Applied Research in Quality of Life
https://doi.org/10.1007/s11482-024-10336-7

Perceived Unfairness Moderates the Association Between Relative Deprivation and Subjective Well-Being: Findings from an East Asian Country

Ahhyun Cho[1] · **Harris Hyun-soo Kim**[1]

Received: 16 January 2024 / Accepted: 4 June 2024

Abstract
A large volume of research highlights the adverse effects of relative deprivation on subjective well-being. Across different empirical settings and modelling approaches, a conceptual common denominator exists: the bulk of prior studies assumes that lower social status, by definition, implies higher relative deprivation, resulting in reduced well-being. In the present study, we take issue with this assumption and propose that lower self-ascribed positions on the status hierarchy are necessary but insufficient in and of themselves to undermine well-being. The critical, yet often neglected, factor in the literature is perceived societal unfairness. That is, one must believe that personal predicament as gauged by status disadvantage is, at least partly, due to some exogenous or impersonal forces (e.g., discrimination, limited opportunity). Our central argument is that the magnitude of the focal relationship between relative deprivation and well-being should be more pronounced among those who hold higher perceptions of unfairness. Using three independently collected probability datasets on the South Korean population—Social Science Korea (2017), Seoul Survey (2018), and Korean Social Integration Survey (2018)—we systematically test this hypothesis. Results from multilevel models robustly demonstrate that the connection between lower social status and lower well-being is significantly stronger among individuals who assess their society to be more 'unfair,' suggesting that future research should incorporate the level of perceived unfairness as a consequential moderator.

Keywords Relative deprivation · Perceived unfairness · Social comparison · Well-being · Happiness · Life satisfaction

✉ Harris Hyun-soo Kim
harrishkim@ewha.ac.kr

[1] Department of Sociology, Ewha Womans University, Seoul, Republic of Korea

Published online: 19 June 2024

Introduction

The inquiry into what significantly contributes to subjective well-being stands as one of the central concerns in social science research. A seminal discovery is that absolute economic income exhibits only a marginal effect on happiness and life satisfaction (e.g., Easterlin, 1974). Building on this foundation, various studies have underscored subjective social status, i.e., rank-based position on the socio-economic hierarchy, as a key predictor of mental health outcomes (Adler et al., 1994, 2000; Quispe-Torreblanca et al., 2020; Yang et al., 2019). According to research, the influence of relatively higher status on life satisfaction (Boyce et al., 2010; Clark et al., 2008; Firebaugh & Schroeder, 2009; Guven & Sørensen, 2012; Posel & Casale, 2011) or physical health (Marmot et al., 1991; Subramanyam et al., 2009; Wilkinson & Pickett, 2006) significantly outweighs that of income or other objective indicators of status. This body of literature suggests that indeed 'social' predictors are critical in understanding personal welfare, both physical and mental.

In particular, well-being is inherently tied to the process of social comparison, given the natural inclination of humans as social beings. Within this context, scholars increasingly explore the nexus between life satisfaction and relative deprivation. A prevalent mechanism elucidating this link is social comparison (Alderson & Katz-Gerro, 2017; Chang, 2013; Cojocaru, 2016; Liao, 2021; Schneider, 2012, 2019; Shifa & Leibbrandt, 2018), which encompasses various reference group standards and comparison targets (Mussweiler, 2003). The level of life satisfaction is often predicted by factors such as relative income within a reference group (e.g., Alderson & Katz-Gerro, 2017; Chang, 2013), perceived income inequality (e.g., Oshio & Urakawa, 2014; Schneider, 2012), or perceived social status (e.g., Schneider, 2019). Specifically, relative deprivation manifests itself when individuals evaluate themselves in comparison with others and perceive a discrepancy between what they have and what they believe they deserve. Hence, an increase in income tends to contribute to enhanced well-being and/or health not solely due to the augmented utility brought about by improved life conditions but as it mitigates the adverse effects of relative deprivation (Eibner & Evans, 2004).

As mentioned, a substantial literature has thus emerged surrounding the issue of relative deprivation, more specifically, its implications. However, even a casual inspection of existing findings reveals that the bulk of research has not examined contingent or heterogeneous relationships between relative deprivation and outcome measures. In this study, we seek to contribute to the scholarship by taking a theoretically heterogeneous approach. To that end, we explicitly focus on the moderating role of perceived societal unfairness. Despite the growing body of research in this area, there remains an unexplored link concerning how relative deprivation may *differentially* affect the subjective well-being of individuals who are *similarly* positioned on the status hierarchy. In other words, we lack a clear understanding of how the societal gradient translates into varied psychological outcomes at the individual level. According to a systematic review, the concept

of unfairness is a pivotal element in the connection between relative deprivation and measures of well-being. In particular, three factors are seen as critical: social comparison, appraisal of a relatively disadvantaged status, and perceived unfairness (see Smith et al., 2012: 204). Social comparison and appraisal have received a great deal of scholarly attention. By contrast, perceived unfairness has escaped systematic analysis. Given this empirical gap, our objective is to examine whether and how perceived unfairness is related to the process by status-mediated relative deprivation leads to lower life satisfaction and reduced happiness.

Our central claim is that people react differently to the reality of their socioeconomic disadvantage, depending on their views regarding societal unfairness. The acceptance of lower social status is not constant but vary according to the degree to which society is perceived to be fair or not. Depending on this, some may be more willing to accept their socioeconomic disadvantage more readily, while others refuse to do so. That is, a person located toward the bottom of the status hierarchy may not necessarily consider one's predicament as being 'unfair.' As a result, potentially unfavorable social comparison stemming from lower social status may be less consequential (i.e., detrimental) to the overall well-being. On the other hand, another individual similarly positioned may reject the status quo and evaluate the situation to be 'unfair' as well as 'undeserving.' We contend that it is in this latter case that status disadvantage is more likely to compromise well-being. Prior research suggests that the influence of societal inequality on happiness is, in part, derived from perceptions of the unequal distribution of opportunities (Ravazzini & Chávez-Juárez, 2018; Kelley & Evans, 2017; Schalembier, 2018; Amendola et al., 2019; García-Muñoz et al., 2019). The central point is that there may not be a clear one-to-one correspondence between inequality and unhappiness. Rather, it must be accompanied by limited or unequal access to opportunities for upward mobility, whether accurately understood or not.

In the extant scholarship, findings related to the above reasoning are scarce. That is, for the most part, past studies have fallen short of explicitly measuring and examining the concept of perceived unfairness. Our study aim is to advance the literature by addressing this conceptual, and related empirical, gap. According to a systematic review (Smith et al., 2012), lower or disadvantaged social status serves as a source of various negative emotions, especially when it cannot be attributed to the individual's own actions, *i.e., when it is seen as a byproduct of external (societal) circumstances beyond one's control and thus deemed unfair and/or underserving.* Accordingly, an effective measure of perceived unfairness should encompass the acknowledgment or understanding of potential obstacles to upward social mobility, incorporating considerations of justice in the distribution system, opportunities, and social discrimination across diverse domains. Below, we maintain and demonstrate that these indicators should be recognized as potential amplifiers of the adverse association between socioeconomically disadvantaged status and limited well-being.

The present study seeks to illuminate the intricate (interactive) associations among relative deprivation, societal unfairness, and well-being. To that end, we analyze three distinct (local, regional, and national) datasets to confirm the validity of our hypotheses and the robustness of our findings. The empirical strategy is based on multilevel modeling to first probe the joint effects of lower subjective social

status, i.e., relative deprivation, and higher perceived unfairness on two measures of subjective well-being (happiness and life satisfaction). More importantly, we explore whether the harmful impact of relative deprivation resulting from lower rank on the status hierarchy on these outcomes becomes heightened among those who view their society to be structurally unfair. It is well-documented that feelings of relative deprivation have deleterious consequences. While previous research has mostly taken this relationship to be constant in strength or magnitude, we problematize this notion and empirically demonstrate that it varies as a function of subjective perception of societal unfairness.

Theoretical Background

Relative Deprivation: A Primary Source of Dissatisfaction

Social comparison is widely recognized as a fundamental and universal human trait (Baldwin & Mussweiler, 2018). Theoretical arguments in psychology posit social comparison as essential for responding to various human impulses for self-construction (Festinger, 1954; Wood, 1989, 1996). This process involves individuals, consciously or unconsciously, comparing their own characteristics, opinions, and capacities to those of others. The adverse impact of lower social status on health, observed even in primate species (Sapolsky, 2005), suggests that this instinct is ingrained in human beings. While social comparison is not a unilateral phenomenon, as all members of the social hierarchy are subject to its influence, it is more stressful and psychologically costly for those in disadvantaged positions. In fact, the social comparison process tends to be asymmetric, wherein upward comparison is much more harmful to well-being than downward comparison (Bárcena-Martín et al., 2017; Duesenberry, 1967; Ferrer-i-Carbonell, 2005). Relative deprivation, resulting from upward social comparison, is thought to even dominate the positive influence of downward comparison which can serve to alleviate dissatisfaction (Huang, 2016).

A wealth of literature on the determinants of mental and physical health relies on the concept of social comparison, explicitly or not. It is common knowledge that the relative aspect of socioeconomic status holds greater significance for health and well-being than does its objective counterpart (Adler et al., 1994; Easterlin, 1974; Marmot et al., 1991; Wilkinson & Pickett, 2006). The rationale behind this assertion is that individuals employ social criteria to define their ideal state for a healthy and satisfying life. Building on this foundation, scholars have shown the detrimental effect of relative deprivation on population health (Adjaye-Gbewonyo & Kawachi, 2012; Eibner & Evans, 2004; Lee & Kawachi, 2017; Reagan et al., 2007; Subramanyam et al., 2009; Tan et al., 2020; Yang et al., 2019).

A substantial body of evidence on the link between social comparison and subjective well-being is found across the United States and European countries (Alderson & Katz-Gerro, 2017; Amendola et al., 2019; Boyce et al., 2010; Clark et al., 2008; Ferrer-i-Carbonell, 2005; Firebaugh & Schroeder, 2009; Guven & Sørensen, 2012; Liao, 2021; McBride, 2001; Schneider, 2019). Similar findings have been reported in the context of South Africa (Posel & Casale, 2011), Chile (Olivos et al., 2021),

transition economies in Central Asia (Cojocaru, 2016), and East Asian countries including China (Gao et al., 2022; Wu & Li, 2017), Hong Kong (Chan et al., 2017), Japan (Oshio & Urakawa, 2014), and South Korea (Kim, 2022). In sum, subjective satisfaction significantly depends on social rank, irrespective of societal or macro-cultural settings. In essence, higher status contributes to well-being by mitigating the risk of relative deprivation rather than merely serving as a voucher for enhanced material conditions.

