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Mortality Risk of Loneliness: Culture Matters

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Objective: Does loneliness predict premature death? Much prior research suggests so, but this evidence draws primarily on populations from individualistic societies, such as North America and Western Europe. Here, we aimed to extend this evidence by testing a hypothesis that loneliness would predict greater mortality risk in collectivistic societies, where social interdependence is normatively sanctioned. **Method:** Using a harmonized dataset from two individualistic (England and the United States) and two collectivistic (Korea and Mexico) countries (combined $N = 41,869$), we tested whether cultural contexts moderate the extent to which loneliness predicts 10-year all-cause mortality. **Results:** After adjustment of demographic variables and health behaviors, loneliness was associated with increased 10-year mortality in all four countries, with hazard ratios (HRs) of 1.13 in England, 1.21 in the United States and Mexico, and 1.51 in Korea. When health conditions were additionally controlled, this association became negligible in two individualistic countries, with HRs of 0.98 for both England and the United States. In contrast, the HR remained highly significant in Korea ($HR = 1.27$). Curiously, the mortality risk of loneliness in Mexico ($HR = 1.03$), another collectivistic country, was no different from the risks in England and the United States. **Conclusions:** When people feel that they are chronically isolated from social networks, this perception can be fatal in Korea, but it is less so in the other three countries. Discussion focuses on other cultural factors, besides the cultural dimension of individualism–collectivism, that may account for the current finding.

Public Significance Statement

Loneliness is a major public health concern associated with decreased longevity. Using a harmonized cross-national dataset, we show that the relationship between loneliness and mortality is culture-bound. The mortality risk of loneliness was more than two times greater in Korea than in England, the United States, and Mexico. These results underscore the need for culturally inclusive research to globalize theories on the health risks of loneliness.

Keywords: loneliness, mortality, culture, collectivism versus individualism


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Loneliness is a subjective experience of social isolation, resulting from a discrepancy between the desired and actual quality of an individual's social networks (Pinquart & Sorensen, 2003). Considering the wide range of benefits of social connection (House et al., 1988; Uchino, 2006), it would not come as any surprise that loneliness is consistently linked to ill health, such as high levels of inflammation, greater cardiovascular disease risk, and poor immune functioning (S. Cacioppo et al., 2015; Grant et al., 2009; Hawkey & Cacioppo, 2010), all of which can contribute to premature death. As expected from this, a recent meta-analysis showed that loneliness

is associated with a 22% increased risk of mortality (Rico-Uribe et al., 2018).

Despite this systematic evidence, currently missing is a consideration of broader sociocultural contexts that may moderate the mortality risk of loneliness. Loneliness may be more detrimental in certain cultural contexts, where social connection is highly valued and desired to the point that it becomes integral to the sense of self, such as in collectivistic (as opposed to individualistic) societies. So far, however, no systematic effort has been made to compare the mortality risk of loneliness across different cultural contexts. This oversight is reflected

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in the current literature's almost exclusive focus on populations from North America and Western Europe—the cultural groups often referred to as Western, Educated, Industrialized, Rich, and Democratic (WEIRD; Henrich et al., 2010). For example, most studies included in the meta-analysis above (96.8%) were based on Western populations. Therefore, there is an urgent need to re-assess the mortality risk of loneliness based on more culturally inclusive research that goes beyond the boundary of WEIRD societies. The present research aimed to fill this gap by examining the extent to which loneliness is associated with 10-year all-cause mortality in two Western (England and the United States) and two non-Western (Korea and Mexico) countries using a harmonized cross-national dataset from longitudinal cohort studies of aging.

We theorized that the extent to which loneliness poses a mortality risk may vary by cultural contexts, depending on each culture's emphasis on individualism versus collectivism (Hofstede, 1980; Markus & Kitayama, 1991; Triandis, 1995). Individualism is comprised of a constellation of ideas, values, and practices that prioritize and centralize the individual self over the groups to which one belongs. In individualistic societies, there is a strong emphasis on independence and separateness of the self from the relational contexts. These societies include the United States and many Western European countries, such as England. In contrast, collectivism is comprised of a set of ideas, values, and practices that prioritize and highlight one's relationships with others over the personal self. In collectivistic societies, the self is thought to be embedded in a nexus of social relations and critically defined by its relational attributes, such as social roles and social status. Typical examples include East Asian (e.g., Korea) and Latin American countries (e.g., Mexico).

A growing number of studies highlight the importance of sociocultural contexts in the experience or manifestation of loneliness, but most of these studies focused on identifying cultural variations in the prevalence of loneliness as a function of individualism–collectivism. The evidence so far is mixed, with some studies reporting higher levels of loneliness in individualistic (vs. collectivistic) countries (Barreto et al., 2021; Van Tilburg et al., 2004), while others documenting the opposite (Fokkema et al., 2012; Lykes & Kemmelmeier, 2014). Yet little is known about whether these cultural values also moderate the health risk of loneliness. Here, we hypothesized that individuals from collectivistic societies would be more vulnerable to the mortality risk of loneliness compared to those from individualistic societies. In addition to personal dissatisfaction with the achieved level of social connection, loneliness may create another layer of burden in collectivistic societies by highlighting one's failure to achieve their cultural mandate to establish social connection and maintain social harmony. When failing to meet one's cultural ideals, this perception will elicit a strong sense of threat as it invalidates one's recognition of the self as an adequate, competent, and respected member of the group (Yoo & Miyamoto, 2018). The recurrent experiences of self-threat may in turn incur a wide range of health problems (Kitayama et al., 2010; Levine et al., 2016), including physiological threat responses (Park et al., 2020). If sustained over time, these experiences may ultimately lead to premature death.

