reliable measure in diverse sociocultural contexts, this scale is instrumental in evaluating a happiness-related aspect of subjective wellbeing. Sample items from this scale include statements like "In most ways my life is close to my ideal" and "I am satisfied with my life." The scale demonstrated high reliability with a Cronbach's alpha of 0.93.

TABLE 1 Descriptive statistics and correlations among focal variables.

Variables	*M*	*SD*	α	1	2	3	4
1. Life satisfaction	2.45	1.10	0.93				
2. Positive emotional experiences	4.07	1.44	0.79	0.54**			
3. Expectation for positive emotion	5.10	1.87	0.87	0.06	0.24**		
4. Negative emotional experiences	3.38	1.63	0.87	−0.50**	−0.30**	0.14*	
5. Expectation for negative emotions	2.54	1.55	0.88	0.03	0.27**	−0.20**	0.20**

***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$.

TABLE 2 Response surface results for the effect of experience-norm congruence on life satisfaction.

		Estimated regression models			
		Positive emotions		Negative emotions	
		Estimates (SE)	CI	Estimates (SE)	CI
Standardized regression coefficients for models					
	b_0	2.87 (0.08)***	2.71, 3.02	2.19 (0.12)***	1.96, 2.42
	b_1	−0.01 (0.04)	−0.08, 0.06	0.08 (0.06)	−0.04, 0.20
	b_2	0.38 (0.05)***	0.29, 0.48	−0.17 (0.07)*	−0.30, −0.04
	b_3	−0.001 (0.01)	−0.03, 0.02	−0.04 (0.02)*	−0.07, −0.01
	b_4	0.04 (0.02)*	0.01, 0.07	0.04 (0.02)†	−0.001, 0.09
	b_5	−0.03 (0.02)	−0.07, 0.01	0.06 (0.01)***	0.04, 0.09
Position of first principal axis					
	p_{10}	5.16 (2.66)†	−0.05, 10.37	−6.55 (6.35)	−19.00, 5.90
	p_{11}	0.53 (0.33)	−0.12, 1.18	5.05 (2.38)*	0.40, 9.71
Shape of surface along lines					
LOC	a_1	0.37 (0.06)***	0.25, 0.49	−0.09 (0.09)	−0.27, 0.10
	a_2	0.01 (0.03)	−0.04, 0.07	0.07 (0.03)*	0.01, 0.12
LOIC	a_3	−0.39 (0.06)***	−0.51, −0.28	0.25 (0.09)**	0.08, 0.42
	a_4	−0.07 (0.02)**	−0.11, −0.02	−0.02 (0.03)	−0.08, 0.05

***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$. †$p < 0.10$.
Outcome variables: life satisfaction. LOC, line of congruence; LOIC, line of incongruence. Polynomial regression model: $Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2$; X = expectation for emotions, Y = emotional experience. $R^2_{positive} = 30.8\%$, $R^2_{negative} = 34.8\%$.

2.3 Procedure

Upon enrollment via the Prolific platform, participants were directed to Qualtrics online portal. They were briefed about the study's objectives and the confidentiality of their responses. After providing informed consent, participants responded to the above-listed scales and demographic questions.

2.4 Data analysis

Descriptive statistics and correlations among focal variables were assessed. Paired-sample *t*-test were employed to examine the discrepancies between emotional experience and social expectation for positive and negative emotions. Polynomial regressions with response surface analyses [Shanock et al. (2010); Edwards and Parry (1993), RSA package: Schönbrodt and Humberg (2021)] was conducted to determine the relation between experience-norm congruence for positive and negative emotions and life satisfaction. All analyses were conducted in R (R Core Team, 2022, 4.2.2), with anonymised data and script available online at: https://osf.io/h683g/.

3 Results

Descriptive statistics, including *M*, *SD*, and correlations between all the focal variables are provided in the Table 1.

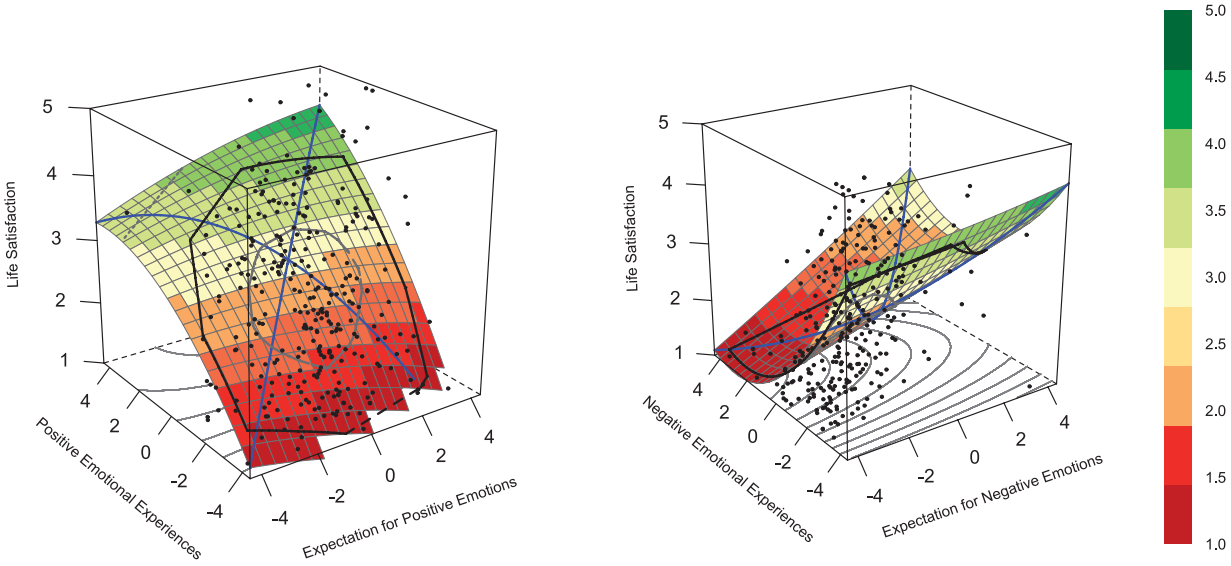

FIGURE 1
Surface plots display experience-norm congruence for positive **(left)** and negative **(right)** emotions. The experience-norm congruence is the combination between emotional experience (*y* axis) and expectation for emotions (*x* axis) on life satisfaction (*z* axis).

In general, individuals perceived they should experience positive emotions moderately more frequently than they actually experienced ($t[300] = 8.62$, $p < 0.001$, $d = 0.50$) and experience negative emotions moderately less frequently than they actually experienced ($t[300] = -7.30$, $p < 0.001$, $d = -0.42$).

Two polynomial regressions were estimated and visualized in three-dimensional surface plots. The explained variance of the global models, regression coefficients, principal axes, and surface tests estimates can be found in Table 2. A detailed description of all the regression parameters and surface parameters can be found in Supplementary material. The parameters *a*1 and *a*2 correspond to the slope and curvature along the line of congruence, respectively. In contrast, parameters *a*3 and *a*4 are associated with the slope and curvature along the line of incongruence (Edwards and Parry, 1993). Figure 1 depict the estimated regression model for life satisfaction by both experience-norm congruence for positive and negative emotions.

We firstly examined the effect of congruence by Humberg et al. (2019)'s checklist. In all the analyses, at least one condition was violated and the RSA contradicted a congruence effect, indicating that those who simply feel fit their perceived expectations were not those who have the highest level of life satisfaction. Although there were no effects of congruence, the result can be interpreted (see Breetzke and Wild, 2022, for a similar practice). Especially the linear, curvilinear, possible interaction effects, and the direct interpretation of the potential effects of emotional fit on life satisfaction are of our major interests.

Linear effects of the emotional experience were the most salient effects in our data. Specifically, the higher frequency of positive emotions was associated with a greater level of life satisfaction ($b_2 = 0.38$, $SE = 0.05$, $p < 0.001$), indicating that more frequent positive emotions contribute to higher life satisfaction. Conversely, a higher frequency of negative emotions was associated with a lower level of life satisfaction ($b_2 = -0.17$, $SE = 0.07$, $p = 0.01$). Some of the higher-order terms were significant, resulting in non-flat surfaces, which indicates a more complex relation than a simple linear one.

The interaction terms for positive emotions ($b_4 = 0.04$, SE = 0.02, $p = 0.01$) was significant, indicating a joint effect of individual emotional experience and perceived societal expectation on life satisfaction. As for the surface parameters, all instances of a_3 (representing the slope of the line of incongruence, LOIC) were significant (positive emotions: $a_3 = -0.39$, SE = 0.06, $p < 0.001$; negative emotions: $a_3 = 0.25$, SE = 0.09, $p = 0.004$), indicating a joint influence of individual emotional experience and perceived societal expectation on life satisfaction. This means the relation strength between incongruence and the outcome depends on the specific discrepancy direction. The lowest levels of life satisfaction were reported by individuals frequently experiencing negative emotions alongside low perceived societal expectations for such emotions, whereas the highest life satisfaction was reported by those infrequently experiencing negative emotions but perceiving high societal expectations for these emotions.

Additionally, along the line of congruence for negative emotions, although the linear effect was not significant ($a_1 = -0.09$, SE = 0.09, $p = 0.35$), the analysis revealed a significant curvature effect ($a_2 = 0.07$, SE = 0.03, $p = 0.02$). This finding points to a non-linear relation between the congruence of negative emotional experiences and expectations, and life satisfaction. However, the high congruence condition of negative emotions (high expectations with high experiences) was found to have an insufficient number of instances to robustly support this curvature effect. This limitation indicates that the curvature effect may not precisely represent the pattern for this specific situation. The analysis continues to suggest a non-linear relation; yet, the clarity of this relation for scenarios with high congruence of negative

emotions is less certain. Therefore, caution should be exercised when interpreting the curvature effect for high congruence of negative emotions.

4 Discussion

Through our empirical inquiry into the intricate relation between individual emotional experiences and societal expectations, we have discovered the effects on life satisfaction, the happiness-related key component of subjective wellbeing. In contrast to the congruence effects, our findings revealed that individuals who reported rare experiences of negative emotions, but believed high societal expectations for such feelings, reported the highest levels of life satisfaction. This elucidates the possible benefits of societies embracing a wider range of negative emotions.

The present study expands the scope of emotion research by delving into the realm of the actual-ought emotional difference, which has received less attention compared to the examined actual-ideal emotional discrepancy. This study combines elements from the Affect Valuation Theory (Tsai, 2007) and the Self-Discrepancy Theory (Higgins, 1987) to explore the intersection between emotional norms and actual emotional experiences. By integrating these two paradigms, this investigation aims to deepen our understanding of the complex relation between these factors. Significantly, the deviation observed from the potential results predicted by congruence models (e.g., Chatman, 1989)—which suggest that congruence between internal experiences and external expectations generally enhances wellbeing—indicates the necessity of revisiting the general applicability of these models, particularly in relation to emotional experiences and expectations. Moreover, the study revealed that the most significant impacts observed were linear in nature, specifically related to emotional experiences. The significance of good emotions in promoting wellbeing has been acknowledged (Fredrickson, 2001). It has been continuously observed that individuals who frequently experience positive emotions, regardless of cultural norms, tend to report higher levels of life satisfaction.