Under What Circumstances Does Relative Deprivation Particularly Harm Well-Being?

While social comparison is universal and innate, the relationship between social inequality and individual well-being may manifest differently depending on the broader context (Schneider, 2016; Yang et al., 2019). Economic inequality, for example, fosters social comparison, leading individuals in more unequal societies to consider income as a pivotal determinant of happiness (Quispe-Torreblanca et al., 2020). An investigation in the European context posits that the mechanism underpinning the relationship between income inequality and well-being involves status competition and social disconnection (Delhey & Dragolov, 2014). Perceived inequality, measured by subjective social status, exerts a distinct and significant influence on life satisfaction (Schneider, 2019) and health (Wolff et al., 2010; Yang et al., 2019). The evidence suggesting that the perception of social mobility contributes to subjective well-being (Buttrick et al., 2017; Oshio & Urakawa, 2014) also indicates that the personally recognized level of unfairness or illegitimacy in society is crucial, over and above the abstract and objective inequality indices at the collective level. European citizens demonstrate higher satisfaction when they perceive opportunities are equally shared (Ravazzini & Chávez-Juárez, 2018) and mobility is seen as equitable (Schalembier, 2018). In more egalitarian contexts, extreme status competition appears to have less relevance in individuals' lives (Quispe-Torreblanca et al., 2020). These studies suggest that a direct measure of personally recognized socioeconomic position, as opposed to income inequality within a group, provides a more comprehensive understanding of societal inequality as a potential source of dissatisfaction.

Related to the main thesis of our paper, subjective social status, commonly employed as an indicator reflecting the extent of relative deprivation through social comparison, is intricately intertwined with perceptions of unfairness. Along with unfavorable (i.e., upward) social comparison and recognition of one's position as disadvantaged, a specific condition must be present for relative deprivation to have a negative impact on subjective well-being: the perceived disadvantage must be viewed as *unfair*. That is, it is critical that "the perceiver thinks the perceiver or his/her ingroup deserves better, and this results in angry resentment." (Smith et al., 2012: 204). Yet, prior research has largely overlooked perceived unfairness as a critical variable. We claim that socioeconomic disadvantage generates relative deprivation if and only when the status quo is seen as undeserving by socioeconomically disadvantaged members of society—when it is not solely attributed to the choices and actions of individuals themselves but to some external sources. Put another way,

relative deprivation occurs when people feel unable to achieve their desired goals without intervention, due to an illegitimate process or system. A key implication here is that lower social status does not necessarily or automatically diminish one's well-being. It does so, and especially, when it is coupled with a belief or conviction that, to large extent, 'life is unfair.'

Perceived unfairness, therefore, is an essential ingredient that can not only breed relative deprivation but also modify the extent to which it is related to adverse outcomes of well-being. If individuals mostly accept societal unfairness as justified for all members, including those in lower social strata, it can serve as a motivator rather than an impediment. This perspective may thus lead some to defer personal dissatisfaction and instead endeavor to manage their economic and financial affairs in anticipation of a more promising future. Individuals in relatively lower social positions, in particular, might interpret the higher status of others as encouraging or exemplary, thereby believing in the efficacy of the given distribution system for upward social mobility for themselves. In contrast, however, in a society viewed to be unfair and unjust, members experience frustration and resentment because of insufficient opportunities for advancement along the socioeconomic ladder and, consequently, bear the full weight of relative deprivation.

The Current Study

Our study is partly motivated by the observation that "people dislike inequality and suffer from it, when they view income differences as *unmerited*" (Grosfeld & Senik, 2010: 4; emphasis added). In other words, when they recognize societal unfairness. Conversely, in a society perceived to be relatively fair, all else equal, lower-status individuals would be more prone to understand and even accept their own material disadvantage as a 'natural' consequence of the reward system. By explicitly focusing on the notion of perceived societal unfairness, our study investigates whether and how it moderates the positive association between lower social status on lower well-being. In doing so, we elucidate the complex process by which societal gradient interacts with perceived unfairness in shaping individual happiness and life satisfaction. Based on previous discussion, then, we formulate our hypotheses as follows:

> Hypothesis 1: *Ceteris paribus* (net of perceived unfairness and controls), individuals who rank themselves lower on the social status hierarchy are less happy and/or satisfied with life in general.
> Hypothesis 2: More importantly, related to the main thesis of this study, the magnitude of the above relationship is stronger among those who consider their society to be more unfair.

For hypothesis testing, we focus on South Korea as an ideal case for investigating the influence of social comparison on well-being as well as the moderating role of perceived unfairness. Dubbed the 'Miracle on the Han River', the South Korea economy underwent a rapid transformation with a relatively balanced distribution of material rewards in the early decades of growth, i.e., from 1970 to 1990s (Lee,

2018). Despite its reputation for comparatively equitable long-term income distribution among Asian nations (Hong et al., 2024), however, a deterioration in the Gini coefficient—a widely accepted measure of income inequality—became visible starting in the early 1990s (Lee et al., 2020). While this trend showed some stabilization after 2009 (the Asian Financial Crisis), it is important to note that the mitigating income inequality did not result in a flattening of overall socioeconomic equality. Instead, it became clear that the fundamental drivers of inequality derive from unearned income sources, namely real estate assets.

In South Korea, an increasing proportion of socioeconomic inequality has been attributed to disparities in real estate assets rather than earned income (Choi & Park, 2022; Lee et al., 2020). Indeed, the differentiation of real estate assets is a crucial factor in explaining economic inequality, distinguishing the situation from other Western countries (Jeong & Cheon, 2017). Moreover, the scale of disparity stemming from housing assets, in particular, has become seemingly insurmountable by increases in earned income in recent years (Lee & Hong, 2023). This is demonstrated by the fact that perception of opportunity for societal mobility among Koreans significantly declined compared to other OECD countries from 1990 to 2018 (Lim, 2021). Relatedly, a study based on nationally representative time-series data (Korean General Social Survey) shows that from 2004 to 2014 relative deprivation and downward mobility have emerged as significant correlates of the erosion of perceived societal fairness in the country (Kim, 2023). And this trend is expected to only grow in the future, resulting in a proportion of the population feeling increasingly dissatisfied with the financial status quo. These observations thus suggest that the worsening perception of societal unfairness may have profound implications for the connection between relative deprivation and well-being in South Korea.

Our conceptualization of the focal relationship inherently emphasizes heterogeneity, rather than homogeneity, rooted in the concept of perceived (un)fairness. Figure 1 graphically captures the centrality of our reasoning. In the diagram, the upper section depicts that if two individuals, A and B, rank themselves to occupy the same socioeconomic position on the status hierarchy (the left pyramid), then they would experience a similar level of psychological well-being (the right ladder). However, as we have maintained, this is not an accurate portrayal of social reality, as it assumes *homogeneous* perceived unfairness (A = B). Instead, as shown in the lower portion of the figure, individuals A and B may exhibit unequal degrees of happiness or life satisfaction, even though they independently assess themselves as having an identical social status, due to *heterogenous* perceptions of societal unfairness (A < B). Therefore, according to our view, B who holds a higher such perception vis-à-vis A should rank relatively lower on the happiness/life satisfaction index. And we anticipate that this dimension of heterogeneity sould moderate the focal connection between status and well-being.

To empirically validate our proposition (main and interactive effects), we draw on data containing unique information on the South Korean respondents' views on societal unfairness, based on which we operationalize our moderator. This variable encompasses multiple dimensions such as subjective social mobility, perceptions of justice in the distribution system, and perceived discrimination in various social domains, among others (Bjørnskov et al., 2013; Katic & Ingram, 2017; Schneider,

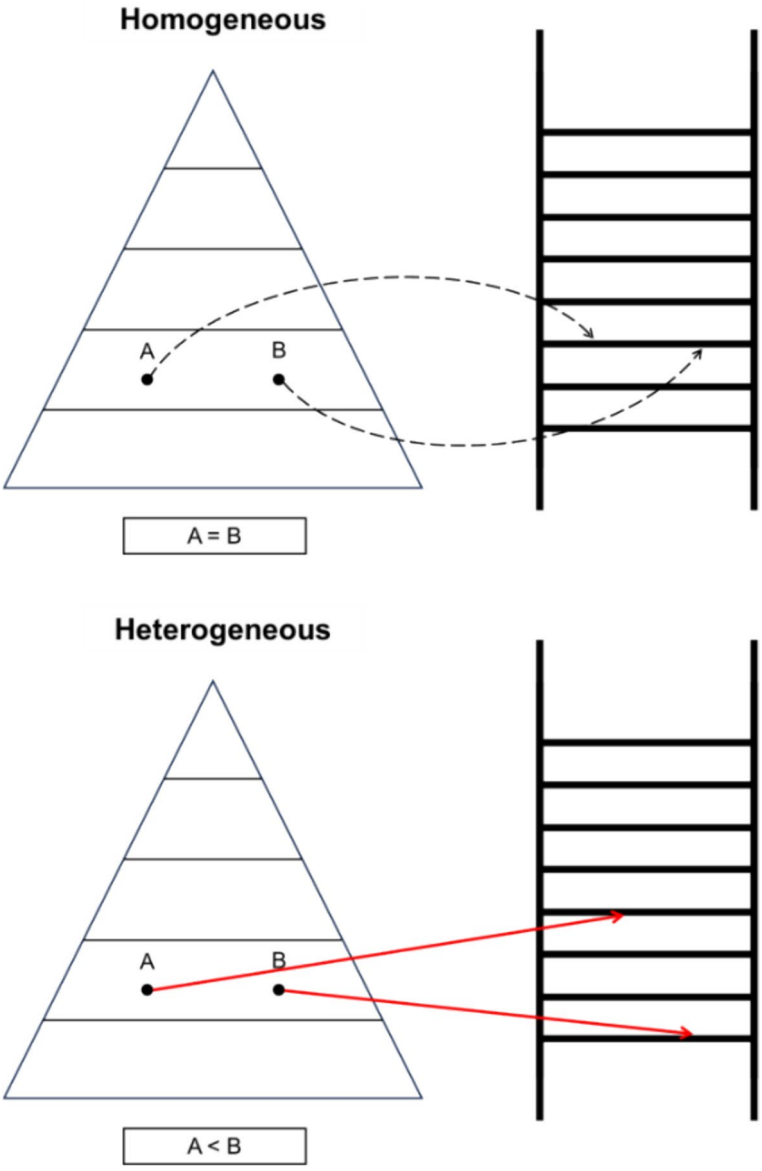

Fig. 1 Stylized associations between relative deprivation and mental well-being under two hypothetical conditions of perceived unfairness. *Note*: Our study is theoretically based on the *heterogeneous* model in specifically testing Hypothesis 2, i.e., the interaction effect