Two recent studies provide suggestive evidence for this hypothesis. First, Beller and Wagner (2020) tested the prospective impact of loneliness on various health measures in 14 European countries and found that loneliness predicted worse health 8 years later across all countries, such as impaired daily functioning, memory loss, and decreased life satisfaction. Importantly, these associations were moderated by the

country-level individualism (vs. collectivism), such that the adverse health impact of loneliness was greater in countries with lower individualism (vs. collectivism) scores. Second, S. H. Lee et al. (2021) tested immune gene expressions of leukocytes as a biomarker of health risk of loneliness in a sample of Koreans with varying levels of cultural orientation. Their study was built on prior Western-based evidence that loneliness is associated with increased expression of the conserved transcriptional response to adversity (CTRA) transcriptome profile (Cole et al., 2007, 2011, 2015). The CTRA is characterized by up-regulation of transcription of genes involved in pro-inflammatory responses and down-regulation of genes involved in antibody synthesis (Slavich & Cole, 2013), and thus, the Cole et al. evidence is consistent with the view that the prolonged experiences of loneliness exacerbates threat-related biological responses. S. H. Lee et al. (2021) replicated the loneliness-CTRA association among Koreans, but importantly, this association was evident only among collectivistic (vs. individualistic) Koreans. These results suggest that the failure to achieve one's desired social connection is biologically more threatening for certain individuals, who believe that their cultural contexts emphasize and normatively sanction social interdependence.

Considering that the CTRA may serve as one potential molecular mechanism that contributes to the adverse health impact of loneliness (Cole et al., 2007, 2011, 2015), it stands to reason that the mortality risk of loneliness should also vary by cultural contexts as a function of their emphasis on individualism versus collectivism. Thus, the goal of the present research was to test the hypothesis that loneliness would be associated with greater mortality risk at a 10-year follow-up in collectivistic (vs. individualistic) societies. To test this hypothesis, we utilized data from a multi-site harmonization project based on a nationally representative U.S. population-based survey of aging, the Health and Retirement Study (HRS), and its international sister surveys from England, Korea, and Mexico. This allowed us to directly compare the 10-year mortality risk of loneliness across four countries, including two individualistic countries (England and the United States) and two collectivistic countries (Korea and Mexico).

Method

Participants

The harmonized dataset was obtained from the Gateway to Global Aging Data (Gateway; <https://g2aging.org>)—a metadata resource developed to facilitate cross-national analyses on aging based on the HRS family of surveys. Given our goal to compare the mortality risk of loneliness across cultural contexts, we selected four surveys that included all relevant variables including various covariates (see below for measures)—the HRS, the English Longitudinal Study of Aging (ELSA), the Korean Longitudinal Study of Aging (KLoSA), and the Mexican Health and Aging Study (MHAS).

The HRS is a nationally representative longitudinal survey based on United States residents aged 51 years or older and their spouses of any age. Since this study launched in 1992, the original sample has been followed up biennially. The ELSA, KLoSA, and MHAS are the international sister surveys of the HRS, which began in 2002, 2006, and 2001 in England, Korea, and Mexico, respectively, with minor differences in age eligibility (50 or older for the ELSA and MHAS and 45 or older for the KLoSA). To ensure comparability in key measures across the surveys and their timeline of administration as much as possible, we utilized the data collected during the 2001 wave of the MHAS, the 2002 wave of the ELSA, and the 2006

waves of both the HRS and KLoSa. For all four cohorts, their mortality status was checked at each follow-up through 10 years following their respective baseline.

Our analysis was based on respondents who completed a loneliness measure at baseline and whose 10-year mortality status was identified. Given the cross-survey differences in age eligibility, the analysis was limited to those who were aged 50 or older at their baseline to match respondents' age as closely as possible across the surveys. This left us a total of 41,869 respondents as the final sample (with the age range from 50 to 106 at baseline), including 16,300 from the HRS (9,683 females, $M_{\text{age}} = 68.28$, $SD_{\text{age}} = 10.25$), 7,932 from the ELSA (4,298 females, $M_{\text{age}} = 65.62$, $SD_{\text{age}} = 10.43$), 6,532 from the KLoSa (3,622 females, $M_{\text{age}} = 65.02$, $SD_{\text{age}} = 9.72$), and 11,105 from the MHAS (6,093 females, $M_{\text{age}} = 62.54$, $SD_{\text{age}} = 9.32$).

Measures

Loneliness

For all cohorts, loneliness was assessed at their baseline with a single-item question on whether they ever felt lonely. The responses were made on a binary scale (0 = *not lonely or feel lonely very rarely*, 1 = *feel lonely*) in the HRS, ELSA, and MHAS, while a 4-point Likert scale was used in the KLoSa (1 = *very rarely*, 4 = *almost always*). To make the responses comparable across the countries, Korean respondents' scores were recoded into a binary variable, with those who had selected 1 from the original 4-point scale being coded as 0, while the rest (who had selected 2 or above) being coded as 1 (see Steptoe et al., 2013; Wickens et al., 2021 for the similar approach). Studies verified that this single-item version is comparable to the multi-item measures of loneliness (e.g., the Rasch-Type Loneliness Scale; De Jong-Gierveld & Kamphuis, 1985 and the University of California, Los Angeles Loneliness Scale; Russell et al., 1980) in their psychometric properties, such as construct validity and test-retest reliability (Mund et al., 2023; see also Shiovitz-Ezra & Ayalon, 2012; von Soest et al., 2020). The convergent and discriminant validity of this scale has also been established in multiple studies, including one recent study based on large population-based data with varying age groups (Reinwarth et al., 2023). The translated version of this scale has also been widely used in non-English-speaking countries, including Korea (Kim et al., 2021; J. Lee et al., 2023) and Mexico (Smith et al., 2021; Vancampfort et al., 2019).

Mortality

We assessed 10-year mortality based on the registry follow-up data (Exit Dataset), which covered the years from 2001 to 2011 for the MHAS, from 2002 to 2012 for the ELSA, and from 2006 to 2016 for the HRS and KLoSa. Each respondent's mortality status was determined based on national vital statistics records (e.g., the National Death Index for the HRS) or next-of-kin reports. In total, 11,577 respondents (27.7% of the total sample) deceased in the 10-year follow-up period, including 5,247 from the HRS, 2,295 from the ELSA, 1,471 from the KLoSa, and 2,564 from the MHAS.