From a practical standpoint, the study highlights the adverse consequences of societal expectation that may marginalize or diminish the significance of unpleasant emotions. It suggests there are advantages to be gained from a society transition that embraces a wider range of negative emotions. The results of our study suggest that individuals may enjoy an moderate level of life satisfaction when they perceive that their negative emotional experiences are acknowledged and accepted by society. This probable explanation is consistent with the observed phenomenon of those who report the highest levels of life satisfaction being those who infrequently experience negative emotions, yet perceive a high level of society expectations around these emotions. When there is societal acceptance or even an expectation for individuals to experience negativity, it can potentially enhance their life satisfaction, particularly for those who frequently encounter such negative feelings. This notion is aligned with the research of Ford et al. (2018), who found that individuals who accept their negative emotions and thoughts exhibit better psychological health. Additionally, the study by Dejonckheere et al. (2022) indicates that perceiving societal pressure to be happy, particularly in nations with high happiness indices, is linked to poorer wellbeing. These findings highlight the complex interplay between societal expectation on emotions and individual wellbeing, suggesting that the acknowledgment of negative emotions in society can have beneficial effects. This comprehension holds significant implications for therapeutic strategies, since therapists and counselors possess a broader awareness of the emotional dynamics that arise from society norms and expectations. Moreover, at a social level, it calls for the implementation of campaigns or interventions designed to reshape public attitudes toward emotions, hence facilitating the development of a more inclusive and empathic society (Bastian et al., 2012; Yeung and Lun, 2021; Humphrey et al., 2022).

In our discussion of limitations, it is crucial to acknowledge the challenges encountered in supporting the curvature effect for high congruence of negative emotions due to an insufficient number of observations. Future research could benefit from larger sample sizes or more targeted sampling strategies to more accurately capture and understand the effect of emotional congruence effects on life satisfaction. It is also important to approach this interpretation with caution because individuals' experiences and perceptions of emotions vary significantly across various cultural contexts. Although the current exploratory findings offer valuable insights, it is important to replicate them in order to strengthen the reliability and validity of the research conclusions. In keeping with the notion of Constraints on Generality as proposed by Simons et al. (2017), this analysis acknowledges the limits related to the sample. The present sample, which comprises only of online participants from the United States, imposes limitations on the extent to which the findings can be generalized. In order to adequately address the variances in emotional norms and expectations across different cultures and in a culturally sensitive way (Badaan and Choucair, 2023; Thomas and Markus, 2023), it is crucial to incorporate multiple cultural contexts into the future research agenda.

Furthermore, it is important to acknowledge that this study provides valuable insights into the complex interplay between emotional experiences and expectation. However, it is crucial to recognize and take into account many significant limitations associated with this research. Initially, our focus was focused on the examination of "ought emotions" while not thoroughly investigating the specifics and potential impacts of "ideal emotions." Although these two concepts are separate in nature, it is highly probable that they have a mutual influence on each other. Therefore, excluding one of them from our research could have resulted in the exclusion of useful discoveries. Moreover, if we conceptualize "ought emotions" as a type of injunctive norm, it is possible to think that other associated constructs, such as the emotional context in which individuals are immersed (representing the descriptive norms of emotions), could have a substantial influence on the subjective wellbeing of individuals (Krys et al., 2022). Although our study did not explore these areas, the possible interaction between emotional environment, injunctive norms, and their combined influence on life satisfaction could be significant. Further investigation is warranted to explore the interconnectedness of these notions and gain a more comprehensive understanding of how social and interpersonal emotional norms and contexts interact and influence individual life satisfaction. It is important to acknowledge that life

satisfaction is only one of the components of subjective wellbeing (Krys et al., 2024). Future studies are needed to understand the consequences of interplay between emotional experiences and expectation on other—less happiness-related—components of subjective wellbeing, like a sense of meaning, harmony, or a spirituality.

4.1 Conclusion

The present study enhances our comprehension of the complex dynamics between emotional experiences, expectations, and life satisfaction. Our findings challenge the one-sided perspectives that advocate for maximizing positive emotions and minimizing negative ones from popular beliefs, by highlighting the potential advantages of emotional validation and the acknowledgment of negative emotions. In order to foster an expanded understanding of emotions and wellbeing, it is our aim that our discoveries serve as an inspiration to continue research in this domain and encourage contemplation on our collective societal perspectives on emotions. By adopting this approach, it is possible to foster a societal environment in which the promotion of accepting negative emotions over sticking to a predetermined set of feelings deemed expected.

Data availability statement

The original contributions presented in the study are publicly available. This data can be found at: https://osf.io/h683g/.

Ethics statement

The study was approved by the Research Ethics Committee of the Institute of Psychology of the Polish Academy of Science (approval no. #18/VII/2022). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their informed consent to participate in this study.

Author contributions

JY: Conceptualization, Formal analysis, Investigation, Methodology, Visualization, Writing—original draft, Writing—review & editing. MR: Funding acquisition, Methodology, Writing—review & editing. KK: Funding acquisition, Supervision, Writing—review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. The research leading to these results has received funding from the Norway Grants 2014-2021 operated by the National Science Centre (Poland) under Project Contract No 2019/34/H/HS6/00597 (GRIEG).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2024.1305812/full#supplementary-material

References

Badaan, V., and Choucair, F. (2023). Toward culturally sensitive development paradigms: new shifts, limitations, and the role of (cross-) cultural psychology. *J. Cross Cult. Psychol.* 54, 232–248. doi: 10.1177/00220221211073671

Barranti, M., Carlson, E. N., and Côté, S. (2017). How to test questions about similarity in personality and social psychology research: description and empirical demonstration of response surface analysis. *Soc. Psychol. Personal. Sci.* 8, 465–475. doi: 10.1177/1948550617698204

Bastian, B., Kuppens, P., Hornsey, M. J., Park, J., Koval, P., Uchida, Y., et al. (2012). Feeling bad about being sad: the role of social expectancies in amplifying negative mood. *Emotion* 12, 69–80. doi: 10.1037/a0024755

Breetzke, J., and Wild, E.-M. (2022). Social connections at work and mental health during the first wave of the COVID-19 pandemic: evidence from employees in Germany. *PLoS ONE* 17:e0264602. doi: 10.1371/journal.pone.0264602

Chatman, J. A. (1989). Improving interactional organizational research: a model of person-organization fit. *Acad. Manag. Rev.* 14, 333–349. doi: 10.2307/258171

De Almeida, I., and Uchida, Y. (2021). Who can buffer marginalization risk? Affect experience, affect valuation, and social marginalization in japan and brazil. *Front. Psychol.* 12:501165. doi: 10.3389/fpsyg.2021.501165

Dejonckheere, E., Rhee, J. J., Baguma, P. K., Barry, O., Becker, M., Bilewicz, M., et al. (2022). Perceiving societal pressure to be happy is linked to poor well-being, especially in happy nations. *Sci. Rep.* 12:1514. doi: 10.1038/s41598-021-04262-z

Diener, E., Emmons, R. A., Larsen, R. J., and Griffin, S. (1985). The satisfaction with life scale. *J. Pers. Assess.* 49, 71–75. doi: 10.1207/s15327752jpa4901_13

Edwards, J. R. (2002). "Alternatives to difference scores: Polynomial regression analysis and response surface methodology," in *Measuring and Analyzing Behavior in Organizations: Advances in Measurement and Data Analysis*, eds. F. Drasgow and N. Schmitt (San Francisco, CA: Jossey-Bass/Wiley), 350–400.

Edwards, J. R. (2008). Person-environment fit in organizations: an assessment of theoretical progress. *Acad. Manag. Ann.* 2, 167–230. doi: 10.5465/19416520802211503

Edwards, J. R., and Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Acad. Manag. J.* 36, 1577–1613. doi: 10.2307/256822

Ford, B. Q., Lam, P., John, O. P., and Mauss, I. B. (2018). The psychological health benefits of accepting negative emotions and thoughts: laboratory, diary, and longitudinal evidence. *J. Pers. Soc. Psychol.* 115, 1075. doi: 10.1037/pspp0000157

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. *Am. Psychol.* 56, 218–226. doi: 10.1037/0003-066X.56.3.218

Gross, J. J., and John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *J. Pers. Soc. Psychol.* 85:348. doi: 10.1037/0022-3514.85.2.348

Higgins, E. T. (1987). Self-discrepancy: a theory relating self and affect. *Psychol. Rev.* 94, 319–340. doi: 10.1037/0033-295X.94.3.319

Higgins, E. T., Shah, J., and Friedman, R. (1997). Emotional responses to goal attainment: strength of regulatory focus as moderator. *J. Pers. Soc. Psychol.* 72:515. doi: 10.1037/0022-3514.72.3.515

Humberg, S., Dufner, M., Schönbrodt, F. D., Geukes, K., Hutteman, R., Van Zalk, M. H., et al. (2018). Enhanced versus simply positive: a new condition-based regression analysis to disentangle effects of self-enhancement from effects of positivity of self-view. *J. Pers. Soc. Psychol.* 114:303. doi: 10.1037/pspp0000134

Humberg, S., Nestler, S., and Back, M. D. (2019). Response surface analysis in personality and social psychology: checklist and clarifications for the case of congruence hypotheses. *Soc. Psychol. Personal. Sci.* 10, 409–419. doi: 10.1177/1948550618757600

Humphrey, A., Szoka, R., and Bastian, B. (2022). When the pursuit of happiness backfires: the role of negative emotion valuation. *J. Posit. Psychol.* 17, 611–619. doi: 10.1080/17439760.2021.1897869

Kristof-Brown, A. L., Zimmerman, R. D., and Johnson, E. C. (2005). Consequences of individuals'fit at work: a meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Pers. Psychol.* 58, 281–342. doi: 10.1111/j.1744-6570.2005.00672.x

Krys, K., Kostoula, O., Van Tilburg, W., Mosca, O., Lee, H., Maricchiolo, F., et al. (2024). Happiness maximization is a WEIRD way of living. Perspect. *Psychol. Sci.* doi: 10.1177/17456916231208367. [Epub ahead of print].

Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M.-C., Torres, C., van Tilburg, W. A., et al. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: a forty-nine country study. *J. Posit. Psychol.* 17, 117–130. doi: 10.1080/17439760.2020.1858332

Ostroff, C. (2012). "12 person-environment fit in organizational settings," in *The Oxford Handbook of Organizational Psychology, Volume* 1, ed. S. W. J. Kozlowski (New York, NY: Oxford University Press), 373. doi: 10.1093/oxfordhb/9780199928309.013.0012

R Core Team (2022). *R: A Language and Environment for Statistical Computing*. Vienna: R Foundation for Statistical Computing.

Scheibe, S., English, T., Tsai, J. L., and Carstensen, L. L. (2013). Striving to feel good: ideal affect, actual affect, and their correspondence across adulthood. *Psychol. Aging* 28, 160–171. doi: 10.1037/a0030561

Schlechter, P., Hellmann, J. H., and Morina, N. (2022). Self-discrepancy, depression, anxiety, and psychological well-being: the role of affective style and self-efficacy. *Cognit. Ther. Res.* 46, 1075–1086. doi: 10.1007/s10608-022-10314-z

Schönbrodt, F. D., and Humberg, S. (2021). *RSA: An R Package for Response Surface Analysis (version 0.10.4)*.

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., and Heggestad, E. D. (2010). Polynomial regression with response surface analysis: a powerful approach for examining moderation and overcoming limitations of difference scores. *J. Bus. Psychol.* 25, 543–554. doi: 10.1007/s10869-010-9183-4

Simons, D. J., Shoda, Y., and Lindsay, D. S. (2017). Constraints on generality (COG): a proposed addition to all empirical papers. *Perspect. Psychol. Sci.* 12, 1123–1128. doi: 10.1177/1745691617708630

Thomas, C. C., and Markus, H. R. (2023). Enculturating the science of international development: beyond the weird independent paradigm. *J. Cross Cult. Psychol.* 54, 195–214. doi: 10.1177/00220221221128211

Trommsdorff, G. (2009). Culture and development of self-regulation. *Soc. Personal. Psychol. Compass* 3, 687–701. doi: 10.1111/j.1751-9004.2009.00209.x

Tsai, J. L. (2007). Ideal affect: cultural causes and behavioral consequences. *Perspect. Psychol. Sci.* 2, 242–259. doi: 10.1111/j.1745-6916.2007.00043.x

Tsai, J. L., Knutson, B., and Fung, H. H. (2006). Cultural variation in affect valuation. *J. Pers. Soc. Psychol.* 90, 288. doi: 10.1037/0022-3514.90.2.288

Yeung, J. C., and Lun, V. M.-C. (2016). When self-help materials help: examining the effects of self-discrepancy and modes of delivery of positive self-statements. *J. Posit. Psychol.* 11, 163–172. doi: 10.1080/17439760.2015.1037862

Yeung, J. C., and Lun, V. M.-C. (2021). Uncritical use of non-evidence-based self-help materials induces victim-blaming on depressed individuals. *J. Posit. Psychol.* 16, 492–502. doi: 10.1080/17439760.2020.1752780

Emotional Misfit and Well-Being: Direction-Sensitive Incongruence in Negative Emotions Across 48 Societies

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Abstract

Emotions are not evaluated in isolation, but in relation to socially endorsed norms—what people believe they should feel. This study investigates how the congruence and incongruence between emotional experience and perceived societal expectations for negative emotions relate to well-being, and whether this relation is culturally contingent. Drawing on a cross-national survey data from 14,823 participants across 48 countries, we applied multilevel response surface analysis (MLRSA) to test whether directional emotional misfit—feeling more or less negative emotion than one believes is appropriate—predicts life satisfaction, meaning, and harmony in life. Results revealed a consistent asymmetry: individuals reported lower well-being when they experienced more negativity than expected, compared to when they experienced less than expected. Crucially, this effect was moderated by cultural norms of emotional expression. In societies where negative emotions are less openly expressed, emotional misfit was more psychologically costly; in more expressive cultures, its effects were attenuated. These findings position emotional fit as a culturally embedded, norm-evaluative process whose psychological consequences depend partly on its direction and social meaning. We discuss implications for emotion regulation, cultural psychology, and the study of affective normativity in global contexts.

Keywords: emotional fit, injunctive norms, negative emotions, well-being, multilevel modeling, response surface analysis

Emotional Misfit and Well-Being: Direction-Sensitive Incongruence in Negative Emotions Across 48 Societies

In daily life, people do more than simply feel emotions; they actively reflect on their appropriateness. This evaluation concerns not only whether an emotion fits the objective features of a situation, but also whether it feels legitimate within a given social context. Emotional experiences are thus evaluated against social norms: individuals constantly assess whether what they feel can be shown, recognised, or accepted by others (De Leersnyder et al., 2014). These comparisons may occur implicitly or explicitly, such as when someone suppresses anger in a formal meeting, doubts their lack of sadness at a funeral, or questions whether they should feel happier at a celebration (Gross, 1998). In each case, people are not only experiencing emotion, but judging emotional fit—an alignment between feeling and social expectation.

Such evaluations are shaped by emotion norms—shared beliefs about what emotions are appropriate in a given context (Boiger & Mesquita, 2012). These norms include both what individuals believe they should feel and what they observe others to express. For instance, they are especially relevant in situations requiring shared emotional responses, such as weddings, funerals, or national ceremonies (Hochschild, 1983). Despite the growing literature on cultural emotion norms, less is known about how individuals monitor and interpret their emotional fit across cultures, and taking cross-level effect into considerations (Greenaway et al., 2018), and how this evaluation may influence their well-being, such as life satisfaction and sense of belonging.

The two types of emotional norms: Injunctive and descriptive

Emotions are rarely evaluated outside of a context. People rely on various social standards to assess their feelings, particularly in situations where they need to align with others. Two types of emotion norms are particularly influential in this process: injunctive norms and descriptive norms (Cialdini et al., 1991). Injunctive norms refer to beliefs about what emotions one ought to feel, often rooted in cultural ideals, moral expectations, or institutional scripts (Cialdini et al., 1991). Injunctive norms refer to beliefs about what emotions one ought to feel, often rooted in cultural ideals, moral

expectations, or institutional scripts (Mesquita & Frijda, 1992; Tsai, 2007). Descriptive norms, by contrast, capture what emotions people typically express or observe in a given context . (Cialdini et al., 1991; Krys et al., 2022).

While these norms are analytically distinct, they frequently operate simultaneously in everyday life. For instance, an individual may believe they should feel pride after an achievement (injunctive), while observing that others remain modest and subdued after an achievement (descriptive). This tension—between what one believes is appropriate and what others appear to feel—creates a normative cross-pressure that complicates emotional self-evaluation. As Boiger and Mesquita (2012) argue, these normative emotional patterns emerge through repeated social enactment, from caregiving routines to workplace interactions. Emotional appropriateness is therefore not only judged according to personal feeling, but also against broader social and/or cultural standards about what emotions are legitimate, intelligible, or deviant. Understanding emotional fit requires attention to these cultural affordances and constraints that shape the range of viable emotional responses within a given society.

Although many studies examine either injunctive or descriptive norms (Bastian et al., 2012; De Leersnyder et al., 2014; Yeung et al., 2024), few have addressed how their coexistence and interaction (Smith & Louis, 2008) , especially in macro or cross-level contexts. The present study argues that this dual structure is essential for understanding how emotional fit is judged and experienced across cultures.

Emotional misfit is direction-sensitive

While some studies have begun to examine emotional fit or congruence with cultural norms (Bastian et al., 2012; De Leersnyder et al., 2014), few have addressed how the direction of emotional misfit—feeling more versus less than expected—might carry distinct psychological implications.

The fit and misfit can be examined by congruence model and discrepancy model. Congruence models in organizational and personality psychology suggest that well-being is highest when the self and environment are aligned, and declines as they diverge (Edwards, 2002). Discrepancy-based theories propose that the direction of

divergence—such as falling short of a moral or social standard—may carry greater affective consequences. For example, self-discrepancy theory posits that failing to meet internalized ought-standards triggers guilt or shame, while exceeding them may evoke dissonance or moral unease (Higgins, 1987; Thoits, 1989). Cognitive dissonance theory further posits that individuals are motivated to resolve perceived inconsistencies between their feelings and normative expectations, often through suppression, justification, or emotional reinterpretation (Festinger, 1957; Harmon-Jones & Mills, 2019). These models suggest that the psychological impact of emotional misfit depends not only on how far individuals deviate from expectations, but also on which side of the norm they fall.

Crucially, the direction of misfit is socially encoded. In normatively constrained environments, excessive negativity may signal emotional instability or moral deviance. In contrast, feeling less negative emotion than expected may not generate discomfort or even socially rewarded in some contexts. These evaluations vary across cultural contexts, depending on how emotion norms define and enforce emotional legitimacy. Understanding emotional misfit therefore requires not only assessing the presence of incongruence, but also analysing its direction, meaning, and moral load within a given normative environment.

Building on these insights, recent empirical work in emotion research demonstrates that directional asymmetry is a meaningful and measurable phenomenon. Yeung et al. (2024), for instance, found that individuals who reported feeling more negative emotion than they believed they should experience greater psychological costs (i.e., low self-reported well-being) than those who felt less than expected. This suggests that emotional misfit is not a uniform deviation, but a direction-sensitive evaluation. In short, too much emotion may not be judged—or felt—the same as too little, even though both differ from one's preferred emotional state.

Why negative emotions matter more

Not all emotions are regulated equally. Across cultural contexts, negative emotions—such as anger, sadness, or shame—are more likely than positive ones to be

influenced by personality (Gross & John, 2003) and social rules (Matsumoto et al., 2008). Unlike positive emotions, which are often freely expressed and socially encouraged, negative emotions tend to be morally evaluated, socially suppressed, or strategically managed to preserve group harmony (Bastian et al., 2012). As a result, the psychological and social consequences of emotional misfit are likely to be more pronounced when negative emotions are involved. This asymmetry in regulation suggests that negative emotional misfit—feeling more or less negative emotion than expected—may carry stronger psychological penalties than comparable deviations in positive emotion. When individuals fail to feel the "right" kind of negative emotion, they risk being perceived as unfeeling, immoral, or socially disconnected. Conversely, when they feel too much, they may fear social rejection or internalize their deviation as personal failure. In both cases, the stakes are high.

Accordingly, this study focuses specifically on negative emotions to examine emotional (mis)fit under conditions of normative constraint. By targeting the domain where regulation is strongest, we are better able to test the asymmetry and cultural contingency of emotional misalignment.

Toward a multilevel understanding of emotional fit

While emotional misfit can occur at the individual level, its evaluation is deeply embedded in cultural emotional environments. The same emotional expression may be tolerated—or condemned—depending on the broader social climate. In high-expression societies, negative emotions are more accepted and visibly displayed; in low-expression contexts, they may be hidden, minimized, or judged as inappropriate. These differences reflect descriptive norms—cultural patterns of emotional expression—that shape what emotional deviations are noticed, accepted, or sanctioned (De Leersnyder et al., 2014; Krys et al., 2022).