2012; Ugur, 2021). In this study, our primary analytic interest is to estimate the interaction term between subjective social status—a proxy for relative deprivation (Yang et al., 2019)—and perceived unfairness on two measures of well-being. As a visual aid, we graphically illustrate our research framework in Fig. 2. The validity

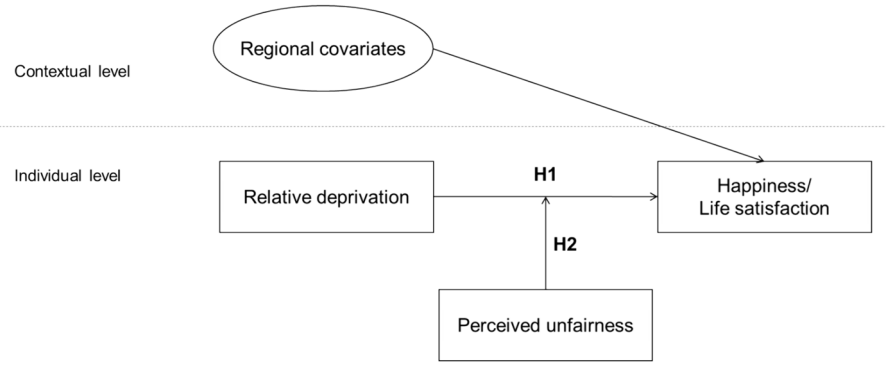

Fig. 2 Overview of the research framework. *Note*: H1 = Hypothesis 1, H2 = Hypothesis 2

of our thesis hinges on the statistical significance of estimated coefficients. Using multiple datasets, related to Hypothesis 1, we first examine the joint effects of relative deprivation and perceived unfairness on well-being. With respect to Hypothesis 2, we then probe whether the association between lower social status and poor well-being becomes exacerbated for South Koreans who perceive their society to be more 'unfair.'

Methods

Data and Analytic Strategy

Data are drawn from three independently designed and implemented surveys on the South Korean adult population: Social Science Korea (SSK) fielded in 2017, Seoul Survey (SS) fielded in 2018, and Korean Social Integration Survey (KSIS) fielded in 2018. First, SSK 2017 was funded by a government grant under the auspices of National Research Foundation of Korea (for which the corresponding author was a Co-Principal Investigator). The sample consists of 1,549 residents nested in 77 administrative units in and around the greater Seoul metropolitan area. Two-stage (probability proportionate to size) cluster sampling was used to collect a population-based sample of Seoul residents and those in the nearby Kyonggi Province. Geographically, Korea consists of 17 first-tier administrative divisions (6 Metropolitan Cities and 9 Provinces), which are further subdivided into smaller regions: cities (*si*), counties (*gun*), districts (*gu*), towns (*eup*), townships (*meyon*), neighborhoods (*dong*) and villages (*ri*). The first three categories (*si, gun, gu*) fall under Municipal-level divisions; the latter four, smaller in size, make up the sub-municipal divisions. The dataset analyzed for this study contains 25 districts (equivalent to boroughs in some Western countries) that comprise the Capital City, 12 additional districts and counties in the bordering city of Incheon, and 40 remaining regional divisions (smaller cities, districts, and counties) from the surrounding Kyeonggi Province. The geographic areas covered in the survey

together represent more than forty percent of the country' population. Post-stratification weights based on age and gender are applied to adjust for the differential probability of selection.

Second, SS 2018 consists of a probability sample of full-time residents in the greater metropolitan area of Seoul. This annual survey was conducted by Seoul Institute (http://global.si.re.kr/), a public think tank established by the Seoul Metropolitan Government (SMG). The Institute's primary aim is to assist the SMG through survey research in developing effective policies to improve the quality of life for its citizens. As part of this effort, Seoul Survey has been designed and implemented annually since 2003. The 2018 version of SS sampled all members (ages 15 and over) of randomly selected 20,000 households (N = 42,991) in Seoul. Data were collected through face-to-face interviews by trained professionals at KStat, a private research firm located in central Seoul. Seoul Survey provides a wealth of information representative of all those living in the nation's capital with the population size of roughly 9.8 million (as of 2018). A public version of the data can be retrieved from the Korea Social Science Data Archive headquartered at Seoul National University (https://kossda.snu.ac.kr/), where technical details on sampling and other methodological procedures are also available.

Lastly, the KSIS 2018, which has been administered annually since 2013, is funded by the Korea Institute of Public Administration, a major government research center. Unlike the other two, the coverage of KSIS is national and contain population-based samples. Data collection was completed by Gallup Korea (https://www.gallup.co.kr/). In its overall survey design and questionnaire content, KSIS is akin to the Korean General Social Survey, a nationally representative study that benchmarks the General Social Survey in the U.S. In terms of the sample size, however, KSIS is much larger. For the KSIS data, in-person interviews were carried out from the first day of September to the last day of October. The population universe consists of Korean household members over the age of 17 who are geographically embedded in regional clusters (metropolitan areas and provinces). Multi-stage stratified probability sampling was used to select the participants (N = 8,000).

For all three, data are hierarchically nested as respondents are clustered in different geographical units, hence violating the independent observation assumption in conventional (i.e., ordinary least squares) regression analysis. To address this problem, we estimated multilevel models by grand mean centering all non-dichotomous variables to examine any potential contextual effects (Enders and Tofighi, 2007). Analyses were performed using HLM 8.2 (Raudenbush & Congdon, 2021) and Stata 13 (StataCorp, 2013). Analyzing these unique datasets allows us to check the robustness of our findings across different geographical areas. While the Seoul Survey contains only the urban residents located within the country's capital, the SSK respondents are dispersed across the greater metropolitan area including and surrounding the capital whereas the KSIS is a nationally representative sample. Comparing the results from these samples provides a more nuanced analysis of the association between relative deprivation and subjective well-being among South Koreans.

Measures

Dependent Variables: Happiness and Life Satisfaction

Consistent with the research on subjective well-being (see Diener et al., 2017), two dependent variables are employed in this study: (1) happiness and (2) life satisfaction. The former is assessed using an 11-point scale ranging from 0 (indicating the worst) to 10 (indicating the best score) across three datasets. Respondents were asked a single question such as "To what extent do you feel happy nowadays?" (SSK, 2017) or "To what extent did you feel you were happy yesterday?" (KSIS, 2018) or were presented with three items for each domain concerning relationships with friends, family life, and social life (SS, 2018). For the analysis, original scores are used, or the average is calculated for multiple items.

The survey items employed to assess the latter variable exhibit slight variations across the datasets. In SSK (2017), life satisfaction is gauged through the question: 'To what extent do you perceive instability in your overall life nowadays?' Responses are captured on an 11-point scale, ranging from 0 to 10, and undergo reverse coding before analysis. In the Seoul Survey (2018), it is the average of four items asking respondents about their satisfaction with their time spent on leisure, self-improvement and hobbies, time spent with families, and networking with acquaintances. Original scores are averaged (Cronbach's alpha = 0.72). Lastly, in KSIS (2018), it is measured by a single-item question, "To what extent are you satisfied with your life overall?" using an 11-point scale (ranging from 0 to 10).

Independent Variables: Relative Deprivation and Perceived Unfairness

Our main explanatory variable, "relative deprivation" (RD), gauges one's subjective social position within society on a 10- or 11-point scale (ranging from 1 or 0 to 10 for SS 2018 and SSK 2017, respectively) or assesses the perceived stability of personal economic conditions on an 11-point scale for (KSIS 2018). Using these datasets, we operationalized RD by recoding the original answers such that a higher number (representing a lower social status) denotes a greater level of relative deprivation, consistent with prior research (see Yang et al., 2019). Our moderator, "perceived unfairness," is a composite index based on multiple survey items (Cronbach's alpha = 0.81). In the SSK 2017 survey, respondents were asked to evaluate the general fairness of the Korean society across various dimensions. More specifically, they rated their perceptions on a 5-point scale in response to the question: "To what extent do you feel that the treatment you receive from Korean society is fair or unfair in terms of the following criteria? 1) Brain (innate ability); 2) Skills (related to work); 3) Effort; 4) Educational background; 5) Career. "

In the SS 2018, a similar survey item asks about respondents' views on the fairness of Korean society in specific domains. By averaging original answers coded on a 5-point scale, to the following question, we created an index (Cronbach's alpha = 0.77): "To what extent do you think our society is fair or unfair in terms of the following areas? 1) Opportunity for education; 2) Opportunity for employment;

3) Law enforcement; 4) Taxation; 5) Gender equality." Finally, for the KSIS 2018 survey, another index is created based on answers to this multi-item question coded on a 4-point scale (Cronbach's alpha = 0.88): "To what extent do you think our society is fair or unfair regarding the following topics?" The survey encompassed 12 categories, each rated on a 4-point scale: 1) Opportunity for education; 2) Opportunity for employment; 3) Taxation and tax payment; 4) Opportunity for welfare benefits; 5) Regional balanced development; 6) Law enforcement; 7) Political activities; 8) Treatment based on gender; 9) Press and media reports; 10) Relationship between large and small/medium-sized businesses; 11) Socioeconomic distribution structure; 12) Fulfillment of military service obligations.

Control Variables

The following demographic and socioeconomic measures were included to address potential confounding: age, gender, marital status, education, and household income. Age was measured as a continuous variable for the SSK dataset and as an ordinal variable in the SS and KSIS datasets. For SS, the ordinal scale was categorized as follows: 1 = 10 s, 2 = 20 s, 3 = 30 s, …, 6 = 60 s or more; and for KSIS: 1 = 19–29, 2 = 30 s, 3 = 40 s, 4 = 50 s, 5 = 60–69. Education was measured as an ordinal variable on different scales: a 6-point scale (1 = elementary school, 2 = middle school, 3 = high school, 4 = college, 5 = university, 6 = graduate school) for SSK, an 8-point scale (1 = no education, 2 = elementary school, 3 = middle school, 4 = high school, 5 = college, 6 = university, 7 = master's degree, 8 = doctoral degree) for SS, and a 4-point scale (1 = elementary school or below, 2 = middle school, 3 = high school, 4 = college/university or more) for KSIS. Gender was coded as 1 for female and 0 for male. Marital status was coded as 1 for married respondents; all other categories, including single, divorced, or widowed, were coded as 0 across all datasets. Household income was measured on ordinal scales: an 8-point scale (1 = below 1,000,000 won; 2 = from 1,000,000 won and below 2,000,000 won; … 8 = 7,000,000 won or more) for SSK, a 19-point scale (1 = below 500,000 won; 2 = from 500,000 and below 1,000,000 won; 3 = from 1,000,000 and below 1,500,000 won; … 19 = 9,000,000 won or more) for SS, and a 12-point scale (1 = no household income; 2 = below 1,000,000 won, 3 = from 1,000,000 and below 2,000,000 won; … 12 = 10,000,000 won or more) for KSIS.