Covariates

We controlled for a set of variables from the baseline that might influence the relationship between loneliness and mortality, including

(a) demographic variables (gender, age, educational attainment, and relationship status), (b) health behaviors (smoking status and alcohol consumption), and (c) health conditions (self-rated health, functional limitations, and chronic conditions). For cross-national consistency, we used a harmonized variable of educational attainment, recoded into three categories (1 = *less than upper secondary*, 2 = *upper secondary and vocational*, and 3 = *tertiary*). Relationship status was coded into two groups: (1) *currently in a long-term committed relationship or married* versus (0) *other; never married, married but the spouse is absent, divorced, separated, or widowed*. Smoking status and alcohol consumption were assessed on two binary variables, pertaining to whether respondents are current smokers and whether they ever drank any alcohol (0 = *no*, 1 = *yes*), respectively. Finally, health conditions were assessed with three measures. First, self-reported general health was measured with a single-item question on a 5-point scale (1 = *excellent*, 5 = *poor*). Second, respondents reported any difficulty they experienced performing two types of daily activities (0 = *no*, 1 = *yes*) "because of physical, mental, emotional, or memory problems," including difficulties in (a) activities of daily living (Katz et al., 1970; e.g., dressing, eating, and walking across a room) and (b) instrumental activities of daily living (Lawton & Brody, 1969; e.g., shopping for groceries, making telephone calls, and taking medications). For cross-national consistency, we selected five items from activities of daily living and four items from instrumental activities of daily living, which were included in all four surveys, and then computed a composite index of functional limitations by summing these responses (with the range of 0–9). Third, chronic conditions were assessed as self-reports of whether or not a doctor diagnosed hypertension, diabetes, cancer, lung disease, heart problems, stroke, or arthritis (up to seven chronic conditions).

See Table 1 for descriptive statistics of key variables in four countries.

Analytic Strategies

We used Cox proportional hazard models to test the effect of loneliness on all-cause mortality at the 10-year follow-up. Survival time was the number of years from the baseline survey to death (up to 10 years). For respondents who were alive at the 10-year follow-up, their survival time was right-censored at the end of the follow-up. First, we conducted a country-wise analysis to estimate the hazard ratio (HR) of all-cause mortality associated with loneliness and its 95% confidence interval (CI) in each country. Specifically, we tested a three-step Cox proportional hazard model that varied in the covariates included in each step. In Model 1, we entered loneliness as a key predictor along with four demographic variables (gender, age, educational attainment, and relationship status) as covariates. For loneliness, those who were not lonely at baseline (coded as 0) were used as a reference category. Model 2 included two health behaviors (smoking status and alcohol consumption) as additional predictors. Finally, in Model 3 we additionally adjusted for the effects of three health conditions (self-rated health, functional limitations, and chronic conditions). All predictor variables were entered into a single model for each country but sequentially in three steps.

Second, we ran a cross-cultural analysis that included an interaction effect between country and loneliness to formally test whether the mortality risk of loneliness is statistically different across countries. We created three dummy-coded variables for country, with Korea serving as a reference group, contrasted with each of the remaining three countries

Table 1
Descriptive Statistics for Study Variables in Four Cultural Groups

Characteristics	England: <i>n</i> = 7,932	United States: <i>n</i> = 16,300	Mexico: <i>n</i> = 11,105	Korea: <i>n</i> = 6,532
Gender, <i>n</i> (% female)	4,298 ^a (54.2%)	9,683 ^b (59.4%)	6,093 ^a (54.9%)	3,622 ^a (55.5%)
Age at baseline (years), <i>M</i> (<i>SD</i>)	65.62 ^a (10.43)	68.28 ^b (10.25)	62.54 ^c (9.32)	65.02 ^d (9.72)
Educational attainment, <i>M</i> (<i>SD</i>)	1.69 ^a (0.70)	1.99 ^b (0.65)	1.15 ^c (0.51)	1.36 ^d (0.61)
Relationship status, <i>n</i> (% in relationship)	5,363 ^a (67.6%)	10,430 ^b (64.0%)	7,828 ^c (70.5%)	4,979 ^d (76.2%)
Smoking status, <i>n</i> (% current smoker)	1,345 ^a (17.0%)	2,211 ^b (13.6%)	1,894 ^a (17.1%)	1,950 ^c (29.9%)
Alcohol consumption, <i>n</i> (% yes)	7,006 ^a (88.3%)	8,225 ^b (50.5%)	3,430 ^c (30.9%)	2,334 ^d (35.7%)
Self-rated health, <i>M</i> (<i>SD</i>)	2.80 ^a (1.12)	2.86 ^b (1.11)	3.73 ^c (0.85)	3.79 ^d (1.01)
Functional limitations, <i>M</i> (<i>SD</i>)	0.58 ^a (1.33)	0.52 ^b (1.32)	0.36 ^c (1.19)	0.43 ^d (1.49)
Chronic conditions, <i>M</i> (<i>SD</i>)	1.09 ^a (1.06)	1.87 ^b (1.33)	0.90 ^c (0.95)	0.79 ^d (0.93)
Loneliness, <i>n</i> (% yes)	1,111 ^a (14.0%)	2,907 ^b (17.8%)	3,741 ^c (33.7%)	2,033 ^d (31.1%)
Mortality, <i>n</i> (% deceased)	2,295 ^a (28.9%)	5,247 ^b (32.2%)	2,564 ^c (23.1%)	1,471 ^c (22.5%)
Survival time (years), <i>M</i> (<i>SD</i>)	5.35 ^a (2.77)	5.36 ^a (2.90)	5.74 ^b (2.98)	5.66 ^b (2.74)

Note. Statistical differences are denoted as alphabetical letters.

(England, the United States, or Mexico). The three cross-product terms between loneliness and the dummy-coded variables of the country were then computed as interaction terms. If the omnibus interaction effect that combines all three interaction terms proved statistically significant (Country \times Loneliness), it would indicate that the mortality risk of loneliness differs significantly across countries. In a three-step Cox proportional hazard model, we entered the main effects of country and loneliness and their interactions as key predictors in Model 1 along with the demographic covariates as additional predictors. The effects of health behaviors and health conditions were additionally adjusted in Models 2 and 3, respectively.