Building on this distinction, the present study conceptualizes emotional fit as a multilevel phenomenon, situated at the intersection of individual-level injunctive norms and society-level descriptive norms. Specifically, we examine how the (mis)alignment between emotional experience and injunctive expectations relates to psychological

well-being, and whether this relation is moderated by Negative Societal Emotional Expression (NSEE)—a country-level index of how visibly negative emotion is expressed in daily life. This approach allows us to test not only whether emotional misfit matters, but when and where it matters most.

We propose two core hypotheses. First, we expect that emotional misfit is direction-sensitive: individuals who feel more negative emotion than they believe they should will report lower well-being than those who feel less than expected (H1). Second, we hypothesize that this asymmetry is culturally contingent: the psychological costs of emotional misfit will be amplified in low-NSEE societies, where negative emotion is less openly expressed and more strongly regulated (H2). Together, these hypotheses test whether emotional deviance is interpreted through both personal and cultural lenses, and whether expressive environments act as buffers or amplifiers of misfit.

Method

The current study is part of a broader cross-cultural investigation exploring cultural factors associated with the endorsement of societal development goals, emotion-related constructs, and well-being. In the present paper, we focus specifically on self-reported frequencies of negative emotional experience, perceived expectations, and emotional expression.

Participants and Nations

The original dataset comprises responses from 70 cultural groups. In the original project (Wasiel et al., 2025), the target sample size in each nation was set at n = 200, but it vary across nations (range from 82 to 1903). For the present analysis, we excluded participants who (a) failed more than one of the twelve attention checks, (b) had missing data on the key variables, or (c) were older than 60 years. We retained only nations with sufficiently large samples for multilevel modelling ($n \geq 150$). The final analytic sample consisted of $N = 14,823$ participants from 48 nations ($M_n = 308.81$, $SD_n = 274.94$, range: 150–1566). Demographic details can be found in Table 1.

Measures

Individual Emotional Experience and Expectations for Negative Emotions

The first measure assessed the frequency of negative emotional experiences. Adapted from Krys et al., 2022, participants reported their emotional experiences (e.g., '*your frequency of experience: sad*') of 4 negative emotions– *fearful*, *angry*, *sad* and *ashamed*, with the actual time frame ranged from 1 to 9 (1 = *never*, 3 = *a couple of times a month*, 5 = *once a day*, 7 = *almost every single hour*, 9 = *all the time*). Although such retrospective self-reports may not precisely reflect actual momentary experiences (Thomas & Diener, 1990), they capture individuals' retrospective experiences and semantic emotion knowledge—that is, beliefs about their emotional tendencies—which renders them comparable to expectation beliefs (Robinson & Clore, 2002).

The second measure captured injunctive norms—participants' beliefs about whether they *should* experience these negative emotions. Items were adapted from Bastian et al. (2012), prompting participants to rate perceived societal expectations for each emotion (e.g., "*Your society expects you should feel: sad*"). The average Cronbach's alpha across nations was .74 for emotional experience (range: .63–.91) and .78 for expectation (range: .56–.94).

In line with recommendations for assessing congruence and incongruence (Edwards, 2002), both predictors were constructed to represent the same content domain and use the same response scale. The current study examines the individuals' congruence and incongruence between their beliefs about experienced and expected negative emotions, as well as how such incongruence varies across emotional contexts.

Individual Well-being

Well-being was measured using three indicators: life satisfaction, meaning in life, and harmony in life. Life satisfaction was assessed using the Satisfaction with Life Scale (Diener et al., 1985), with high internal consistency (mean $\alpha = .84$, range: .70–.92). A sample item is "You are satisfied with your life." Meaning in life was measured using the Presence subscale of the Meaning in Life Questionnaire (Steger et al., 2006), which

showed good reliability (mean $\alpha = .88$, range: .71–.93); a sample item is "You understand your life's meaning." Harmony in life was assessed with the Harmony in Life Scale (Kjell et al., 2016), with satisfactory reliability (mean $\alpha = .79$, range: .66–.89); a sample item is "Most aspects of your life are in balance."

Societal Emotional Environment based on Individual Aggregated Emotional Expression

To construct the societal emotional environment (SEE) for negative emotions, we used aggregated individual reports of emotional expression. Participants rated how frequently they expressed each of the four negative emotions—*fearful*, *angry*, *sad*, and *ashamed*—in their daily lives (e.g., '*your frequency of expression: sad*'), using the same 1 to 9 scale as for emotional experience described above.

National-level SEE scores were calculated by averaging individual-level emotional expression scores within each country. These aggregated scores reflect the descriptive norms of negative emotion expression in each society. Reliability for the expression items across nations was acceptable, with an average Cronbach's alpha of .70 (range: .50–.83). This approach—aggregating individual-level reports to represent societal norms—has been previously applied in cultural psychology to operationalize normative emotional patterns (De Leersnyder et al., 2014; Krys et al., 2022).

Analysis Strategy

This analysis examines whether the alignment—or misalignment—between personal emotional experience and normative expectations predicts psychological well-being in a direction-sensitive and culturally contingent manner. We conceptualise emotional fit and misfit as experience–norms congruence and incongruence—a structured evaluation of how individuals' emotional experiences align with perceived normative expectations. Driven by our research question, we focus on two levels of this alignment, corresponding to the two hypotheses outlined above:

- H1: At the individual level, we model experience–expectation congruence, where expectations reflect injunctive norms. Based on prior findings (Yeung et al., 2024), we test whether individuals who experience more negative emotion than

they believe they should (high experience, low expectation) report lower well-being than those who experience less than expected, across countries.

- H2: At the cross-level, we examine how this alignment operates within different cultural emotional climates, operationalised as the societal visibility of negative affect. We hypothesise that the psychological cost of directional misfit is amplified in low-NSEE contexts, where negative emotion is less publicly expressed or socially accepted.

We examine these hypotheses by using polynomial regression with multilevel response surface analysis (MLRSA, Nestler et al., 2019), allowing us to assess both the degree and direction of alignment between experience and expectation, capturing nonlinear and asymmetric effects. We estimated a series of nested models to test our hypotheses (Aguinis et al., 2013):

- Model 0: A null model by adding only a random intercept for country, for partitioning the variance in well-being at different level.
- Model 1: A model with five individual-level predictors derived from polynomial regression: expectation (x), experience (y), and their quadratic and interaction terms (x^2, xy, y^2). These variables were constructed following standard response surface procedures to capture both the degree and direction of experience–expectation (in)congruence (Nestler et al., 2019). All predictors were grand-mean centered, allowing us to model both individual deviation and cross-level interactions on a common referential baseline (see similar practice in Krys et al., 2022). This model directly tests H1, focusing on directional asymmetry—specifically, whether the psychological cost is greater when individuals experience more negative emotion than they believe they should.
- Model 2: An extended Model 1 by adding Negative Societal Emotional Expression (NSEE) as a country-level predictor. This model does not include interaction terms and serves as a baseline model for the cross-level interaction model (Model 3).

- Model 3: A cross-level model with interactions between NSEE and each of the five RSA terms, allowing us to test H2. This model examines whether the psychological effects of experience–expectation (in)congruence vary depending on the normative visibility of negative emotions in a given society.

To summarise the full model specification (Model 3), we estimated the following multilevel polynomial regression model:

$$\begin{aligned} z_{ij} = \quad & \beta_0 + \beta_1 x_{ij} + \beta_2 y_{ij} + \beta_3 x_{ij}^2 + \beta_4 x_{ij} y_{ij} + \beta_5 y_{ij}^2 + \\ & \beta_6 g_j + \beta_7 g_j x_{ij} + \beta_8 g_j y_{ij} + \beta_9 g_j x_{ij}^2 \\ & + \beta_{10} g_j x_{ij} y_{ij} + \beta_{11} g_j y_{ij}^2 + u_{0j} + u_{1j} x_{ij} + u_{2j} y_{ij} \\ & + u_{3j} x_{ij}^2 + u_{4j} x_{ij} y_{ij} + u_{5j} y_{ij}^2 + \epsilon_{ij} \end{aligned} \tag{1}$$

z_{ij} represents psychological well-being for individual i in country j. Predictors x and y refer to perceived expectation and emotional experience, respectively, while g_j refers to the country-level negative societal emotional expression (NSEE). Model 0 includes only $\beta_0 + u_{0j}$. Model 1 includes β_1 to β_5 and random slopes for all individual-level RSA predictors (u_{1j} to u_{5j}). Model 2 adds β_6 for the country-level main effect. Model 3 includes cross-level interactions (β_7–β_{11}). Model parameters are interpreted in line with response surface analysis conventions, with particular focus on the structure and direction of (in)congruence, by deriving two conceptual surfaces:

- The line of congruence ($x = y$) captures the effects of being aligned with one's emotional norms—whether high or low in negativity. The slope along this line ($a_1 = \beta_1 + \beta_2$) indicates how well-being changes when both experience and expectation increase together. The curvature ($a_2 = \beta_3 + \beta_4 + \beta_5$) shows whether this alignment has linear or nonlinear effects on well-being.

- The line of incongruence ($x = -y$) captures the consequences of emotional misfit. Of particular interest is the slope along this line ($a_3 = \beta_1 - \beta_2$), which reflects directional asymmetry—whether experiencing more negative emotion than expected is more psychologically costly than the reverse. Additionally, the

curvature along this line ($a_4 = \beta_3 - \beta_4 + \beta_5$) captures whether the effects of misfit intensify nonlinearly as misalignment increases.

In Model 3, interaction terms between NSEE and the RSA predictors are used to test H2. Specifically, moderation of the a_3 parameter by NSEE would suggest that the directional cost of emotional misfit is not culturally neutral, but varies according to how visibly negative emotion is expressed in a society. A stronger negative association in low-NSEE contexts would support the idea that emotional environments shape how misalignment is evaluated and felt. For an overview of multilevel regression parameters and RSA indicators, see Supplemental Table **??**.

Results

We begin by establishing measurement invariance across nations to examine comparability of constructs, followed by multilevel response surface analyses testing the proposed hypotheses across three well-being indicators.

Multigroup Confirmatory Factor Analyses and Measurement Invariance

In our study, we specified a Multigroup Confirmatory Factor Analyses (MGCFA) model consisting of five distinct latent factors: negative emotional experience, negative emotional expectation, satisfaction with life, meaning and harmony in life. For negative emotions, the factors included experiences and expectancies of sadness, shame, fear, and anger; for three types of well-being, the factors included all items measuring each well-being variable. We further specified that each emotional experience was directly linked to its corresponding expectation, allowing us to assess the covariance between experiencing and expecting each specific emotion. The configural model had a satisfactory fit, CFI = .958, RMSEA = .047, SRMR = .036, and all items loaded positively on the constructs they were intended to measure. Therefore, configural invariance was established.