Additionally, several covariates previously shown to be related to well-being outcomes are controlled for, namely social trust, network size, political ideology, social participation, neighborhood security, and self-rated health. Social trust is measured by assessing the extent to which respondents trust their family members, friends, neighbors (in the SS dataset), and colleagues (in the SSK and KSIS datasets). Network size is determined by counting the number of people respondents frequently contact (in the SSK and KSIS datasets) or the number of social gatherings attended (in the SS dataset). Political ideology is coded with a higher score indicating a more liberal view. Social participation is gauged based on attitudes and experiences related to various political activities and issues, with a higher score indicating active and positive engagement in activities such as getting involved in rallies and protests,

commenting or posting opinions on social media, and submitting petitions (for SS and KSIS).

For SSK data, the variable is derived by averaging responses to multiple items (Cronbach's alpha = 0.84). Specifically, respondents are presented with the following statements and asked to score from 1 (strongly disagree) to 5 (strongly agree): 1) There are various ways to express an opinion to the government; 2) I believe I have a good understanding of the important political issues our society is facing; 3) I find political participation enjoyable as I strive to contribute numerous opinions to the government; 4) I feel entitled to engage in political activities and the decision-making process; 5) I believe most officials would carefully consider my opinions; 6) I can comprehend how politics and government operate. Neighborhood security measures how respondents perceive the physical security of their residential area. And, lastly, self-rated health is coded with a higher score indicating a better subjective health condition. Except for binary variables, i.e., gender (1 = female) and marital status (1 = married), all covariates are standardized (converted to z-scores) to account for differences in scale. At the regional level, we also include two measures by averaging individual scores of social status (L2_RD) and perceived unfairness (L2_Unfairness) across the geographical unit. Descriptive statistics for the three datasets are summarized in Table 1.

Results

The Significance of Perceived Unfairness in Explaining Relative Deprivation

Initially, we ran a model regressing relative deprivation on perceived unfairness, while adjusting for confounders. The thrust of our argument is that the magnitude of the focal link between relative deprivation (measured by low social status) and well-being varies partly as a function of perceived unfairness. For perceived unfairness to serve as a moderator, in other words, our analysis assumes that, first, perceived unfairness is positively related to relative deprivation (RD) and, second, negatively related to well-being. Table 2 tests the first part of this assumption. Across all three datasets, containing local, regional, and national samples, it is clear that a greater sense of unfairness is positively associated with a higher level of relative deprivation. In the subsequent sections, we show that perceived unfairness, net of RD and other controls, is also significantly associated with the two outcome variables. The beta coefficients for unfairness are 0.195 (for SSK), 0.123 (for SS), and 0.144 (for KSIS), all of which are statistically significant ($p < 0.001$).

The Joint Impact of Relative Deprivation and Perceived Unfairness on Well-Being

The estimated coefficients of the main predictors—RD and perceived unfairness—are graphically shown in Fig. 3. These results are based on multilevel models conditioning on individual- and regional- level confounders, though omitted from the coefficient plot (for the complete analysis, see Appendix A). The figure shown

Table 1 Descriptive statistics

Data source	SSK (2017)				SS (2018)				KSIS (2018)			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
(Individual level)												
Happiness	6.42	1.35	1	10	7.05	1.25	0	10	6.67	1.69	0	10
Life satisfaction	5.81	2.01	0	10	3.25	0.63	1	5	6.12	1.68	0	10
RD	0	1	-2.74	3.3	0	1	-2.4	3.29	0	1	-3.2	3.12
Unfairness	0	1	-2.99	3.04	0	1	-3.04	3.19	0	1	-3.59	2.97
RD*Unfairness	0.2	1.09	-5.41	7.94	0.14	1.06	-6.92	10.48	0.16	1.11	-8.92	9.25
Age	0	1	-2.13	1.83	0	1	-2.07	1.2	0.11	1	-1.44	1.51
Female	0.5	0.5	0	1	0.53	0.5	0	1	0.5	0.5	0	1
Spouse	0.76	0.43	0	1	0.67	0.47	0	1	0.7	0.46	0	1
Education	0	1	-3.16	2.15	0	1	-3.14	2.81	-0.1	1.05	-3.25	0.85
Income	0	1	-2.85	2.05	0	1	-2.17	2.31	-0.01	0.98	-2.24	2.79
Trust	0	1	-2.87	2.93	0	1	-5.11	2.25	-0.01	1.01	-4.98	2.24
Network	0	1	-1.51	12.3	0	1	-1.41	6.31	-0.04	0.98	-2.03	3.81
Liberal	0	1	-2.78	2.44	0	1	-2.7	2.7	-0.04	0.99	-2.54	2.28
Participation	0	1	-2.98	3.05	0	1	-1.44	7.27	0	1.02	-0.9	5.26
Security	0	1	-3.8	1.86	0	1	-3.17	1.84	-0.01	1.02	-4.38	2.28
SRH	0	1	-4.31	1.4	0	1	-4.77	1.88	-0.05	1.01	-3.52	1.45
(Regional level)												
L2_RD	0	1	-2.28	2.27	0	1	-1.71	1.81	0	1	-2.05	1.77
L2_Unfairness	0	1	-2.9	3.8	0	1	-2.31	1.72	0	1	-1.94	2.1
N(L1/L2)	1,549/77				42,991/25				8,000/17			

Note: Except for dichotomous variables (Female and Spouse), the rest have been standardized as z-scores. RD: relative deprivation

Table 2 The association between perceived unfairness and relative deprivation

Data source	Model 1 (DV = Relative deprivation) (SSK)			Model 2 (DV = Relative deprivation) (SS)			Model 3 (DV = Relative deprivation) (KSIS)		
	Coef	(SE)	β	Coef	(SE)	β	Coef	(SE)	β
(Intercept)	6.457***	(0.307)		5.746***	(0.063)		5.942***	(0.155)	
Unfairness	0.409***	(0.05)	0.195	0.302***	(0.011)	0.123	0.498***	(0.037)	0.144
Age	-0.006	(0.004)	-0.051	-0.045***	(0.006)	-0.043	-0.146***	(0.017)	-0.124
Female	0.031	(0.064)	0.012	-0.01	(0.015)	-0.003	-0.064#	(0.034)	-0.02
Spouse	-0.21*	(0.093)	-0.068	-0.158***	(0.018)	-0.047	-0.315***	(0.044)	-0.091
Education	-0.046	(0.039)	-0.033	-0.164***	(0.008)	-0.122	-0.2***	(0.027)	-0.097
Income	-0.281***	(0.023)	-0.304	-0.079***	(0.002)	-0.2	-0.14***	(0.008)	-0.189
Adj.R^2	0.139			0.09			0.103		
N	1,549			42,991			8,000		

Note: Robust standard errors are in parentheses. #p < .1, *p < .05, **p < .01, ***p < .001

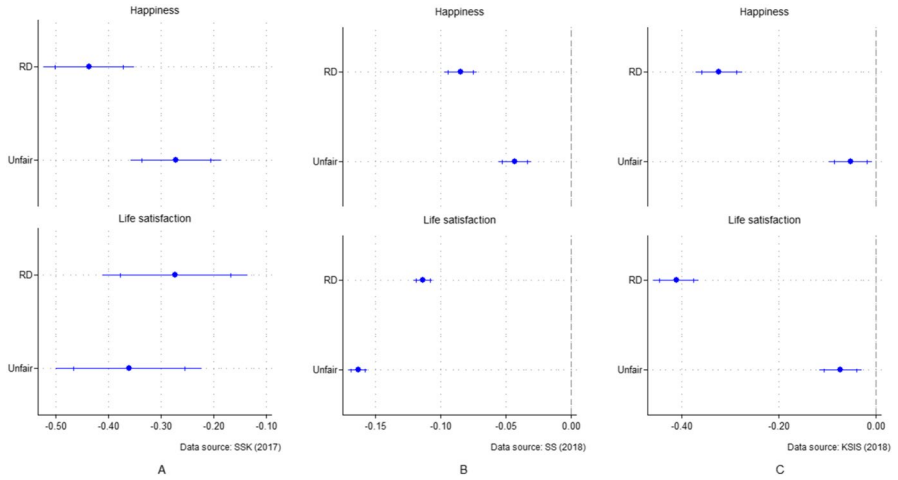

Fig. 3 Coefficient plots showing the relationships between relative deprivation, perceived unfairness, and mental well-being

consists of Panel A based on SSK 2017, Panel B based on SS 2018, and Panel C based on KSIS 2018. Each panel also consists of two parts, the top referring to happiness as the outcome and the bottom based on predicting life satisfaction. Calculation of the intraclass correlation (ICC), as shown in Appendix A, reveals that approximately 14–15% of the variance occurs between regions across the greater metropolitan area of Seoul (based on SSK). This proportion decreases to about 3.2–3.6% within Seoul (based on SS) and further diminishes to about 1.5% across the entire country (based on KSIS). In other words, the geographic context plays a more critical role in shaping mental well-being in and around the capital rather than throughout the nation's provinces.

According to Fig. 3, both relative deprivation and perceived unfairness are significantly and negatively related to happiness and life satisfaction, net of controls at individual and regional levels of analysis. The estimated coefficient for relative deprivation, reflecting the self-assessment of a lower position in the socioeconomic hierarchy, is -0.411 ($p < 0.001$) for happiness and -0.29 ($p < 0.001$) for life satisfaction based on the SKK data. Using data on the Seoul residents only (SS), these effects are -0.085 ($p < 0.001$) and -0.114 ($p < 0.001$), respectively. When considering the national sample (KSIS), similar findings emerge: -0.314 ($p < 0.001$) for happiness and -0.406 ($p < 0.001$) for life satisfaction. These robust results using different sources of data highlight substantial adverse effects of experiencing relative deprivation (proxied by a lower social status) on the two related yet distinct measures of well-being, even after accounting for potential confounders. Next, turning to the association between perception of societal unfairness and individual well-being, we find consistent results. The coefficient for happiness is -0.313 ($p < 0.001$) and -0.352 ($p < 0.001$) for life satisfaction among the regional Korean population in and around the capital. Among Seoul residents more locally, these estimates are -0.043 ($p < 0.01$) for happiness and -0.163 ($p < 0.001$) for life satisfaction. Across the entire

country more generally, the effects are -0.051 ($p < 0.01$) and -0.085 ($p < 0.001$), respectively.