Results

Descriptive Statistics

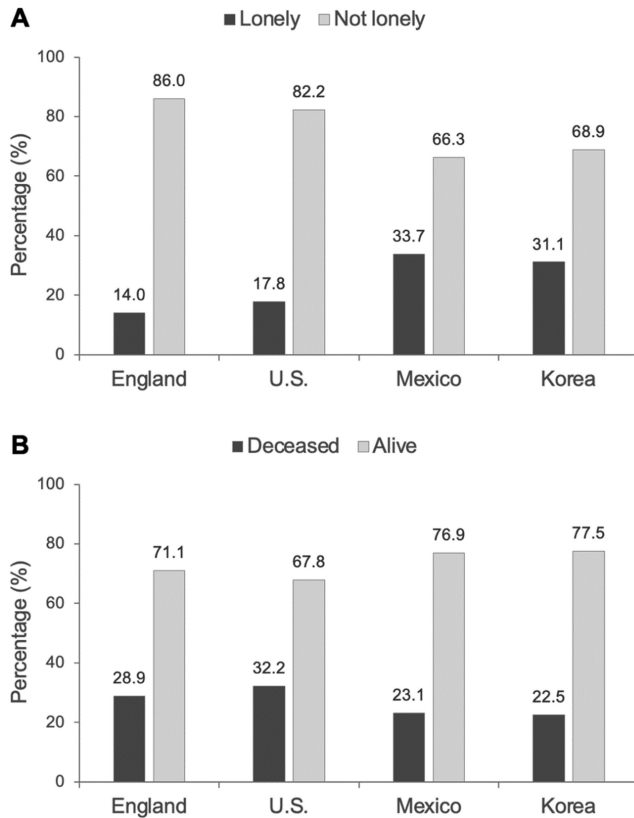
Before conducting the main analysis, we tested whether the four cultural groups differed in key study variables. First, a logistic regression analysis showed that the odds of being lonely at baseline differed significantly across the four countries, $\chi^2(3, N = 41,869) = 1,491.83$, $p < .001$. As displayed in Figure 1A, the percentage of people who reported being lonely at baseline was highest in Mexico (33.7%), followed by Korea (31.1%), the United States (17.8%), and then England (14.0%). All pairwise comparisons were statistically significant, $ps < .001$. For example, compared to the British as a reference group, Americans, Koreans, and Mexicans were 1.3 times, 2.8 times, and 3.1 times as likely to be lonely at their baseline, respectively.

Second, the mortality status also varied by country, $\chi^2(3, N = 41,869) = 373.26$, $p < .001$. The percentage of respondents who were deceased during the 10-year follow-up period was highest in the United States (32.2%), followed by England (28.9%), Mexico (23.1%), and Korea (22.5%; see Figure 1B). The latter two groups

did not differ from each other, but all other pairwise comparisons were significant, $ps < .001$. For example, compared to Americans, British, Mexicans, and Koreans had a 14.2%, 36.8%, and 38.8% decrease in the odds of dying during the follow-up period, respectively. Among those who were deceased, their survival time also varied across countries, $F(3, 11,573) = 13.63$, $p < .001$, $\eta_p^2 = .00$, 90% CI [0.00, 0.01]. The survival time was longer in Mexico ($M = 5.74$, $SE = 0.06$) and Korea ($M = 5.66$, $SE = 0.08$) compared to the United States ($M = 5.36$, $SE = 0.04$) and England ($M = 5.35$, $SE = 0.06$), $ps \leq .001$. The four groups also differed in several demographic characteristics and other covariates (see Table 1 for group differences denoted as alphabetical letters).

Mortality Risk of Loneliness in Each Country

For our main analysis, we first conducted the country-wise analysis to estimate the HR of loneliness in predicting 10-year all-cause mortality in each country. The three-step Cox proportional hazard model showed that after adjustment of demographic variables in Model 1, loneliness was significantly associated with increased mortality in all four countries, with HRs of 1.16 in England (95% CI [1.04, 1.30]), 1.23 in the United States (95% CI [1.15, 1.31]), 1.21 in Mexico (95% CI [1.12, 1.32]), and 1.53 in Korea (95% CI [1.38, 1.70]), $ps < .009$ (see Table 2 for full statistics). As displayed in Figure 2A, loneliness at baseline was associated with a 16%, 23%, 21%, and 53% increased risk of mortality in England, the United States, Mexico, and Korea, respectively. The HRs were somewhat attenuated after adjustment of health behaviors in Model 2, but they were still significant in all countries, with the HRs of 1.13 (95% CI [1.01, 1.26]) in England, 1.21 (95% CI [1.13, 1.29]) in the United States, 1.21 (95% CI [1.11, 1.31]) in Mexico, and 1.51 (95% CI [1.36, 1.68]) in Korea, $ps < .041$ (see Figure 2B).

Figure 1(A) *Loneliness at Baseline and (B) Mortality Status at the 10-Year Follow-Up in Four Countries*

When health conditions were additionally controlled in Model 3, the HRs were no longer significant in England, the United States, and Mexico, HRs = 0.98 (95% CI [0.88, 1.10]), 0.98 (95% CI [0.92, 1.05]), and 1.02 (95% CI [0.94, 1.12]), $p > .575$, suggesting that the association between loneliness and increased mortality was largely accounted for by baseline health in these countries (see Figure 2C). In contrast, the HR remained highly significant in Korea, HR = 1.27, 95% CI [1.14, 1.42], $p < .001$ (see Table S1 in the online supplemental materials for the results including all covariates). That is, among Koreans, loneliness was associated with a 27% increased risk of mortality even after adjustment of baseline health conditions.

Cross-Cultural Comparisons

Next, we tested the three-step Cox proportional hazard model that included the interaction terms to formally test whether the cultural differences observed above are statistically significant. Given that the HR of loneliness was descriptively higher in Korea compared to the HRs in the other countries (see Figure 2), we used Korea as a reference group and created three dummy-coded variables contrasting Korea with each of the other countries. The three cross-product terms between loneliness and the dummy-coded variables of the country were then entered as interaction terms.

This analysis yielded significant main effects of both country and loneliness in all three models, $\chi^2(3, N = 40,715) > 15.17$, $p < .001$ (see Table 3 for full statistics).¹ Importantly, these effects were qualified

by a significant omnibus Country \times Loneliness interaction effect in all models, $\chi^2(3, N = 40,715) > 14.22$, $p < .003$. The omnibus interaction was driven by the fact that all three cross-product terms between loneliness and the dummy-coded variables of the country were statistically significant. That is, in all models, Korea was significantly different from each of the other three countries in their mortality risk of loneliness. For example, in the fully adjusted model, the HR of loneliness was significantly higher in Korea, compared to the HRs in England (HR = 0.80, 95% CI [0.69, 0.93], $p = .003$), the United States (HR = 0.80, 95% CI [0.71, 0.91], $p < .001$), and Mexico (HR = 0.81, 95% CI [0.72, 0.93], $p = .002$).