Cheung and Rensvold (2002) recommended the use of other goodness-of-fit indices, such as the change in comparative fit index (ΔCFI), to evaluate measurement invariance. A value of ΔCFI smaller than or equal to -.01 indicates invariance for a MGCFA. However, Rutkowski and Svetina (2014) suggested that when the number of

groups is large (e.g., greater than 10 or 20), the conventional ΔCFI −0.01 threshold may be overly stringent. Based on their simulation study in the context of large-scale international surveys, they proposed a more liberal cutoff of ΔCFI −0.02 to account for the increased likelihood of minor model misfit in such conditions. The metric model also had a satisfactory fit CFI = .953, RMSEA = .048, SRMR = .042, and it did not significant differ from the configural model, ΔCFI = -.005, ΔRMSEA = .001, ΔSRMR = .008. Therefore, metric invariance of the scales we used in the current study was established, meaning that the factor structures and the relations between factor and items are comparable across nations.

Descriptive Statistics and Correlations

Descriptive statistics (i.e., *M* and *SD*) at the national level are presented in Table 1. Table 2 presents both descriptive statistics and bivariate correlations among the focal variables at the individual and national levels.

At the individual level across all countries, significant correlations were observed among well-being measures. Notably, Life Satisfaction strongly correlated with Harmony in Life ($r = .66, p < .001$). . Negative experiences showed a negative correlation with all well-being measures, with the strongest against Harmony in Life ($r = -.22, p < .001$). Individual correlations by nations are available in the supplementary materials. At the national level, Meaning in Life and Harmony in Life demonstrated a robust positive correlation ($r = .74, p < .001$). Additionally, the expectation of negative experiences correlated significantly with Meaning in Life ($r = .48, p < .001$), suggesting a cultural pattern where higher expectations of adversity are associated with greater perceived meaning.

Multi-level Response Surface Analysis (MLRSA)

In this section, we examine Hypotheses 1 and 2 using multilevel response surface analysis. Hypothesis 1 concerns the directional asymmetry of emotional incongruence—specifically, whether experiencing more negative emotion than one believes is appropriate predicts lower well-being. This hypothesis is tested across three facets of psychological well-being: (a) life satisfaction (H1a, as in Yeung et al., 2024),

(b) meaning in life (H1b), and (c) harmony in life (H1c). Hypothesis 2 predicts that this directional incongruence effect will be moderated by societal norms of emotional expression (NSEE), with stronger effects expected in low-expression contexts.

MLRSA predicting life satisfaction

We first estimated a multilevel response surface model predicting life satisfaction from emotional expectation and experience regarding negative emotions (Model 1). Both variables were centred on their grand means, and their linear, quadratic, and interaction terms were included. The model specified random intercepts and slopes at the country level and was estimated using maximum likelihood. For completeness, the fixed effect estimates of individual polynomial terms are presented in Supplementary Materials. However, interpretations are based on the response surface parameters ($a_1 - a_5$) derived from these coefficients.

The slope along the Line of Congruence (LOC; where expectation equals experience) was significantly negative ($a_1 = -0.22$, $SE = 0.014$, $z = -16.03$, $p < .001$), suggesting that higher absolute levels of both emotional expectation and experience were associated with lower life satisfaction. The curvature along the LOC was slightly positive ($a_2 = 0.03$, $SE = 0.006$, $z = 4.81$, $p < .001$), indicating an upward-sloping surface rather than a peaked congruence effect. Along the Line of Incongruence (LOIC; where expectation and experience differ), the slope was significantly positive ($a_3 = 0.27$, $SE = 0.020$, $z = 13.54$, $p < .001$), suggesting a directional effect: individuals reported higher life satisfaction when emotional experience exceeded expectation, rather than the reverse (H1a supported, consistant with Yeung et al., 2024). However, the curvature along the LOIC was negligible ($a_4 = 0.00$, $SE = 0.009$, $z = 0.10$, $p = .918$), indicating that the mismatch effect was primarily linear rather than quadratic. Finally, the surface's principal axis deviated slightly from the LOC ($a_5 = -0.01$, $SE = 0.005$, $z = -1.86$, $p = .063$), suggesting that the optimal point for life satisfaction did not lie directly on the congruence line.

Before testing our cross-level interaction model, we specified a Model 2 by adding only the level-2 predictor, societal emotional expression (NSEE, g), without a

cross-level interaction term. It did not yield a significant main effect on life satisfaction ($b = -0.041$, $SE = 0.038$, $p = .288$), suggesting that its influence may manifest through cross-level interactions. We then tested our next model (Model 3), examining whether the response surface parameters varied as a function of societal norms for negative emotional expression (NSEE). Conditional surface estimates were computed for low (-1 SD), average (0), and high ($+1$ SD) levels of NSEE.

At low NSEE levels (-1 SD), the slope along the Line of Congruence ($a_1 = -0.28$, $SE = 0.017$, $p < .001$) was strongly negative, suggesting that higher emotional intensity—regardless of congruence—was associated with lower life satisfaction. The curvature along the LOC remained upward ($a_2 = 0.03$, $SE = 0.009$, $p = .001$), and the incongruence slope ($a_3 = 0.36$, $SE = 0.024$, $p < .001$) was strongly positive, indicating a pronounced mismatch penalty: individuals were more satisfied when their negative emotional experience exceeded their expectation, rather than the reverse. The LOIC curvature ($a_4 = -0.01$, $p = .34$) was not significant, and the surface apex deviated from the LOC ($a_5 = -0.023$, $p = .009$). At mean NSEE ($g = 0$), the pattern was similar but less extreme. The LOC slope was moderately negative ($a_1 = -0.22$, $SE = 0.011$, $p < .001$), and the mismatch slope remained significant ($a_3 = 0.27$, $SE = 0.016$, $p < .001$). The surface peak still deviated from the congruence line ($a_5 = -0.011$, $p = .045$), indicating a preference for mild mismatch. At high NSEE levels ($+1$ SD), the mismatch slope diminished considerably ($a_3 = 0.19$, $SE = 0.022$, $p < .001$), and the LOC slope became less negative ($a_1 = -0.16$, $SE = 0.014$, $p < .001$), suggesting a general attenuation of both emotional intensity and incongruence effects. The surface's principal axis no longer deviated from the LOC ($a_5 \approx 0$, $p = .92$), indicating that in high-NSEE societies, congruence regained prominence as the most optimal emotional configuration.

MLRSA predicting meaning and harmony in life

To test whether the effects generalized across other facets of well-being, we conducted identical models predicting meaning in life and harmony in life. For the main model predicting meaning in life, at low NSEE levels, the slope along the LOC

($a_1 = -0.30$, $SE = 0.018$, $p < .001$) was strongly negative, indicating that individuals experiencing both high expectations and high emotional intensity reported lower meaning in life. The curvature along the LOC remained upward ($a_2 = 0.042$, $SE = 0.010$, $p < .001$), while the slope along the LOIC was also pronounced ($a_3 = 0.40$, $SE = 0.032$, $p < .001$, H1b supported), suggesting a clear mismatch effect: meaning in life was higher when emotional experience exceeded expectations. The surface apex did not significantly deviate from the LOC ($a_5 = -0.012$, $p = .22$). At average NSEE levels, a similar structure emerged: $a_1 = -0.24$ ($SE = 0.012$, $p < .001$), $a_3 = 0.32$ ($SE = 0.021$, $p < .001$), and $a_5 = -0.004$ ($p = .54$). These results indicate a stable directional mismatch effect across typical societal contexts. At high NSEE levels, both slopes attenuated: $a_1 = -0.19$ ($SE = 0.016$, $p < .001$) and $a_3 = 0.23$ ($SE = 0.029$, $p < .001$). This moderation pattern suggests that the negative impact of high emotional intensity, as well as the directional mismatch, became less pronounced in high-expression societies. Again, the principal axis of the surface ($a_5 = 0.004$, $p = .58$) did not deviate significantly from the LOC.

For the main model predicting harmony in life, at low NSEE levels, the surface structure reflected a strong directional mismatch pattern: the slope along the Line of Congruence was notably negative ($a_1 = -0.31$, $SE = 0.017$, $p < .001$), while the slope along the Line of Incongruence was positive and significant ($a_3 = 0.37$, $SE = 0.028$, $p < .001$, H1c supported). The surface curvature along the LOC ($a_2 = 0.027$, $p = .001$) was upward, and the apex of the surface did not significantly deviate from the LOC ($a_5 = -0.011$, $p = .25$). At average levels of NSEE, the pattern remained stable: $a_1 = -0.26$ ($SE = 0.011$, $p < .001$), $a_3 = 0.30$ ($SE = 0.018$, $p < .001$), and $a_5 = -0.011$ ($p = .081$), again indicating a directional incongruence effect without a significant deviation of the surface peak from the congruence line. At high levels of NSEE, the mismatch slope a_3 declined (0.23, $SE = 0.026$, $p < .001$), and the congruence slope became less negative ($a_1 = -0.22$, $SE = 0.015$, $p < .001$). Although the LOIC curvature reached significance ($a_4 = 0.027$, $p = .024$), the surface peak still did not significantly deviate from the LOC ($a_5 = -0.011$, $p = .20$).

Summary of moderation patterns across well-being dimensions

Across all three well-being outcomes—life satisfaction, meaning in life, and harmony in life—societal emotional expression norms (NSEE) consistently moderated the effect of emotional fit. In each case, the slope along the Line of Incongruence (a_3) was strongest in low-expression contexts and diminished significantly at higher NSEE levels. Z-tests comparing a_3 at $g = -1$ and $g = +1$ confirmed that these differences were statistically significant for all outcomes ($z = -5.25$ to -3.77, all $p < .001$, H2 supported), indicating an attenuation of mismatch sensitivity in more emotionally expressive societies.

These moderation effects were not always apparent in the direct β coefficients of cross-level interaction terms (e.g., NSEE × experience × expectation), some of which failed to reach significance in isolation. However, by transforming the model outputs into interpretable surface parameters (a_1–a_5), the response surface framework revealed a coherent, theoretically meaningful pattern: high NSEE contexts buffer the psychological costs of emotional misalignment, regardless of whether the outcome is evaluative (life satisfaction) or eudaimonic (meaning, harmony).

Discussion

This study examined how emotional fit—specifically, the (in)congruence between emotional experience and cultural expectations—relates to well-being across three indicators: life satisfaction, meaning in life, and harmony in life. Using multilevel response surface analysis, we found consistent evidence for directional asymmetry in emotional incongruence, as well as cultural moderation of these effects by societal norms of emotional expression (NSEE).

Across all outcomes, individuals reported greater well-being when their emotional experience exceeded societal expectations, rather than the reverse. This asymmetry supports a directional interpretation of emotional misfit, suggesting that emotional overexpression may be more tolerable—or even beneficial—than emotional underexpression in most cultural contexts.