Overall, the influence of relative deprivation on individual happiness appears to be more prominent than that of perceived unfairness (see Model 1, 3, and 5 in Appendix). However, the findings regarding life satisfaction present a more nuanced picture. First, in terms of effect size, the impact of perceived unfairness seems somewhat more pronounced on life satisfaction than on happiness. This is evident in the standardized coefficients of perceived unfairness on life satisfaction, which consistently tend to be larger across the three datasets. Second, perceived unfairness demonstrates a relatively stronger impact on life satisfaction compared to that of relative deprivation for the SSK and SS samples (refer to Model 2 and 4 in Appendix A). However, this pattern is not replicated in the nationally representative sample. In conclusion, perceived unfairness emerges as a more influential determinant of life satisfaction than lower social status, particularly within Seoul and its immediate surrounding areas.

The Interaction Effect of Relative Deprivation and Perceived Unfairness

To evaluate the validity of our heterogeneity model as illustrated in Fig. 1, we estimated the interaction effect between relative deprivation and perceived unfairness on the outcome measures. Main results are summarized in Table 3. All models adjust for individual-level covariates but are not shown. In four of the six models estimated, we find a statistically significant interaction. Specifically, except for Models 2 and 4, we find supporting evidence that the impact of relative deprivation is heightened by perceived unfairness, thereby differentially contributing to individual well-being. This heterogeneous effect is visible in the SSK sample, but for happiness only ($b = -0.087$, $p < 0.01$). There is a similar finding based on the SS data comprising Seoul residents, though the effect size becomes diminished ($b = -0.045$, $p < 0.001$). Lastly, in the nationally representative sample (KSIS), the interaction terms are significant and negative for both dependent variables: happiness ($b = -0.052$, $p < 0.001$) and life satisfaction ($b = -0.056$, $p < 0.001$). In contrast, the moderating role of perceived unfairness on the primary link between relative deprivation and life satisfaction does not receive empirical support from the SSK and the SS data.

For a closer inspection of these statistically significant interaction effects, we created four marginal plots that visually correspond to them. Each depicts a contingent relationship between relative deprivation and predicted outcome at the minimum value (represented by blue) and the maximum value (represented by red) of perceived unfairness. In Fig. 4 (based on Model 1 in Table 3), the slope for the red line (maximum value) is visibly steeper than that for the blue line (minimum value), i.e., the relationship between RD and happiness grows stronger as a result of greater perceived unfairness. Similarly, according to Fig. 5 (based on Model 3 in Table 3), perceived unfairness strengthens the RD-happiness connection at its maximum value. However, paradoxically, it weakens this connection at the lowest end of the perceived unfairness continuum: that is, low-status Koreans living in Seoul who view their society to be *fair* are actually, on average, happier. This particular finding

Table 3 Multilevel parameter estimates for the interaction between relative deprivation and perceived unfairness

DV =	(SSK)		(SSK)		(SS)		(SS)		(KSIS)		(KSIS)	
	Happiness		Life satisfaction		Happiness		Life satisfaction		Happiness		Life satisfaction	
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Intercept	6.418***	(0.056)	5.805***	(0.091)	7.056***	(0.034)	3.252***	(0.018)	6.692***	(0.047)	6.132***	(0.049)
RD	-0.411***	(0.047)	-0.29***	(0.064)	-0.081***	(0.019)	-0.113***	(0.011)	-0.309***	(0.019)	-0.4***	(0.019)
Unfairness	-0.3***	(0.047)	-0.361***	(0.071)	-0.043**	(0.016)	-0.163***	(0.012)	-0.048**	(0.018)	-0.083***	(0.018)
*RD*Unfairness*	-0.087**	(0.033)	0.064	(0.062)	-0.045***	(0.011)	-0.006	(0.007)	-0.052***	(0.016)	-0.056***	(0.016)
L1 covariates	Included		Included		Included		Included		Included		Included	
(Regional level)												
L2_RD	-0.149*	(0.056)	0.108	(0.1)	0.017	(0.032)	-0.02	(0.021)	-0.106#	(0.059)	-0.172*	(0.062)
L2_Unfairness	0.203***	(0.056)	-0.019	(0.115)	-0.086	(0.055)	-0.021	(0.023)	-0.069	(0.059)	0.03	(0.062)
Random effects												
L1 variance	1.118		2.948		0.872		0.285		2.197		2.117	
L2 variance	0.194		0.53		0.033		0.009		0.031		0.035	
ICC	0.148		0.152		0.036		0.032		0.014		0.016	
N(L1/L2)	1,549/77		1,549/77		42,991/25		42,991/25		8,000/17		8,000/17	

Note: All models adjust for the individual-level (L1) confounders as shown in Table 1. DV: dependent variable. Robust standard errors are in parentheses. RD: relative deprivation. Due to the small number of L2 clusters, we do not use robust standard errors in Models 5 and 6 based on the KSIS data

#p < .1, *p < .05, **p < .01, ***p < .001

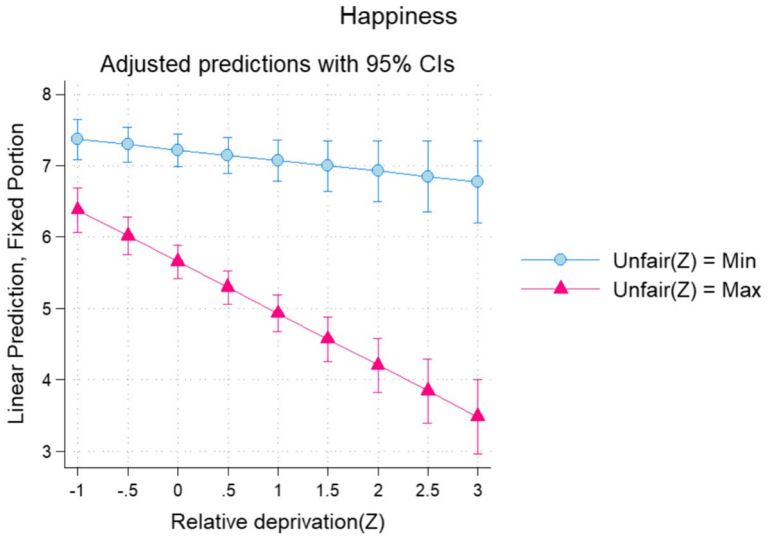

Fig. 4 The interaction effect between relative deprivation and perceived unfairness on happiness (*Data source*: SSK 2017)

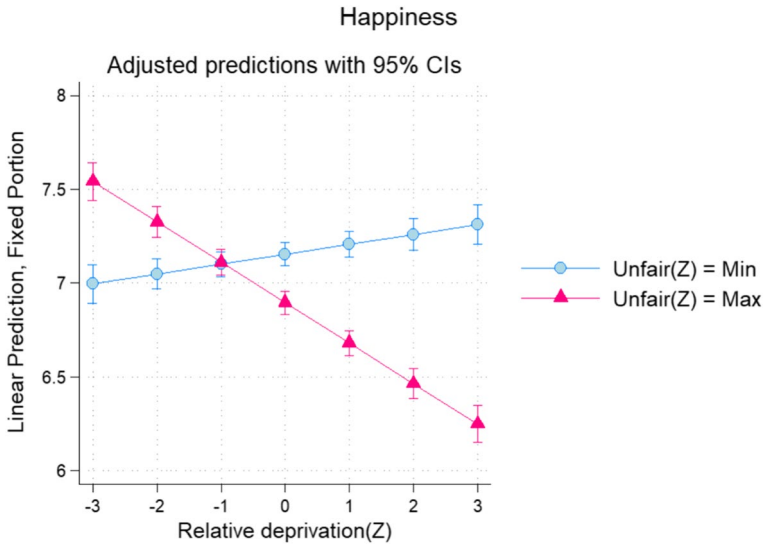

Fig. 5 The interaction effect between relative deprivation and perceived unfairness on happiness (*Data source*: SS 2018)

is consistent with our argument that there is no simple one-to-one correspondence between social status and well-being. Rather, this relationship is powerfully shaped (moderated) by whether and to what extent the person regards societal conditions to be fair or unfair.

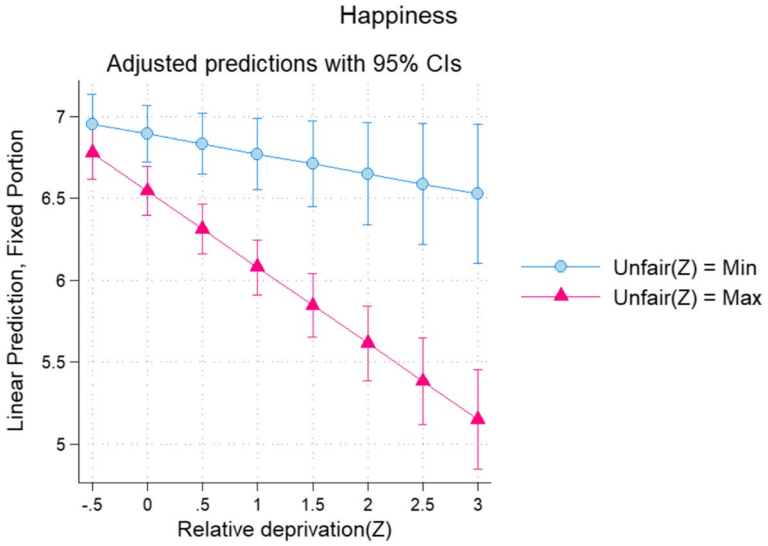

Fig. 6 The interaction effect between relative deprivation and perceived unfairness on happiness (*Data source*: KSIS 2018)

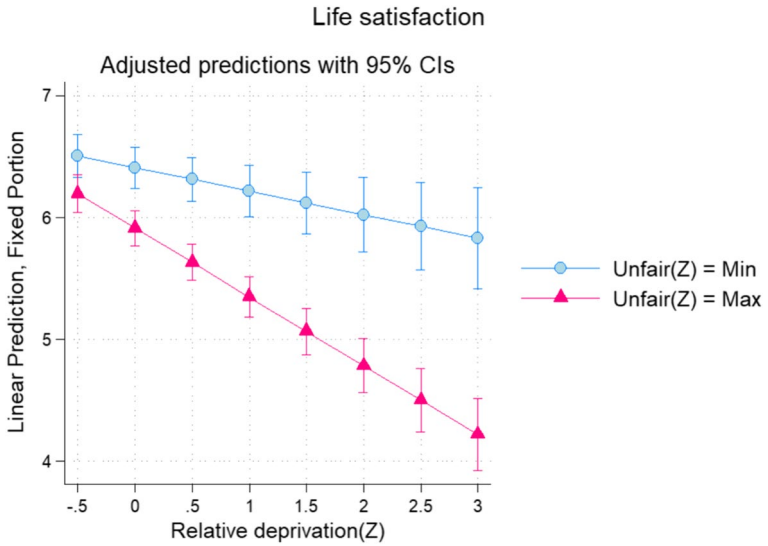

Fig. 7 The interaction effect between relative deprivation and perceived unfairness on life satisfaction (*Data source*: KSIS 2018)

Moving onto Fig. 6 (Model 5 in Table 3) and Fig. 7 (Model 6 in Table 3) using the population-based sample (KSIS), we report a corroborative trend highlighting the moderating role of perceived unfairness. In both figures, the slope for the red line (representing the highest level of perceived unfairness) is much steeper than

that for the blue line (representing the lowest level). Substantively, Korean adults in general are less happy and less satisfied with life to the extent that they are relatively deprived (as measured by lower status rank). And throughout the country, natives who perceive the Korean society to be more unfair tend to be worse off in terms of the two well-being measures. Importantly, related to the present study's central objective, this relationship is not constant but varies depending on the level of unfairness. Those who view society as (un)fair and (il)legitimate are less (more) susceptible to the negative effects of relative deprivation in terms of emotional happiness and overall life satisfaction. However, we advise readers to exercise caution in interpreting these results based on the KSIS sample, as the confidence intervals in Figs. 6 and 7 are based on multilevel analysis without using robust standard errors due to the small number of regional clusters.