Given this pattern of results, we conducted a post-hoc contrast analysis comparing Korea with the other three countries as a combined group. The interaction between this contrast and loneliness was statistically significant in all three models, $\chi^2(1) > 13.74$, $p < .001$ (see Table 4 for full statistics). That is, compared to the other three groups combined, Koreans were at a greater risk of mortality when feeling lonely. Of note, as part of this analysis, we also tested another contrast by comparing two individualistic countries with two collectivistic countries to test our a priori hypothesis that the HRs of loneliness would be higher in collectivistic (vs. individualistic) countries. The interaction between loneliness and this contrast also proved to be significant in all models, $\chi^2(1) > 5.20$, $p < .023$. Yet, as is apparent from the foregoing analysis, this interaction effect was driven by the difference between Korea and the other three countries.

Robustness Checks

We conducted three sets of sensitivity analyses to test the robustness of our results. First, instead of using the binary variable of loneliness among Koreans, we analyzed the raw data based on the 4-point continuous scale. The HR was somewhat attenuated, but nevertheless, it was still significant in all three models, HRs = 1.30 (95% CI [1.22, 1.38]), 1.28 (95% CI [1.20, 1.36]), and 1.14 (95% CI [1.07, 1.22]), $p < .001$, for Models 1, 2, and 3, respectively.

Second, one might argue that the directionality of our result is unclear, especially for those who died shortly after their completion of the baseline survey. That is, some respondents may have had life-threatening health conditions prior to their assessment of loneliness. As an attempt to address this issue, we re-did our analysis by excluding early deaths that occurred during the first 2 years following the baseline ($N = 1,275$; see Steptoe et al., 2013 for the same approach), and the results were no different. The Country \times Loneliness interaction was significant in all models, $\chi^2(3, N = 39,472) > 13.55$, $p < .004$. For example, in the fully adjusted model, the relationship between loneliness and mortality was only significant in Korea, HR = 1.25, 95%

¹ Since we used the dummy-coded variables of the country with Korea being the reference group, the significant main effect of loneliness represents the mortality risk of loneliness among Koreans net of other predictors. To estimate the HR of loneliness for the entire sample collapsing all cultural groups, we tested another model using effect-coded variables of country, which involved a comparison between each country and the grand mean. This model also showed a significant main effect of loneliness both in Models 1 and 2; loneliness was significantly associated with increased 10-year mortality for the entire sample, after controlling for demographic variables in Model 1 and health behaviors in Model 2, with HRs of 1.28 and 1.25, respectively. However, this effect was no longer significant after adjustment of health conditions in Model 3 (HR = 1.04; see Table S2 in the online supplemental materials for full statistics).

Table 2*Results From the Culture-Wise Analysis*

Country	Model 1			Model 2			Model 3		
	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>
England	6.73	1.16 [1.04, 1.30]	.009	4.19	1.13 [1.01, 1.26]	.041	0.10	0.98 [0.88, 1.10]	.748
United States	34.29	1.23 [1.15, 1.31]	<.001	29.35	1.21 [1.13, 1.29]	<.001	0.29	0.98 [0.92, 1.05]	.593
Mexico	21.12	1.21 [1.12, 1.32]	<.001	19.61	1.21 [1.11, 1.31]	<.001	0.31	1.02 [0.94, 1.12]	.575
Korea	61.66	1.53 [1.38, 1.70]	<.001	57.78	1.51 [1.36, 1.68]	<.001	17.67	1.27 [1.14, 1.42]	<.001

Note. *N*s = 7,245, 16,156, 10,782, and 6,532 for England, the United States, Mexico, and Korea, respectively. Demographic variables were controlled in Model 1 and health behaviors and health conditions were additionally controlled in Models 2 and 3, respectively. HR = hazard ratio; CI = confidence interval.

CI [1.12, 1.41], $p < .001$, but not in the other countries, HRs < 1.02 , $ps > .493$.

Third, when we controlled for body mass index, as a proxy for obesity, this did not change the pattern of our results (see Table S3 in the online supplemental materials for the results with this covariate included). We elected not to include this covariate in the main analysis as there were many missing values (27.3% of the total sample), resulting in a substantially smaller sample size for the analysis including this covariate. In addition, the majority of respondents were White both in England (98.1%) and the United States (81.3%). When race (0 = *White*, 1 = *non-White*) was additionally controlled in these countries, the results were no different (see Table S4 in the online supplemental materials).²

Korea Versus Mexico: Why Do They Differ?

One unexpected pattern that emerged from our main analysis was that people from two collectivistic countries were not similarly vulnerable to the mortality risk of loneliness. When we isolated the Mexican and Korean samples and re-did the analysis, the Country \times Loneliness interaction proved highly significant in all three models (see Table S6 in the online supplemental materials). Consistent with the pairwise comparison results above, Koreans were more vulnerable to the mortality risk of loneliness than Mexicans. As a potential clue to understanding this curious dissociation between these countries, we examined whether their sample characteristics influenced our results.