Furthermore, we found that the strength of these misfit effects was moderated by

societal norms of emotional expression. In low-expression cultures, emotional intensity and incongruence were strongly predictive of well-being, whereas in high-expression cultures, their psychological impact was attenuated. This suggests that expressive norms may function as regulatory buffers, shaping how emotional deviance is perceived and experienced within a cultural climate.

These findings contribute to a broader understanding of emotion-culture interactions by showing that emotional fit is not only a personal experience but also a culturally contingent construct. To interpret these findings, we turn to theoretical perspectives that frame emotional fit as a norm-evaluative process, shaped by the social meanings and moral weight of emotional deviation.

Emotional fit as a norm-evaluative process

The present findings support an increasingly accepted view that emotional fit is not merely a matter of alignment, but a form of normative evaluation. When individuals assess whether their emotions "fit," they are not simply comparing felt states to abstract standards. They are evaluating whether their emotions conform to what is socially, morally, or culturally expected—what one should feel in a given role, setting, or relationship.

This evaluative process is particularly evident in the asymmetry of emotional misfit. When people feel more negatively than they believe they should, they are not only aware of incongruence—they are likely to interpret it as a moral deviation, a failure to manage emotions properly, or even a threat to their social identity. Self-discrepancy theory (Higgins, 1987) describes this as a gap between the actual and "ought" self, which generates distress when emotional expression violates internalised norms. Similarly, cognitive dissonance theory (Festinger, 1957; Harmon-Jones & Mills, 2019) suggests that misalignment between emotional experience and social expectations induces psychological tension, prompting individuals to suppress, justify, or reframe their feelings.

Such dynamics indicate that emotional misfit is not a neutral mismatch, but a socially encoded deviation. Emotions are not judged solely by their intensity or

frequency, but by whether they uphold or violate affective norms—norms that are contextually defined, morally loaded, and culturally variable. The psychological costs observed in this study thus reflect not only affective conflict, but normative dissonance. Emotional fit, in this light, is best understood as a form of affective legitimacy: to feel appropriately is to be socially intelligible.

Cultural moderation as regulatory buffering

The moderating role of societal emotional expression suggests that cultural norms do not merely dictate what emotions are typical—they also influence how emotional misfit is experienced and interpreted. In societies where negative emotions are frequently expressed and publicly visible (i.e., high-NSEE contexts), emotional incongruence may be viewed as less unusual or threatening. In contrast, in low-NSEE contexts, where negative emotion is downregulated or suppressed, emotional misfit may carry stronger evaluative consequences.

These findings support the view that cultural emotional climates function as regulatory buffers. Emotional expression norms are not passive reflections of what people feel; they are active constraints and affordances that shape what emotions can be shown, interpreted, or sanctioned. When negative emotion is normatively visible, individuals may perceive a broader range of emotional experience as socially legitimate. This broader affective bandwidth reduces the psychological toll of misfit by increasing its interpretive flexibility—feeling more than expected is no longer a signal of deviance, but a plausible variation within an accepted range.

In this way, emotional fit is not universally defined. The very boundaries of what counts as “too much” or “not enough” are stretched or compressed by a society’s emotional affordances. Rather than acting as static benchmarks, cultural norms for emotional expression actively shape the thresholds at which emotional misalignment becomes psychologically consequential. By revealing this moderation, our findings highlight the need to conceptualise emotion norms not only as internalised guides, but also as external buffers—cultural filters through which affective life becomes manageable, meaningful, or moralised.

Methodological contribution: Modeling multilevel, directional misfit

This study also advances methodological approaches to the study of emotional fit by applying multilevel response surface analysis. conventional approach to discrepancy often rely on difference scores, which obscure the distinct contributions of direction and magnitude. RSA allows for a more comprehensive assessment of fit, capturing not only whether emotional experience and expectations align, but also the directionality and curvature of their mismatch

(Nestler et al., 2019). Specifically, we modelled the slope along the line of incongruence (a_3) to assess directional misfit—whether the psychological cost differs when individuals feel more versus less negativity than expected. This parameter, inaccessible via standard regression or moderation approaches, reveals asymmetries in the evaluation of emotional deviation. In our model, a_3 consistently showed stronger negative associations with well-being when individuals experienced more negativity than they felt they should.

A step forward, MLRSA further enabled us to account for cross-national variation in emotional norms. By allowing random slopes and testing cross-level interactions with societal emotional expression (NSEE), the model accommodated both individual deviation and macro-level moderation. This analytic integration strengthens claims about the cultural contingency of emotional fit and provides a template for future investigations into other norm-based psychological constructs.

Limitations and directions for future research

While this study offers new insights into the dynamics of emotional fit, several limitations should be acknowledged. First, the data are cross-sectional and based on retrospective self-reports. This design limits our ability to capture dynamic emotional processes or establish causal relations between emotional misfit and well-being. Longitudinal or experience sampling designs would be better suited to track how emotional fit unfolds over time and across contexts. Second, the present analysis focused exclusively on negative emotions. While this choice was theoretically grounded—given the asymmetry in social regulation of affect (Gross & John, 2003)—it

leaves open the question of whether similar patterns hold for positive emotions. Future research could examine whether over-or under-experiencing culturally valued positive emotions (e.g., pride, enthusiasm, calm) elicits distinct psychological costs or benefits (Manokara et al., 2023, 2024), and their cross-level interaction. Third, although the sample included 48 nations, the distribution of cases across countries was uneven, and not all regions or cultural clusters were equally represented. While our models accounted for sample size differences statistically, future studies would benefit from more representative sampling or targeted comparisons across matched cultural contexts.

Finally, the current study examined internalised emotional norms but did not incorporate real-time interpersonal feedback or social interactions. Since emotional fit is often negotiated in dynamic social contexts, future research could explore how emotional misfit is perceived and sanctioned by others—e.g., in workplace, familial, or online settings—using observational or experimental methods.

Concluding remarks: What it means to feel rightly

Emotional fit is more than a psychological outcome—it is a social judgement. To feel appropriately is to be seen as emotionally competent, morally adequate, and socially attuned. Across cultures, this judgement is shaped by complex systems of norms that dictate not only what people should feel, but how deviations from these expectations are perceived. In this sense, emotional fit operates as a mirror of social legitimacy: it reflects how individuals internalise, navigate, and sometimes resist the emotional orders that surround them.

This study contributes to a growing recognition that emotions are not merely felt—they are evaluated, sanctioned, and situated within normative frameworks. By showing that the consequences of emotional misfit depend on both its direction and its cultural context, we underscore the need for a more contextualised, socially embedded understanding of emotional life.

Acknowledgement

The first author was supported by the Polish National Agency for Academic Exchange (Narodowej Agencji Wymiany Akademickiej, NAWA) under STER

BPI/STE/2021/1/00030/U/00001. This work was supported by the National Science Centre of Poland (Narodowe Centrum Nauki, NCN) under GRIEG 2019/34/H/HS6/00597; Hungarian NKFIH-OTKA-K 135963; Brazilian National Council for Scientific and Technological Development Grant 301,298/2018–1; NPO "Systemic Risk Institute" Grant LX22NPO5101 funded by the European Union–NextGeneration EU (Ministry of Education, Youth and Sports, NPO: EXCELES, Czechia); HSE University Basic Research Program; and University of Roma Department of Educational Studies Grant DSF 2017–2018.

References

Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, *39*(6), 1490–1528. https://doi.org/10.1177/0149206313478188

Bastian, B., Kuppens, P., Hornsey, M. J., Park, J., Koval, P., & Uchida, Y. (2012). Feeling bad about being sad: The role of social expectancies in amplifying negative mood. *Emotion*, *12*(1), 69–80. https://doi.org/10.1037/a0024755

Boiger, M., & Mesquita, B. (2012). The construction of emotion in interactions, relationships, and cultures. *Emotion Review*, *4*(3), 221–229. https://doi.org/10.1177/1754073912439765

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior (M. P. Zanna, Ed.). *Advances in Experimental Social Psychology*, *24*, 201–234. https://doi.org/10.1016/S0065-2601(08)60330-5

De Leersnyder, J., Mesquita, B., Kim, H., Eom, K., & Choi, H. (2014). Emotional fit with culture: A predictor of individual differences in relational well-being. *Emotion*, *14*(2), 241–245. https://doi.org/10.1037/a0035296

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Edwards, J. R. (2002). Alternatives to difference scores: Polynomial regression analysis and response surface methodology. In *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 350–400). Jossey-Bass/Wiley.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Greenaway, K. H., Kalokerinos, E. K., & Williams, L. A. (2018). Context is everything (in emotion research). *Social and Personality Psychology Compass*, *12*(6), e12393. https://doi.org/10.1111/spc3.12393

Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237. https://doi.org/10.1037/0022-3514.74.1.224

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Harmon-Jones, E., & Mills, J. (2019). *Cognitive dissonance: Reexamining a pivotal theory in psychology*. American Psychological Association.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, *94*(3), 319–340. https://doi.org/10.1037/0033-295X.94.3.319

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.

Kjell, O. N. E., Daukantaitė, D., Hefferon, K., & Sikström, S. (2016). The harmony in life scale complements the satisfaction with life scale: Expanding the conceptualization of the cognitive component of subjective well-being. *Social Indicators Research*, *126*(2), 893–919. https://doi.org/10.1007/s11205-015-0903-z

Krys, K., Yeung, J. C., Capaldi, C. A., Lun, V. M.-C., Torres, C., van Tilburg, W. A. P., Bond, M. H., Zelenski, J. M., Haas, B. W., Park, J., Maricchiolo, F., Vauclair, C.-M., Kosiarczyk, A., Kocimska-Zych, A., Kwiatkowska, A., Adamovic, M., Pavlopoulos, V., Fülöp, M., Sirlopu, D., … Vignoles, V. L. (2022). Societal emotional environments and cross-cultural differences in life satisfaction: A forty-nine country study. *The Journal of Positive Psychology*, *17*(1), 117–130. https://doi.org/10.1080/17439760.2020.1858332

Manokara, K., Balabanova, A., Đurić, M., Fischer, A. H., & Sauter, D. A. (2024). (not) showing you feel good, can be bad: The consequences of breaking expressivity norms for positive emotions. *Journal of Experimental Social Psychology*, *113*, 104600. https://doi.org/10.1016/j.jesp.2024.104600

Manokara, K., Fischer, A., & Sauter, D. (2023). Display rules differ between positive emotions: Not all that feels good looks good. *Emotion*, *23*(1), 243–260. https://doi.org/10.1037/emo0001078

Matsumoto, D., Seung Hee Yoo, & Fontaine, J. (2008). Mapping expressive differences around the world: The relationship between emotional display rules and individualism versus collectivism. *Journal of Cross-Cultural Psychology*, *39*(1), 55–74. https://doi.org/10.1177/0022022107311854