Discussion

Employing a theoretical framework based on the concept of relative deprivation, we showed that in the South Korean context individuals' subjective well-being, measured by happiness and life satisfaction, is significantly impacted by their relatively lower social status conditioning on perceived unfairness. Adjusting for relative deprivation and other controls, we also found that perceived unfairness—a concept that has largely escaped systematic attention in the literature—is a significant predictor of the two well-being measures. Results from multilevel modeling indicate that both relative deprivation (lower social status) and perceived unfairness exert independent and joint influences on people's well-being. Furthermore, as specified in our heterogeneity hypothesis, we additionally find that South Korean adults who consider their society to be structurally illegitimate are especially worse off in terms of well-being due to relative deprivation stemming from lower status position. The main implication of our findings is that the magnitude of the connection between one's status rank and happiness/life satisfaction is not constant but contingent on a critical third variable: the degree to which a person considers societal conditions to be fair or not. Using alternative datasets, we empirically confirmed this across different model specifications: Individuals with higher levels of perceived societal unfairness are, in turn, more susceptible to the negative psychological consequences of relative deprivation.

In the literature, relative deprivation is generally defined as "the judgment that one is worse off compared to some standard accompanied by feelings of anger and resentment" (Smith et al., 2012, p. 203). Based on this recognition, a great deal of research has been devoted to unpacking the link between relative deprivation, conventionally measured in terms of status disadvantage (Quispe-Torreblanca et al., 2020; Yang et al., 2019), and various health outcomes. By and large, prior studies have assumed that judging one's status to be worse off necessarily and almost by definition leads to "feelings of anger and resentment," ultimately compromising personal well-being. In contrast, our paper suggests that status disadvantage is a necessary but may not be a sufficient condition for this outcome. That is, subjective recognition of one's disadvantaged social status may or may not translate into negative

emotions or produce psychological costs. This likelihood and the strength of connection depend on a third variable, a moderator, that we have highlighted throughout our paper.

Simply put, a low-ranked individual on the status hierarchy could accept the status quo and may even take personal responsibility for it. By contrast, another individual similarly positioned along the socioeconomic dimension could reject the status quo and attribute personal predicament to an external source. In our view, this is the critical link missing in the extant literature, which has to do with the fact that subjectively assessed disadvantage (i.e., lower social status) must be viewed as *unfair* and *undeserving* (Smith et al., 2012). Despite the common sensical nature of this view, empirical findings remain highly fragmented and limited in the extant scholarship. In the present study, we sought to rectify this issue by explicitly conceptualizing and operationalizing 'perceived unfairness.' The litmus test of our hypothesis lies with the interaction term between relative deprivation and perceived unfairness on the well-being outcomes. Based on a series of multilevel model specifications, we demonstrated that indeed the strength of the relationship between relative deprivation and happiness varies significantly across the local, regional, and national datasets. On the other hand, we found this interaction to be significant for life satisfaction but using only the national sample.

Why does perceived unfairness moderate the relationship between relative deprivation and happiness but fails to do so in the case of relative deprivation and life satisfaction? This query requires clarification especially given the frequent interchangeability of happiness and life satisfaction (Medvedev & Landhuis, 2018). Happiness is often portrayed as a subjective and emotional state. On the other hand, life satisfaction entails a more cognitive, conscious, and rational assessment spanning an extended period. The former is thus more sensitive and temporary, whereas the latter is more durable and permanent. In the literature, subjective well-being is also conceptualized and operationalized as a *holistic* measure encompassing both emotional experiences and cognitive evaluations. According to some scholars, life satisfaction is the cognitive facet of happiness (Olivos et al., 2021; Diener et al., 2018) defined as a combination of the frequency and intensity of positive moods, the scarcity of negative moods, and a component assessing the perceived ideal conditions of life (Raila et al., 2015). In comparison with the concept of happiness, life satisfaction thus demonstrates greater resilience to emotional turbulence as it involves reflective, judgmental, and speculative processes.

Happiness is intricately linked to personal experiences and emotions, drawing from a broader range of potential sources. By definition, it is more sensitive to individual mood fluctuations, requiring a delicate balance that prioritizes more frequent pleasant moods over unpleasant ones. Therefore, external factors, especially those related to social integration, isolation, and the quality of interpersonal relationships, significantly influence happiness (Delle Fave et al., 2016). It is also reported that even when higher incomes contribute to an increase in life satisfaction, it may not necessarily translate into a proportionate rise in the level of happiness (Kahneman & Deaton, 2010). Furthermore, even though happiness is frequently considered the ultimate life goal, individuals may willingly forgo it for other objectives such as altruistic concerns (Ng, 2021).

In light of this discussion, we posit that the constrained variability in the moderating influence of perceived unfairness on the association between relative deprivation and life satisfaction can be partially explained by the nature of life satisfaction itself. In contrast to happiness, life satisfaction is more stable and permanent and, as such, it is more directly shaped by perceived unfairness. Put differently, differential perceptions of unfairness play a limited role in modifying the connection between relative deprivation and life satisfaction. In comparison, we found the interaction term to be more robust in predicting happiness across different samples. This makes sense in view of the recognition that happiness as a concept is more sensitive, unstable, and transitory. In both cases, relative deprivation connotes lower subjective well-being: socioeconomic disadvantage implies, on average, less life satisfaction and limited happiness. Yet, the magnitude of the empirical result hinges on operationalization. When it comes to happiness as the outcome measure, perception of societal unfairness matters more. That is, the affective dimension of well-being (happiness) is more susceptible to the interplay between relative deprivation and perceived unfairness. A theoretical implication here is that 'effect heterogeneity' may depends on precisely *how* well-being is measured. It remains an empirical question as to whether happiness and life satisfaction may be differentially related to relative deprivation as a function of other moderators besides perceived unfairness.

In interpreting our statistical results, the cultural context of Korean society may be relevant. South Korea is commonly characterized as collectivistic, hierarchical, and vertical rather than individualistic, egalitarian, and horizontal (Hofstede, 1980; Schwartz, 1999; Triandis & Gelfand, 1998). Specifically, a deeply ingrained cultural trait in Korea is the profound reverence for hierarchy and authority among individuals, encompassing both traditional values rooted in Confucianism and personal attributes acquired through legitimate means such as achievement, wealth accumulation, and reputation (You & Shim, 2013). Notably, the latter form of authority is not fixed but rather adaptable and believed to be accessible to all, serving as a motivating factor for South Koreans to pursue success and upward mobility by availing themselves to fair opportunities.

The cultural context characterized by a predisposed array of symbolic resources, or 'cultural affordances', can exert significant influence on psychological and behavioral orientations, particularly pertaining to specific thematic domains, e.g., the modulation of emotional engagement/disengagement and the cultivation of dependent/independent self-conceptions (Kitayama et al., 2006).

Within societies sorted in terms of vertical rather than horizontal culture, such as South Korea, the pursuit of distinction and the ostentatious display of privilege hold considerable sway, appealing to individuals amidst the stratified social order. In contrast, deference to hierarchy in the cultural milieu of South Korea is more intricately tied to the adherence to socially sanctioned norms or the attainment of inclusion within privileged social circles. This stands in stark contrast to the dynamics observed in other vertical and individualistic societies like the United States, where admiration is frequently associated with individual achievements, personal renown, or occupational standing (Shavitt et al., 2011).

In Korean society, characterized by its unique blend of traditional values and rapid modernization, there exists a distinctive emphasis on deferring to social

prestige within the upper echelons of the hierarchy and aspiring for inclusion in them. Scaling the social hierarchy is seen as imperative, as it not only reflects individual effort and capability but also provides a sense of relief that one has successfully managed personal life in alignment with societal ideals. Other peculiar observations, including South Korean society's tendency to accept significant disparities in outcomes (Hwang, 2024) and income inequality based on meritocracy (Park, 2021), resonate with this description. This cultural milieu places considerable pressure on individuals, with deviations from established social norms often resulting in profound distress. Relatedly, interaction with individuals of higher social standing has been found to adversely affect the mental well-being of South Koreans (Lee & Kawachi, 2017). In light of these observations, our study highlights how in South Korea perceived inequity in the societal distribution system powerfully engenders negative psychological ramifications particularly for the well-being of lower status members.

As we have articulated and demonstrated, individuals are likely to experience relative deprivation resulting in poor well-being when they cannot meet socially constructed standards of success due to factors beyond their control. From a societal point of view, maintaining public mental health should be a top priority. The critical issue is how to address the psychological needs of those who experience relative deprivation associated with their disadvantaged status. As a fundamental feature of capitalist economies, meritocracy can act as a primary incubator for overly intensified social comparison. As such, it can function as a social force not only compelling individuals to compete for success but also misguiding them into accepting inequality as the result of a fair system (Markovits, 2019).

While belief in meritocracy as a legitimate means of distributing economic rewards can generate positive results for all, perceived societal unfairness can certainly undermine the entire edifice. And to the extent that the status disadvantage refuse to accept the status quo, they will suffer from feelings of not only inferiority but also injustice. Clearly, in South Korea and elsewhere concerted efforts are needed to provide better ways to alleviate their predicament. Unequal outcomes may be inevitable in an economic system driven by meritocracy. For all members of society to consider the collective result to be 'fair,' however, the provision of equal opportunities is a must. To that end, governments must institute (e.g., anti-discriminatory) policies to remove obstacles and lower barriers for the socially weak to exercise upward mobility. Only when the rules are perceived to be fair by its individual members—especially those at the bottom of the socioeconomic hierarchy—can society be considered 'healthy.'