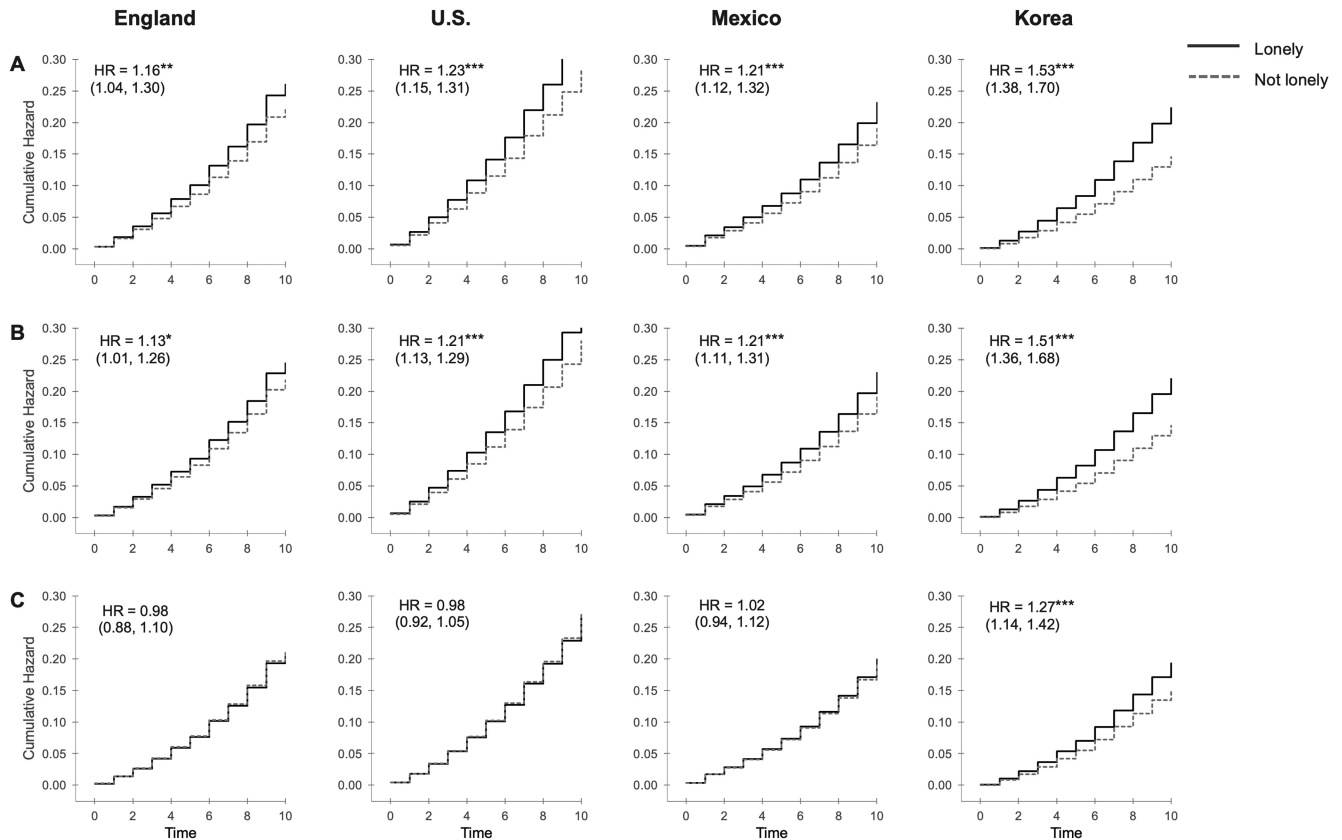
As shown in Table 1, the two cultural groups differed in several demographic variables, such as age, educational attainment, and relationship status, with Mexicans being younger, lower in educational attainment, and being in a long-term committed relationship less than Koreans, $t(13234.75) = -16.63$, $t(11821.11) = -23.12$, and $\chi^2(1, N = 17,637) = 67.77$, $ps < .001$. Compared to Koreans, Mexicans also engaged less in unhealthy behaviors, such as smoking and alcohol consumption, $\chi^2(1, N = 17,637) = 386.17$ and 43.66 , $ps < .001$. In addition, Mexicans were healthier than Koreans when self-rated health and functional limitations were tested, $t(17633) = -4.11$ and $t(17608) = -3.74$, $ps < .001$, but this pattern was reversed for chronic conditions, $t(17358) = 6.96$, $p < .001$, with Mexicans having more doctor-diagnosed chronic conditions than Koreans. To compare the two cultural groups in their overall health encompassing these three aspects of health, we performed a principal component analysis and found that the three health measures loaded on a single factor for the entire sample (constituting 50.7% of the total variance). When the factor scores drawn from this principal component analysis were tested as a composite index of health, the two cultural groups were not significantly different from each other, $t(17330) = -0.56$, $p = .576$.

We next explored whether any of the sample differences identified above moderated the association between loneliness and mortality among the combined sample of Mexicans and Koreans, and found significant moderations by both age and educational attainment, $\chi^2(1, N = 17,314) = 5.29$, $p = .021$ and $\chi^2(1, N = 17,314) = 10.45$, $p = .001$, respectively.^{3,4} First, respondents who were younger

² As another way to check the robustness of our results, we also controlled for physical activity as an additional index of health behaviors, assessed as self-reported frequency of participation in vigorous exercise or activities. Since the response scale varied across the surveys, we recoded the original responses into a dichotomous variable: (1) *those who engage in vigorous activity more than once a week* versus (0) *others*, except that for the MHAS, a slightly different response scale was used for the dichotomous variable ([1] *vigorous activity at least three times per week* or [0] *not*). The results remained unchanged when this additional covariate was included in the analysis (see Table S5 in the online supplemental materials), but caution is needed in interpreting this result given that the recoded score of 1 (engaging in vigorous activity) represents different values across cultures (i.e., three times per week in Mexico while once a week in the other countries).

³ For the simplicity of interpretation, we report the moderation results based on the base model (Model 1) in the main document. See the online supplemental materials for the results from Models 2 and 3, which were largely consistent. For an exploratory purpose, we also tested similar moderating effects for the entire sample combining all cultural groups. Gender did not moderate the loneliness-mortality link among the entire sample, but age, education, and relationship status did. Overall, those who were younger, more educated, and were in long-term committed relationships were more vulnerable to the mortality risk of loneliness (see the online supplemental materials for more details).

⁴ We further tested if baseline health moderated the association between loneliness and mortality among this combined sample. Although the two cultural groups did not differ in the composite index of health, they were significantly different in each health facet (with Mexicans reporting better subjective health and fewer functional limitations, but more chronic conditions than Koreans). We thus tested their moderating effects separately (see Table S7 in the online supplemental materials). First, the moderation by self-rated health was not significant in all three models. Second, we found a significant moderation by functional limitations in Models 1 and 2, but this moderation disappeared in Model 3 when the other health measures were additionally controlled. The moderation shown in Models 1 and 2 suggests that the mortality risk of loneliness was greater among those with fewer functional limitations. Third, a similar moderation, observed for functional limitations, was also found for chronic conditions (i.e., those with fewer chronic conditions exhibiting a greater mortality risk of loneliness), but this effect only emerged in Model 3, but not in Models 1 and 2. Taken together, evidence points to the conclusion that there is no systematic moderation by baseline health on the relationship between loneliness and mortality. Regardless of which health variable to test, there was no evidence that better baseline health attenuated the mortality risk of loneliness. The opposite pattern of the relationship was observed for functional limitations and chronic conditions, but even this evidence does not appear robust as the results largely depended on which covariates were included in the analysis.