Mesquita, B., & Frijda, N. H. (1992). Cultural variations in emotions: A review. *Psychological Bulletin*, *112*(2), 179–204. https://doi.org/10.1037/0033-2909.112.2.179

Nestler, S., Humberg, S., & Schönbrodt, F. D. (2019). Response surface analysis with multilevel data: Illustration for the case of congruence hypotheses. *Psychological Methods*, *24*, 291–308. https://doi.org/10.1037/met0000199

Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, *128*(6), 934–960. https://doi.org/10.1037/0033-2909.128.6.934

Rutkowski, L., & Svetina, D. (2014). Assessing the hypothesis of measurement invariance in the context of large-scale international surveys. *Educational and Psychological Measurement*, *74*(1), 31–57. https://doi.org/10.1177/0013164413498257

Smith, J. R., & Louis, W. R. (2008). Do as we say and as we do: The interplay of descriptive and injunctive group norms in the attitude–behaviour relationship. *British Journal of Social Psychology*, *47*(4), 647–666. https://doi.org/10.1348/014466607X269748

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80–93. https://doi.org/10.1037/0022-0167.53.1.80

Thoits, P. A. (1989). The sociology of emotions. *Annual Review of Sociology*, *15*, 317–342. https://doi.org/10.1146/annurev.so.15.080189.001533

Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*(2), 291–297. https://doi.org/10.1037/0022-3514.59.2.291

Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science*, *2*(3), 242–259. https://doi.org/10.1111/j.1745-6916.2007.00043.x

Wasiel, A., Górski, M. R., Bond, M. H., Yeung, V. W. L., Akaliyski, P., Akello, G., Park, J., Joshanloo, M., Sokolov, B., Hussain, M. A., Li, L. M. W., Olechowski, M., Vignoles, V. L., Guemaz, F., Boussena, M., Rabby, M. R.-A., Okvitawanli, A., Myślińska-Szarek, K., Haas, B. W., … Krys, K. (2025). Examining the connection between position-based power and social status across 70 cultures. *British Journal of Social Psychology*, *64*(2), e12871. https://doi.org/10.1111/bjso.12871

Yeung, J. C., Roczniewska, M., & Krys, K. (2024). Is it okay to feel this way? exploring the joint effect of emotional experiences and expectations on life satisfaction. *Frontiers in Psychology*, *15*, 1305812. https://doi.org/10.3389/fpsyg.2024.1305812

Table 1
Descriptive statistics of the demographic and focal variables by nation

		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Algeria	976	35.52 (12.58)	52.46	46.52	3.70 (1.46)	4.13 (1.87)	3.75 (1.49)	2.34 (0.78)	2.96 (0.74)	2.52 (0.75)
Australia	585	52.21 (19.34)	49.06	12.48	2.82 (1.18)	2.25 (1.28)	2.47 (0.99)	1.96 (1.00)	2.26 (1.02)	2.33 (0.91)
Austria	244	27.13 (8.87)	74.18	93.44	3.51 (1.02)	2.54 (1.09)	2.91 (0.89)	2.39 (0.79)	2.37 (0.98)	2.56 (0.70)
Bosnia and Herzegovina	356	30.80 (12.70)	76.12	67.70	3.28 (0.96)	3.00 (1.40)	2.82 (0.78)	2.33 (0.78)	2.73 (0.85)	2.62 (0.68)
Bulgaria	204	33.34 (10.72)	49.02	100.00	3.62 (1.38)	4.18 (2.21)	3.18 (1.34)	2.24 (0.91)	2.98 (0.93)	2.59 (0.83)
Canada	268	21.63 (3.37)	76.49	98.88	4.06 (1.25)	2.87 (1.29)	3.43 (1.20)	2.03 (0.84)	2.14 (1.02)	2.18 (0.72)
Chile	156	29.15 (9.88)	64.74	87.82	3.85 (1.12)	4.07 (1.85)	3.29 (0.93)	2.25 (0.80)	2.69 (0.98)	2.51 (0.71)
China	235	26.51 (6.77)	49.79	60.00	3.47 (1.42)	2.69 (1.56)	3.21 (1.32)	2.29 (0.97)	2.79 (0.89)	2.86 (0.76)
Colombia	250	29.35 (11.04)	48.40	58.40	3.97 (1.35)	4.10 (1.70)	3.55 (1.31)	2.78 (0.72)	2.91 (0.81)	2.91 (0.68)
Croatia	203	36.05 (13.68)	84.73	44.33	3.28 (0.85)	2.93 (1.24)	2.89 (0.71)	2.34 (0.73)	2.58 (0.84)	2.43 (0.61)
Czechia	219	34.60 (13.96)	63.47	42.92	3.63 (1.12)	2.91 (1.21)	2.89 (0.87)	2.33 (0.83)	2.35 (0.97)	2.24 (0.86)
Ecuador	217	28.22 (9.00)	45.16	44.70	3.84 (1.22)	3.73 (1.98)	3.46 (1.27)	2.08 (0.95)	2.63 (1.03)	2.56 (0.77)
Estonia	226	37.33 (13.72)	71.68	69.03	3.28 (0.90)	2.66 (1.36)	2.74 (0.75)	2.34 (0.73)	2.56 (0.86)	2.45 (0.67)
France	164	36.38 (14.50)	79.27	74.39	3.43 (1.08)	2.77 (1.51)	3.03 (0.88)	2.19 (0.86)	2.30 (0.96)	2.40 (0.78)
Georgia	170	35.06 (15.17)	75.88	48.82	3.52 (1.14)	3.16 (1.81)	2.91 (0.92)	1.65 (0.72)	2.46 (1.01)	2.14 (0.68)
Germany	276	29.06 (10.26)	58.70	81.88	3.62 (1.15)	2.71 (1.30)	3.03 (1.02)	2.33 (0.79)	2.31 (1.04)	2.45 (0.77)
Ghana	157	24.77 (3.61)	54.78	87.26	3.80 (1.39)	3.57 (1.67)	3.47 (1.44)	2.05 (0.80)	3.04 (0.83)	2.62 (0.76)
Hungary	529	24.19 (6.56)	72.97	98.11	3.82 (1.04)	3.40 (1.66)	3.36 (0.96)	2.36 (0.78)	2.49 (0.97)	2.44 (0.78)
Iceland	288	29.41 (9.07)	63.89	89.93	3.01 (0.93)	2.33 (1.03)	2.39 (0.75)	2.23 (0.86)	2.24 (1.05)	2.39 (0.77)
Indonesia	226	20.58 (2.75)	76.11	97.35	4.25 (1.14)	2.51 (1.26)	3.89 (1.08)	2.11 (0.73)	2.30 (0.88)	2.46 (0.61)
Ireland	262	25.54 (7.60)	60.69	98.47	3.44 (1.01)	2.72 (1.18)	2.81 (0.92)	2.11 (0.87)	2.22 (1.02)	2.16 (0.77)
Jordan	233	34.47 (12.17)	65.24	40.77	3.61 (1.27)	3.65 (1.77)	3.53 (1.37)	2.17 (0.86)	2.69 (0.85)	2.36 (0.84)
Kazakhstan	205	28.16 (11.64)	71.71	68.29	4.03 (1.51)	2.79 (1.53)	3.25 (1.20)	2.17 (0.82)	2.68 (1.04)	2.54 (0.84)

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		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Kenya	177	28.75 (6.19)	43.50	30.51	3.64 (1.32)	3.16 (1.90)	3.42 (1.23)	1.92 (1.04)	2.87 (0.94)	2.54 (0.90)
Korea South	201	22.44 (2.12)	59.70	100.00	3.55 (1.20)	2.81 (1.60)	2.67 (1.11)	2.24 (0.82)	2.58 (0.93)	2.52 (0.75)
Madagascar	217	29.30 (7.59)	47.47	34.10	3.78 (1.37)	3.91 (2.42)	3.73 (1.36)	1.69 (0.86)	2.67 (0.87)	2.24 (0.74)
Malaysia	1566	29.13 (6.62)	64.94	29.57	3.56 (1.16)	2.83 (1.38)	3.27 (1.15)	1.74 (0.86)	2.30 (1.00)	2.22 (0.81)
Morocco	150	29.35 (7.90)	36.00	30.67	3.48 (1.40)	3.38 (1.71)	3.31 (1.30)	1.66 (0.91)	2.63 (0.92)	2.21 (0.86)
Nigeria	257	24.48 (8.00)	64.59	72.76	3.56 (1.26)	4.28 (2.12)	3.16 (1.17)	2.02 (0.92)	2.67 (1.01)	2.38 (0.89)
Palestine	154	40.58 (11.75)	60.39	24.68	3.45 (1.53)	4.16 (1.92)	3.47 (1.53)	2.41 (0.69)	2.73 (0.88)	2.45 (0.82)
Peru	169	30.68 (13.98)	52.66	50.89	3.98 (1.29)	3.66 (1.81)	3.76 (1.26)	2.15 (0.87)	2.65 (0.95)	2.45 (0.81)
Philippines	220	26.09 (7.55)	58.18	72.73	3.98 (1.20)	3.58 (1.48)	3.45 (1.15)	1.77 (0.87)	2.29 (0.96)	2.08 (0.70)
Poland	227	28.81 (7.94)	49.34	43.61	3.65 (1.19)	3.14 (1.56)	2.94 (0.95)	1.75 (0.92)	2.19 (1.07)	2.19 (0.82)
Portugal	175	36.88 (15.90)	73.14	46.29	3.44 (1.08)	2.69 (1.22)	2.74 (0.79)	2.20 (0.85)	2.39 (0.84)	2.48 (0.79)
Romania	225	26.22 (8.85)	62.67	79.56	3.64 (1.08)	3.58 (1.67)	3.08 (0.93)	2.24 (0.85)	2.55 (0.92)	2.44 (0.73)
Russia	414	23.23 (3.62)	60.39	98.07	3.81 (1.27)	2.74 (1.79)	3.19 (1.23)	2.04 (0.91)	2.53 (1.01)	2.42 (0.86)
Serbia	193	24.11 (3.49)	69.43	100.00	3.64 (1.02)	2.90 (1.20)	2.97 (0.84)	2.41 (0.72)	2.44 (0.91)	2.48 (0.67)
Slovakia	272	39.43 (13.08)	85.29	50.74	3.55 (1.08)	3.30 (1.57)	3.10 (0.93)	2.32 (0.82)	2.73 (0.99)	2.36 (0.79)
South Africa	471	31.70 (11.12)	49.68	41.19	3.62 (1.28)	4.15 (1.90)	3.16 (1.23)	1.82 (0.97)	2.60 (0.98)	2.33 (0.87)
Spain	260	25.63 (7.23)	68.85	86.54	3.81 (0.96)	3.03 (1.40)	3.20 (0.85)	2.39 (0.76)	2.36 (0.91)	2.48 (0.76)
Taiwan	204	27.36 (6.78)	74.02	55.39	3.01 (0.98)	2.37 (1.04)	2.58 (0.87)	1.55 (0.87)	2.13 (1.00)	2.07 (0.90)
Trinidad and Tobago	157	28.34 (9.46)	68.15	95.54	3.64 (1.28)	4.23 (1.90)	3.29 (1.21)	1.99 (0.93)	2.56 (1.12)	2.34 (0.91)
Turkey	1278	31.02 (11.85)	57.36	48.36	3.48 (1.06)	4.01 (1.77)	3.13 (0.99)	2.06 (0.82)	2.75 (0.83)	2.55 (0.73)
Ukraine	167	31.23 (11.99)	73.65	73.05	3.49 (0.99)	2.90 (1.82)	3.12 (0.93)	1.85 (0.87)	2.68 (1.03)	2.47 (0.84)
UK	187	29.33 (12.26)	72.19	68.98	3.88 (1.34)	3.02 (1.33)	3.05 (1.02)	1.89 (0.88)	2.10 (1.03)	2.05 (0.78)
USA	350	30.92 (12.03)	65.43	63.43	3.65 (1.23)	3.38 (1.77)	3.16 (1.11)	1.86 (0.97)	2.33 (1.08)	2.20 (0.92)
Venezuela	287	37.10 (12.04)	45.99	25.44	3.71 (1.31)	3.68 (2.03)	3.04 (1.02)	1.97 (0.93)	2.71 (1.00)	2.46 (0.79)