Our study has some data limitations. First and foremost, as is the case with using most large-scale surveys, we are unable to specify causal identification. The cross-sectional nature of the three datasets prevents us from discerning the direction of causation between relative deprivation, perceived unfairness, and well-being measures. Korean adults who are less happy and less satisfied with life may be more likely, for example, to rank themselves lower on the status hierarchy and perceive their society to be more unfair. As such, our study is essentially correlational, and we advise readers to keep this in mind when interpreting the results. The cross-sectional nature of data further raises another issue. In our study, we

treated perceived unfairness as the moderator, assuming that it precedes relative deprivation as measured by lower self-assessed social status. Our decision was based on theoretical reasoning rather than an empirical fact.

As graphically illustrated in our heterogeneity model, we reasoned that people's perception of how fair or unfair their society is can independently influence their well-being. We further hypothesized that the level of perceived unfairness would shape their self-assessment of status ranking. However, it is plausible that the reverse may be true: low-status individuals may be more likely to regard their society to be more unfair. Addressing this issue demands collecting and examining longitudinal (panel) data. Doing so is certainly beyond the scope of our current study. We urge future researchers to design and utilize better-quality data that can draw them closer to causal identification in general and, in particular, more conclusively decipher the interrelationship between status ranking and unfairness perception.

In terms of measurements, our main explanatory variable does not directly tap 'social comparison.' The primary assumption in prior research is that lower-ranked individuals engage in more unfavorable social comparison, as they are more susceptible to compare themselves to those who are positioned higher on the status hierarchy. Yet, this may or may not be true. That is, social comparison could be driven by status homophily. It could be the case that similarly ranked people are more likely to benchmark one another in evaluating themselves and their lives. Social comparison, therefore, is an assumed (not a directly tested) mechanism underlying or responsible for the production of relative deprivation. More studies are quired that concretely connect the link between social status and social comparison. That said, incorporating the concept of perceived unfairness in our study was a partial attempt to deal with this widespread limitation in the literature. That is, by conditioning on this variable we sought to, albeit indirectly, tackle the issue that two individuals belong to an identical social strata may experience divergent well-being because of differential views concerning societal unfairness, which could be a byproduct of how they socially compare themselves with respect to different reference groups.

Pursuit of social status is a fundamental human motivation and desire. As a zero-sum game, by definition, status competition produces winners and losers—with the former enjoying greater well-being vis-à-vis their lower-status counterparts. Indeed, a great deal of research has been devoted to the role of "the local ladder-effect" (Anderson et al., 2012) in explaining the inequality of well-being, highlighting the psychological and mental costs of status disadvantage. While fully acknowledging the insights provided by earlier studies, our research stresses the importance of taking into consideration whether or not lower-status individuals consider their relative disadvantage as something they deserve. To the extent that they do not, i.e., regard their society to be structurally unfair, then status disadvantage becomes more tightly coupled with well-being disadvantage. Based on multiple datasets on the South Korea population, our analysis largely confirmed this heterogeneous association. As a test of greater external validity, it would be interesting to replicate our findings using data from non-East Asian countries. Cross-national investigation could potentially reveal different results across macrolevel cultural and institutional contexts, further adding to our understanding of the issue at hand.

Appendix A

Table 4 Multilevel analysis estimating the relationships between relative deprivation, societal unfairness, and mental well-being

DV =	(SSK) Happiness Model 1		(SSK) Life satisfaction Model 2		(SS) Happiness Model 3		(SS) Life satisfaction Model 4		(KSIS) Happiness Model 5		(KSIS) Life satisfaction Model 6	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Intercept	6.418***	(0.055)	5.805***	(0.092)	7.056***	(0.034)	3.252***	(0.018)	6.691***	(0.047)	6.13***	(0.049)
RD	-0.411***	(0.046)	-0.29***	(0.064)	-0.085***	(0.02)	-0.114***	(0.011)	-0.314***	(0.019)	-0.406***	(0.019)
Unfairness	-0.313***	(0.048)	-0.352***	(0.071)	-0.043**	(0.016)	-0.163***	(0.012)	-0.051**	(0.018)	-0.085***	(0.018)
Age	-0.044	(0.048)	0.056	(0.066)	0.029#	(0.015)	0.007	(0.011)	-0.1***	(0.025)	-0.107***	(0.024)
Female	0.094	(0.062)	0.24*	(0.106)	0.019	(0.016)	0.023*	(0.009)	0.2***	(0.035)	0.125***	(0.035)
Spouse	0.321***	(0.098)	0.283*	(0.124)	0.092***	(0.021)	-0.02*	(0.01)	0.232***	(0.047)	0.21***	(0.046)
Education	0.044	(0.034)	0.012	(0.06)	0.029#	(0.015)	0.015*	(0.007)	0.048*	(0.021)	0.011	(0.02)
Income	0.051	(0.042)	0.192***	(0.056)	0.062***	(0.012)	0.006	(0.008)	0.047*	(0.02)	0.046*	(0.02)
Trust	0.109	(0.139)	0.431*	(0.213)	0.201***	(0.024)	0.115***	(0.014)	0.144***	(0.018)	0.153***	(0.018)
Network	0.041	(0.031)	0.007	(0.048)	0.069***	(0.021)	0.044***	(0.008)	0.08***	(0.019)	0.111***	(0.018)
Liberal	0.079*	(0.032)	0.179**	(0.058)	0.01	(0.013)	-0.026**	(0.01)	0.02	(0.019)	0.007	(0.018)
Participation	-0.051	(0.157)	-0.286	(0.219)	-0.016	(0.014)	0.012	(0.008)	0.013	(0.018)	0.009	(0.017)
Security	0.017	(0.036)	0.135*	(0.065)	0.069***	(0.014)	0.081***	(0.013)	0.408***	(0.018)	0.009	(0.017)
SRH	0.186***	(0.038)	0.186***	(0.048)	0.677***	(0.02)	0.039***	(0.01)	0.224***	(0.019)	0.212***	(0.019)
(Regional level)												
L2_RD	-0.151**	(0.054)	0.11	(0.1)	0.02	(0.033)	-0.019	(0.02)	-0.105*	(0.048)	-0.171*	(0.062)
L2_Unfairness	0.22***	(0.053)	-0.031	(0.113)	-0.087	(0.056)	-0.021	(0.023)	-0.066	(0.041)	0.033	(0.062)

Table 4 (continued)

DV =	(SSK)		(SSK)		(SS)		(SS)		(KSIS)		(KSIS)	
	Happiness		Life satisfaction		Happiness		Life satisfaction		Happiness		Life satisfaction	
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Random effects												
L1 variance	1.127		2.95		0.874		0.285		2.2		2.121	
L2 variance	0.186		0.53		0.033		0.009		0.032		0.035	
ICC	0.142		0.152		0.036		0.032		0.014		0.016	
N(L1/L2)	1,549/77		1,549/77		42,991/25		42,991/25		8,000/17		8,000/17	

Note: Robust standard errors are in parentheses. DV: dependent variable. RD: relative deprivation

$^{\#}p < .1$, $*p < .05$, $**p < .01$, $***p < .001$

Data Availability Data analyzed for this study are available upon reasonable request from the corresponding author.

Declarations

Conflicts of Interest Authors declared no conflicts of interest with respect to the authorship or the publication of this article.

References

Adjaye-Gbewonyo, K., & Kawachi, I. (2012). Use of the Yitzhaki Index as a test of relative deprivation for health outcomes: A review of recent literature. *Social Science & Medicine,75*, 129–137.

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist,49*(1), 15–24.

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology,23*, 586–592.

Alderson, A. S., & Katz-Gerro, T. (2017). Compared to whom? Inequality, social comparison, and happiness in the United States. *Social Forces,95*(1), 25–53.

Amendola, A., Dell'Anno, R., & Parisi, L. (2019). Happiness and inequality in European countries: Is it a matter of peer group comparisons? *Economia Politica: Journal of Analytical and Institutional Economics,36*(2), 473–508.

Anderson, C., Kraus, M. W., Galinsky, A. D., & Keltner, D. (2012). The local-ladder effect: Social status and subjective well-being. *Psychological Science,23*(7), 764–771.

Baldwin, M., & Mussweiler, T. (2018). The culture of social comparison. *Proceedings of the National Academy of Sciences of the United States of America,115*(39), E9067–E9074.

Bárcena-Martín, E., Cortés-Aguilar, A., & Moro-Egido, A. I. (2017). Social comparison on subjective well-being: The role of social and cultural capital. *Journal of Happiness Studies,18*(4), 1121–1145.

Bjørnskov, C., Dreher, A., Fischer, J. A. V., Schnellenbach, J., & Gehring, K. (2013). Inequality and happiness: When perceived social mobility and economic reality do not match. *Journal of Economic Behavior and Organization,91*, 75–92.

Boyce, C. J., Brown, G. D. A., & Moore, S. C. (2010). Money and happiness: Rank of income, not income, affects life satisfaction. *Psychological Science,21*(4), 471–475.

Buttrick, N. R., Heintzelman, J. S., & Oishi, S. (2017). Inequality and well-being. *Current Opinion in Psychology,18*, 15–20.

Chan, C. H., Wong, H. K., & Yip, P. S. F. (2017). Associations of relative income deprivation with perceived happiness and self-rated health among the Hong Kong Chinese population. *International Journal of Public Health,62*(6), 697–707.

Chang, W.-C. (2013). Climbing up the social ladders: Identity, relative income, and subjective well-being. *Social Indicators Research,113*, 513–535.

Choi, M., & Park, H.-Y. (2022). The effect of household types on real estate asset inequality in Korea: Using the Survey of Household Finances and Living Condition Data. *Journal of Urban Studies and Real Estate,13*(3), 25–46. [In Korean].

Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Eastrlin paradox and other puzzles. *Journal of Economic Literature,46*(1), 95–144.

Cojocaru, A. (2016). Does relative deprivation matter in developing countries: Evidence from six transition economies. *Social Indicators Research,125*, 735–756.

Delhey, J., & Dragolov, G. (2014). Why inequality makes Europeans less happy: The role of distrust, status anxiety, and perceived conflict. *European Sociological Review,30*, 151–165.

Delle Fave, A., Brdar, I., Wissing, M. P., Araujo, U., Castro Solano, A., Freire, T., Hernández-Pozo, M. D. R., Jose, P., Martos, T., Nafstad, H. E., Nakamura, J., Singh, K., & Soosai-Nathan, L. (2016). Lay definitions of happiness across nations: The primary of inner harmony and relational connectedness. *Frontiers in Psychology,7*, 30. https://doi.org/10.3389/fpsyg.2016.00030

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour,2*, 253–260.

Diener, E., Pressman, S. D., Hunter, J., & Delgadillo-Chase, D. (2017). If, why, and when subjective well-being influences health, and future needed research. *Applied Psychology: Health and Well-Being,9*(2), 133–167.