Figure 2*Interaction Plots Depicting the HR of Loneliness in Four Countries*

Note. Panels A, B, and C depict Models 1, 2, and 3, respectively. The numbers in parentheses indicate 95% CIs. HR = hazard ratio; Time = follow-up time in years; CIs = confidence intervals.

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

(1 *SD* below the mean) were at a greater mortality risk of loneliness compared to those who were older (1 *SD* above the mean), HRs = 1.51, 95% CI [1.33, 1.72] versus 1.32, 95% CI [1.23, 1.41]. This moderation by age, however, is unlikely to explain why Koreans were more vulnerable to the mortality risk of loneliness than Mexicans, given that our Korean sample was older (not younger) than the Mexican sample. Second, individuals with higher education levels exhibited a greater risk of mortality compared to those with lower education levels, HRs = 1.56, 95% CI [1.39, 1.75] versus 1.20, 95% CI [1.09, 1.31]. As identified above, Koreans were higher in educational attainment than Mexicans. This sample difference in educational attainment may then provide a clue as to why these two groups were differentially vulnerable to the mortality risk of loneliness, despite their cultures' shared emphasis on collectivism. We return to these results in the discussion section.

Discussion

Mortality Risk of Loneliness: The Cultural Moderation

Does loneliness predict premature death? Much prior research suggests so, but this evidence draws primarily on populations from individualistic societies, such as North America and Western

Europe. Here, we extend the scope of this evidence by conducting a large-scale cross-cultural analysis of 41,869 adults from two individualistic countries (England and the United States) and two collectivistic countries (Korea and Mexico). Our analysis first showed that these four countries significantly vary in their levels of loneliness, with greater percentages of people who reported feeling lonely at baseline in Mexico (33.7%) and Korea (31.1%) than in the United States (17.8%) and England (14.0%). This result is consistent with some cross-cultural evidence that the prevalence of loneliness tends to be higher in collectivistic (vs. individualistic) countries (Fokkema et al., 2012; Lykes & Kemmelmeier, 2014).

Yet the most important contribution of our work is to demonstrate that the relationship between loneliness and mortality also varies by cultural contexts. The 10-year mortality risk of loneliness was evident in all four countries, but the risk was greater than twofold in Koreans than in the other cultural groups. For example, after controlling for demographic variables and health behaviors in Model 2, loneliness was associated with a 13%, 21%, and 21% increased mortality risk in England, the United States, and Mexico, respectively, while it was associated with a 51% increased risk in Korea—the hazard level that exceeds more than two times the average risk reported in the aforementioned meta-analysis primarily based on Western populations (HR = 1.22; Rico-Uribe et al., 2018). When health conditions

Table 3
Results From the Cross-Cultural Analysis

Predictors	Model 1			Model 2			Model 3		
	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>
Main effect of country	127.14		<.001	239.12		<.001	198.03		<.001
Contrast 1 (C1)	95.93	1.53 [1.41, 1.67]	<.001	207.01	1.92 [1.75, 2.09]	<.001	197.51	1.91 [1.75, 2.10]	<.001
Contrast 2 (C2)	114.20	1.55 [1.43, 1.67]	<.001	186.42	1.75 [1.62, 1.90]	<.001	109.46	1.58 [1.45, 1.72]	<.001
Contrast 3 (C3)	38.18	1.32 [1.21, 1.44]	<.001	65.18	1.44 [1.31, 1.57]	<.001	86.32	1.52 [1.39, 1.66]	<.001
Main effect of loneliness	65.81	1.53 [1.38, 1.70]	<.001	64.70	1.53 [1.38, 1.69]	<.001	15.17	1.23 [1.11, 1.36]	<.001
Interaction effect	18.21		<.001	20.46		<.001	14.22		.003
C1 × Loneliness	11.85	0.77 [0.67, 0.89]	<.001	14.14	0.75 [0.65, 0.87]	<.001	8.62	0.80 [0.69, 0.93]	.003
C2 × Loneliness	11.73	0.81 [0.72, 0.91]	<.001	14.29	0.79 [0.70, 0.89]	<.001	12.63	0.80 [0.71, 0.91]	<.001
C3 × Loneliness	15.60	0.77 [0.68, 0.88]	<.001	16.37	0.77 [0.67, 0.87]	<.001	9.57	0.81 [0.72, 0.93]	.002

Note. $N = 40,715$. Three dummy-coded variables were created with Korea serving as a reference group. Contrast 1 (England = 1, United States = 0, Mexico = 0, Korea = 0) represents the comparison between England and Korea. Contrast 2 (England = 0, United States = 1, Mexico = 0, Korea = 0) represents the comparison between the United States and Korea. Contrast 3 (England = 0, United States = 0, Mexico = 1, Korea = 0) represents the comparison between Mexico and Korea. Demographic variables were controlled in Model 1 and health behaviors and health conditions were additionally controlled in Models 2 and 3, respectively. HR = hazard ratio; CI = confidence interval.

were additionally controlled in Model 3, the HR remained significant in Korea (HR = 1.27), while the same effect became negligible in the other three countries. That is, net of demographic characteristics, health behaviors, and health conditions, Koreans who felt lonely at baseline were 1.27 times more likely to die within 10 years compared to those who were not lonely. Of note, this cultural difference was unlikely driven by the cross-survey differences in loneliness assessment, as the results did not depend on whether loneliness was analyzed as a binary or continuous variable among Koreans.

Why Does Culture Matter?