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		Demographics			Negative Emotions (M & SD)			Well-being (M & SD)		
Country	**n**	**Age (SD)**	**F%**	**S%**	**Xpe**	**Xpt**	**Xps**	**SwL**	**MiL**	**HiL**
Vietnam	196	24.95 (6.73)	61.73	59.18	4.04 (1.37)	2.86 (1.52)	3.52 (1.29)	2.20 (0.86)	2.89 (0.83)	2.56 (0.71)
MEAN	308.81	30.14 (9.69)	62.69	64.43	3.62 (1.19)	3.24 (1.60)	3.16 (1.08)	2.11 (0.85)	2.54 (0.95)	2.41 (0.78)
SD	274.94	5.77 (3.79)	11.61	24.89	0.28 (0.17)	0.58 (0.32)	0.34 (0.21)	0.25 (0.08)	0.24 (0.08)	0.18 (0.08)
MIN	150	20.58 (2.12)	36	12.48	2.82 (0.85)	2.25 (1.03)	2.39 (0.71)	1.55 (0.69)	2.10 (0.74)	2.05 (0.61)
MAX	1566	52.21 (19.34)	85.29	100	4.25 (1.53)	4.28 (2.42)	3.89 (1.53)	2.78 (1.04)	3.04 (1.12)	2.91 (0.92)

Note. F% = percentage of female participants; S% = percentage of student participants; Xpe = Emotional Experience; Xpt = Emotional Expectation; Xps = Emotional Expression; SwL = Satisfaction with life; MiL = Meaning in life; HiL = Harmony in life.

Table 2

Descriptive statistics and correlations among focal variables at the individual level

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
Individual Level										
1. SwL	2.09	0.88								
2. MiL	2.54	0.97	.55**							
3. HiL	2.41	0.8	.67**	.59**						
4. Experience	3.59	1.23	-.24**	-.23**	-.31**					
5. Expectation	3.26	1.73	-.01	.05**	-.02**	.30**				
6. Expression	3.18	1.17	-.12**	-.10**	-.18**	.75**	.32**			
7. Age	30.54	12.21	.07**	.13**	.10**	-.25**	-.04**	-.19**		
8. Gender[a]	0.64	0.48	.03**	-.06**	-.03**	.10**	-.03**	.09**	-.10**	
9. Student[b]	0.61	0.49	.03**	-.06**	-.03**	.16**	.00	.10**	-.58**	.11**
National level										
1. SwL	2.12	0.26								
2. MiL	2.54	0.26	.38**							
3. HiL	2.41	0.18	.73**	.70**						
4. Experience	3.61	0.28	.02	.19	.09					
5. Expectation	3.21	0.59	.00	.50**	.12	.37**				
6. Expression	3.17	0.33	-.04	.39**	.14	.78**	.54**			
7. Mean age	29.93	5.77	.17	.18	.06	-.49**	.00	-.33*		
8. Female%[a]	64.42	13.45	.18	-.45**	-.18	-.14	-.38**	-.33*	.03	
9. Student%[b]	65.63	24.66	.14	-.28*	.00	.25	-.14	-.02	-.66**	.33*

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. SwL = Satisfaction with life; MiL = Meaning in life; HiL = Harmony in life. Gender[a]: 1 = female; 0 = non-female. Student[b]: 1 = student; 0 = non-student

Table 3

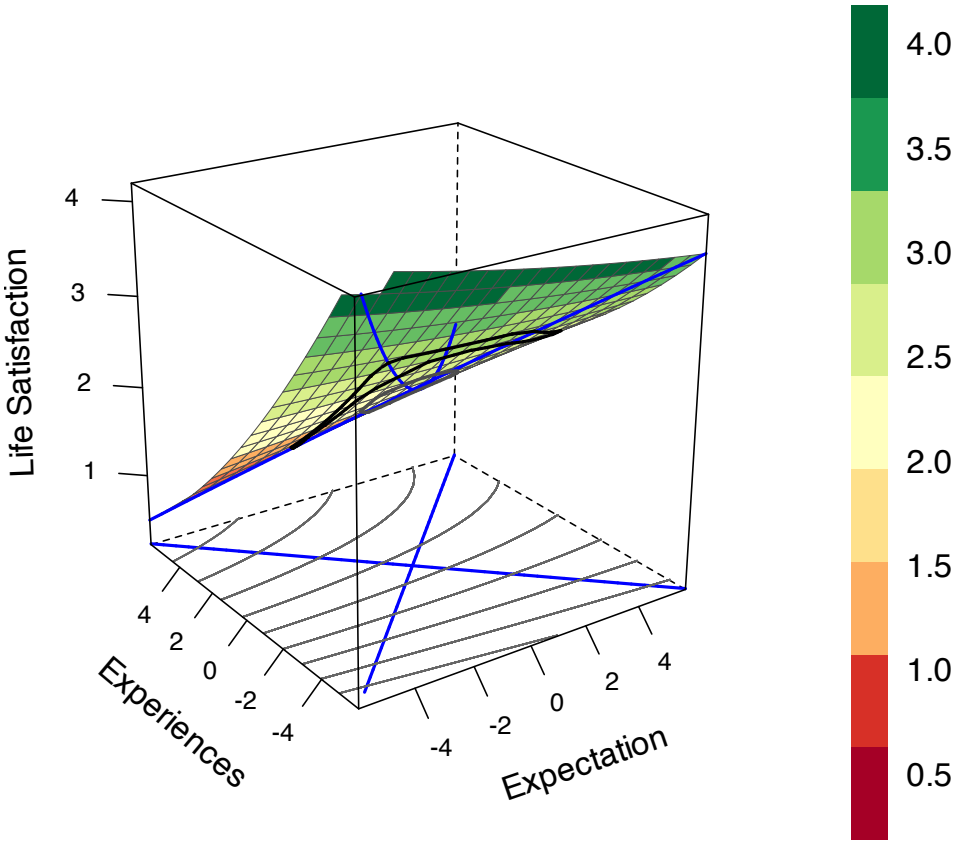
Multilevel response surface parameters ($a_1 - a_5$) for three well-being outcomes across low, mid, and high levels of societal emotional expression (NSEE).

	Low NSEE				Mid NSEE				High NSEE			
Parameter	Estimate		SE	95%CI	Estimate		SE	95%CI	Estimate		SE	95%CI
Life satisfaction												
a1	-0.278	***	0.017	[-0.311,-0.245]	-0.22	***	0.011	[-0.242,-0.198]	-0.161	***	0.014	[-0.188,-0.134]
a2	0.031	**	0.01	[0.011,0.051]	0.029	***	0.006	[0.017,0.041]	0.028	***	0.008	[0.012,0.044]
a3	0.359	***	0.024	[0.312,0.406]	0.274	***	0.016	[0.243,0.305]	0.188	***	0.022	[0.145,0.231]
a4	-0.013		0.013	[-0.038,0.012]	0.000		0.008	[-0.016,0.016]	0.013		0.011	[-0.009,0.035]
a5	-0.023	*	0.009	[-0.041,-0.005]	-0.011	†	0.006	[-0.023,0.001]	0.001		0.007	[-0.013,0.015]
Meaning in life												
a1	-0.305	***	0.018	[-0.34,-0.27]	-0.245	***	0.012	[-0.269,-0.221]	-0.185	***	0.015	[-0.214,-0.156]
a2	0.042	***	0.01	[0.022,0.062]	0.033	***	0.007	[0.019,0.047]	0.025	**	0.009	[0.007,0.043]
a3	0.404	***	0.032	[0.341,0.467]	0.319	***	0.021	[0.278,0.36]	0.234	***	0.029	[0.177,0.291]
a4	0.02		0.016	[-0.011,0.051]	0.018	†	0.01	[-0.002,0.038]	0.016		0.013	[-0.009,0.041]
a5	-0.012		0.009	[-0.03,0.006]	-0.004		0.006	[-0.016,0.008]	0.004		0.008	[-0.012,0.02]
Harmony in life												
a1	-0.314	***	0.017	[-0.347,-0.281]	-0.265	***	0.011	[-0.287,-0.243]	-0.215	***	0.015	[-0.244,-0.186]
a2	0.027	***	0.008	[0.011,0.043]	0.027	***	0.005	[0.017,0.037]	0.027	***	0.007	[0.013,0.041]
a3	0.371	***	0.028	[0.316,0.426]	0.299	***	0.018	[0.264,0.334]	0.227	***	0.026	[0.176,0.278]
a4	-0.016		0.014	[-0.043,0.011]	0.005		0.009	[-0.013,0.023]	0.027	*	0.012	[0.003,0.051]
a5	-0.011		0.009	[-0.029,0.007]	-0.011	†	0.006	[-0.023,0.001]	-0.011		0.008	[-0.027,0.005]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$

Figure 1

Surface plots display the average response surface parameters of experience-expectation (in)congruence on life satisfaction



Note. The experience-expectation congruence is the combination between emotional experience (y axis) and social expectation (x axis) for negative emotions on life satisfaction (z axis).

Figure 2

The surface plots display the average response surface of experience-expectation (in)congruence for negative emotions on life satisfaction across (a) low, (b) mid, and (c) high levels of the negative societal emotional environment