Duesenberry, J. S. (1967). *Income, saving, and the theory of consumer behavior*. Harvard University Press.

Easterlin, R. A. 1974. Does economic growth improve the human lot? Some empirical evidence. In P. A. David, & W. R. Melvin (Eds.), Nations and households in economic growth. (pp. 89–125). New York, NY: Academic Press.

Eibner, C. E., & Evans, W. N. 2004. Chapter 14. The income-health relationship and the role of relative deprivation. In Neckerman, K. M (Ed.), *Social Inequality* (pp. 545–568). Russell Sage Foundation: New York.

Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics,89*, 997–1019.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations,7*(2), 117–140.

Firebaugh, G., & Schroeder, M. B. (2009). Does your neighbor's income affect your happiness? *American Journal of Sociology,115*(3), 805–831.

Gao, L., Sun, B., Du, Z., and Lv, G. 2022. How wealth inequality affects happiness: The perspective of social comparison. Frontiers in Psychology 13. doi: 10.3389/fpsyg.2022.829707.

García-Muñoz, T. M., Milgram-Baleix, J., & Odeh-Odeh, O. (2019). Inequality and life satisfaction in low- and middle-income countries: The role of opportunity. *Societies,9*(2), 37. https://doi.org/10.3390/soc9020037

Grosfeld, I., & Senik, C. (2010). The emerging aversion to inequality. *Economics of Transition,18*(1), 1–26.

Guven, C., & Sørensen, B. E. (2012). Subjective well-being: Keeping up with the perception of the Joneses. *Social Indicators Research,109*, 439–469.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage.

Hong, S., Kim, N., Mo, Z., & Yang, L. 2024. Income inequality in South Korea, 1933-2022: Evidence from distributional national accounts. World Inequality Lab Working Paper 2024/03.

Huang, Y. (2016). Downward Social Comparison Increases Life-Satisfaction in the Giving and Volunteering Context. *Social Indicators Research,125*, 665–676.

Hwang, S.-J. (2024). Subjective inequality in South Korea: Perception, belief, and discontent. *Research in Social Stratification and Mobility,89*, 100875.

Jeong, J. H., & Cheon, B. Y. (2017). Korea's wealth inequality structure from an international perspective: Comparing with wealth inequalities in Korea, USA and Spain. *The Geographical Journal of Korea,51*(2), 149–164. [In Korean].

Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences of the United States of America,107*(38), 16489–16493.

Katic, I., & Ingram, P. (2017). Income inequality and subjective well-being: Toward an understanding of the relationship and its mechanisms. *Business & Society,57*(6), 1010–1044.

Kelley, J., & Evans, M. D. R. (2017). The new income inequality and well-being paradigm: Inequality has no effect on happiness in rich nations and normal times, varied effects in extraordinary circumstances, increase happiness in poor Nations, and interacts with Individuals' perceptions, attitudes, politics, and expectations for the future. *Social Science Research,62*, 39–74.

Kim, H.H.-S. (2022). Status perception, residential context and subjective wellbeing among South Korean adults: A multilevel analysis of primary survey data. *The Social Science Journal,59*(3), 405–423.

Kim, H. H-S. 2023. Changing perceptions of societal trust among Koreans: Relative deprivation, downward mobility, and sociotropic concern. In Kim, J (Ed.) *A Contemporary Portrait of Life in Korea: Researching recent social and political trends* (pp. 211–238). Springer Nature Singapore.

Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology,91*(5), 890–903.

Lee, H., & Hong, D. (2023). The landscape of inequality in residential capitalism: Focusing on the marginalized impacts of income inequality on housing inequality. *Housing Studies Review,31*(4), 67–107. [In Korean].

Lee, M.-A., & Kawachi, I. (2017). The company you keep: Is socializing with higher status people bad for mental health? *Sociology of Health & Illness,39*(7), 1206–1226.

Lee, S., Shin, H., & Kim, C. (2020). Inequality of the household income and wealth in Korea: Research outcome and agenda. *Economy and Society,127*, 60–94. [In Korean].

Lee, W. (2018). Inequality of income and wealth in South Korea. *Journal of Governmental Studies,24*(2), 29–59. [In Korean].

Liao, T. F. (2021). Income inequality, social comparison, and happiness in the United States. *Socius: Sociological Research for a Dynamic World,7*, 1–17.

Lim, C. (2021). Chapter 11. Gong-jeong-seong-eun haeng-bog-eul ga-jyeo-da-jul su iss-na? (Can fairness bring happiness?) In Lee, H. & Oh, J. (Eds.) *Gong-jeong-han sa-hoe-ui gil-eul mud-da (The Path to a Fair Society)*. (pp. 392–417). Sigongsa: Seoul. [In Korean]

Markovits, D. (2019). *The Meritocracy trap: How America's foundational myth feeds inequality, dismantles the middle class, and devours the elite*. Penguin Press.

Marmot, M., Smith, G. D., Stansfeld, S., Patel, C., North, F., Head, J., Ian, W., Brunner, E., & Feeney, A. (1991). Health inequalities among British civil servants: The Whitehall II Study". *Lancet,337*, 1387–1393.

McBride, M. (2001). Relative-income effects on subjective well-being in the cross-section. *Journal of Economic Behavior & Organization,45*, 251–278.

Medvedev, O. N., & Landhuis, C. E. (2018). Exploring constructs of well-being, happiness and quality of life. *PeerJ,6*, e4903.

Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review,110*(3), 472–489.

Ng, Y. K. (2021). Happiness or life satisfaction? In Y. K. Ng (Ed.), *Happiness—concept, measurement and promotion* (pp. 33–39). Springer.

Olivos, F., Olivos-Jara, P., & Browne, M. (2021). Asymmetric social comparison and life satisfaction in social networks. *Journal of Happiness Studies,22*, 363–384.

Oshio, T., & Urakawa, K. (2014). The association between perceived income inequality and subjective well-being: Evidence from a social survey in Japan. *Social Indicators Research,116*, 755–770.

Park, K. (2021). Perception and characteristics of meritocracy in Korea. *Journal of Citizen & World,38*, 1–39. [In Korean].

Posel, D. R., & Casale, D. M. (2011). Relative standing and subjective wellbeing in South Africa: The role of perceptions, expectations and income mobility. *Social Indicators Research,104*(2), 195–223.

Quispe-Torreblanca, E. G., De Neve, J.-E., Brown, G. D. A., Boyce, C. J., & Wood, A. M. (2020). Inequality and social rank: Income increases buy more life satisfaction in more equal countries. *Personality and Social Psychology Bulletin,47*(4), 519–539.

Raila, H., Scholl, B. J., & Gruber, J. (2015). Seeing the world through rose-colored glasses: People who are happy and satisfied with life preferentially attend to positive stimuli. *Emotion,15*(4), 449–462.

Raudenbush, S. W., & Congdon, R. T. (2021). *HLM 8: Hierarchical linear and nonlinear modeling*. Scientific Software International Inc.

Ravazzini, L., & Chávez-Juárez, F. (2018). Which inequality makes people dissatisfied with their lives? Evidence of the link between life satisfaction and inequalities. *Social Indicators Research,137*(3), 1119–1143.

Reagan, P. B., Salsberry, P. J., & Olsen, R. J. (2007). Does the measure of economic disadvantage matter? Exploring the effect of individual and relative deprivation on intrauterine growth restriction. *Social Science & Medicine,64*(10), 2016–2029.

Sapolsky, R. M. (2005). The influence of social hierarchy on primate health. *Science,308*, 648–652.

Schalembier, B. (2018). An evaluation of common explanations for the impact of income inequality on life satisfaction. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being,20*(3), 777–794.

Schneider, S. M. (2012). Income inequality and its consequences for life satisfaction: What role do social cognitions play? *Social Indicators Research,106*(3), 419–438.

Schneider, S. M. (2016). Income inequality and subjective wellbeing: Trends, challenges, and research directions. *Journal of Happiness Studies,17*, 1719–1739.

Schneider, S. M. (2019). Why income inequality is dissatisfying–perceptions of social status and the inequality-satisfaction link in Europe. *European Sociological Review,35*(3), 409–430.

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology: An International Review,48*(1), 23–47.

Shavitt, S., Johnson, T. P., & Zhang, J. (2011). Horizontal and vertical cultural differences in the content of advertising appeals. *Journal of International Consumer Marketing,23*, 297–310.
Shifa, M., & Leibbrandt, M. (2018). Relative economic position and subjective well-being in a poor society: Does relative position indicator matter? *Social Indicators Research,139*, 611–630.
Smith, H. J., Pippin, G. M., Bialosiewicz, S., & Pettigrew, T. F. (2012). Relative deprivation: A theoretical and meta-analytic review. *Personality and Social Psychology Review,16*(3), 203–232.
StataCorp. (2013). *Stata Statistical Software: Release 13*. StataCorp LP.
Subramanyam, M., Kawachi, I., Berkman, L., & Subramanian, S. V. (2009). Relative deprivation in income and self-rated health in the United States. *Social Science & Medicine,69*(3), 327–334.
Tan, J. J. X., Kraus, M. W., Carpenter, N. C., & Adler, N. E. (2020). The association between objective and subjective socioeconomic status and subjective well-being: A meta-analytic review. *Psychological Bulletin,146*(11), 970–1020.
Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology,74*(1), 118–128.
Ugur, Z. B. (2021). How does inequality hamper subjective well-being? The role of unfairness. *Social Indicators Research,158*, 377–407.
Wilkinson, R. G., & Pickett, K. E. (2006). Income inequality and population health: A review and explanation of the evidence. *Social Science & Medicine,62*(7), 1768–1784.
Wolff, L. S., Subramanian, S. V., Acevedo-Garcia, D., Weber, D., & Kawachi, I. (2010). Compared to whom? Subjective social status, self-rated health, and referent group sensitivity in a diverse US sample. *Social Science & Medicine,70*, 2019–2028.
Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin,106*(2), 231–248.
Wood, J. V. (1996). What is social comparison and how should we study it? *Personality and Social Psychology Bulletin,22*(5), 520–537.
Wu, X., & Li, J. (2017). Income inequality, economic growth, and subjective well-being: Evidence from China. *Research in Social Stratification and Mobility,52*, 49–58.
Yang, X. Y., Hu, A., & Schieman, S. (2019). Relative deprivation in context: How contextual status homogeneity shapes the relationship between disadvantaged social status and health. *Social Science Research,81*, 157–169.
You, M., & Shim, H. (2013). A study on the cultural characteristics of Korean society: Discovering its categories using the cultural consensus model. *Korean Journal of Culture and Social Issues,19*(3), 457–485. [In Korean].