Then, what accounts for this striking cultural difference? Korea is one of the most collectivistic (or least individualistic) countries, especially in comparison to many Western countries (i.e., Hofstede's individualism vs. collectivism score of 18 in Korea vs. 89 and 91 in Great Britain and the United States, respectively). In such collectivistic societies, people develop and maintain their positive self-identities through their embeddedness in meaningful social relationships. Accordingly, these individuals are highly attuned to signs of social

disengagement, such as perceived rejection from others (Park & Kitayama, 2014). Initial vigilance to such social threats might be adaptive as it can facilitate adequate actions needed to regain social connection (J. T. Cacioppo et al., 2014). However, chronic hypervigilance is likely maladaptive, as it will constantly signal one's failure to achieve their cultural mandate to maintain social harmony. When becomes excessive, this experience of cultural misfit or incongruence can entail negative health consequences (Yoo & Miyamoto, 2018), to the point that it may ultimately lead to premature death, possibly via exacerbating threat-related biological responses, such as up-regulation of CTRA gene expression (S. H. Lee et al., 2021).

Our Korean data proved consistent with this hypothesis. Curiously, however, the mortality hazard of loneliness in Mexico, another collectivistic country (with Hofstede's individualism score of 30), was substantially lower, and in fact, it was no different from the risks in the United States and England. One potential clue to understanding this unexpected finding may lie in the differences in sample characteristics between Mexico and Korea. The two groups were different in several demographic variables, including age and education, both of which moderated the loneliness-mortality

Table 4
Results From the Post Hoc Contrast Analysis

Predictors	Model 1			Model 2			Model 3		
	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>	Wald	HR [95% CI]	<i>p</i>
Main effect of country	127.14		<.001	239.12		<.001	198.03		<.001
Contrast 1 (C1)	98.25	0.32 [0.26, 0.40]	<.001	182.70	0.21 [0.17, 0.26]	<.001	163.28	0.22 [0.17, 0.28]	<.001
Contrast 2 (C2)	107.33	0.56 [0.50, 0.62]	<.001	211.47	0.43 [0.38, 0.48]	<.001	121.42	0.50 [0.44, 0.57]	<.001
Contrast 3 (C3)	61.03	1.83 [1.57, 2.13]	<.001	74.98	1.96 [1.68, 2.28]	<.001	13.06	1.36 [1.15, 1.61]	<.001
Main effect of loneliness	103.81	1.28 [1.22, 1.34]	<.001	90.19	1.25 [1.20, 1.31]	<.001	3.34	1.05 [1.00, 1.10]	.067
Interaction effect	18.21		<.001	20.46		<.001	14.22		.003
C1 × Loneliness	17.68	2.08 [1.48, 2.93]	<.001	20.30	2.19 [1.56, 3.08]	<.001	13.74	1.91 [1.36, 2.68]	<.001
C2 × Loneliness	5.20	1.23 [1.03, 1.48]	.023	7.35	1.28 [1.07, 1.54]	.007	6.61	1.27 [1.06, 1.52]	.010
C3 × Loneliness	0.78	0.89 [0.69, 1.15]	.378	1.33	0.86 [0.67, 1.11]	.249	3.21	0.79 [0.61, 1.02]	.073

Note. $N = 40,715$. Three contrast-coded variables were created. Contrast 1 (England and the United States = 0, Mexico = $-1/4$, and Korea = $1/4$) represents the comparison between Korea and the other three countries. Contrast 2 (England = $-1/2$, United States = 0, Mexico = $1/2$, and Korea = 0) represents the comparison between two collectivistic (i.e., Mexico and Korea) and two individualistic (i.e., England and the United States) countries. Contrast 3 (England = $-1/4$, the United States = $1/4$, Mexico and Korea = 0) represents the comparison between the United States and the other three countries. Contrast 3 was included to ensure that the contrast matrix is invertible. Demographic variables were controlled in Model 1 and health behaviors and health conditions were additionally controlled in Models 2 and 3, respectively. HR = hazard ratio; CI = confidence interval.

link among the combined sample of Mexicans and Koreans. First, one might speculate that the mortality risk of loneliness was lower among Mexicans because they were younger (and thus were presumably healthier) than Koreans. Counter to this possibility, however, our analysis showed that it was younger (rather than older) adults who were more vulnerable to the mortality risk of loneliness (see also Lara et al., 2020). Thus, the age difference is unlikely to explain the curious dissociation we observed between the two countries.

Second, education also moderated the association between loneliness and mortality, such that those with higher levels of educational attainment were more vulnerable to the mortality risk of loneliness. Given that more than 90% of the Mexican respondents (91.3%) had less than upper secondary education (compared to 71.1% in Korea), it is possible that the sample difference in socioeconomic status (SES), or possibly unmeasured variables that may covary with it, may have contributed to the dissociation between the two countries, despite their cultures' shared emphasis on collectivism. It remains unclear why people with higher SES were more vulnerable to the health risk of loneliness, while those with lower SES were relatively resilient. One possibility is that due to their limited access to resources, people with lower SES may be required to prioritize meeting basic demands of life over fulfilling higher-order needs, such as engaging in satisfying social relationships. This analysis is consistent with what Durkheim claimed in his classic work (1897) that anomie, a psychological state of normlessness caused by extreme feelings of social alienation, contributes to unhealthy behaviors (e.g., suicide), only in the presence of economic success. This view is also consistent with recent evidence suggesting that certain psychological processes that are assumed to be maladaptive can in fact be less maladaptive (or even more adaptive) for those who are socioeconomically disadvantaged (e.g., Ross et al., 2019).

Yet another possibility is that loneliness may be less harmful, insofar as individuals are equipped with other kinds of coping resources that could buffer them against the potential risk of loneliness. One such type of coping resource that might be more readily available among those with lower SES is the amount of social support from *actual* social integration and embeddedness. Due to the scarcity of resources, people with lower SES must depend on others for survival. Such social dependence or attunement may motivate them to engage in wider social networks, maintain greater social contact, and exchange prosocial behaviors (Bianchi & Vohs, 2016; Kraus et al., 2012; Piff et al., 2012). Accordingly, the availability of social support or other types of social benefits that come with it (e.g., emotional, physical, or economic assistance) may mitigate the potential risk of feeling isolated. Future research is needed to test this possibility.

Other Cultural Values Beyond Individualism Versus Collectivism

Our theoretical framework was built on the cultural classification of individualism versus collectivism, but the four countries we tested must vary in a myriad of different ways, including their health care access or healthy life expectancy, which could possibly contribute to the current finding. Among these other factors, we focus on two other cultural values, beyond the dimension of individualism versus collectivism, as potential explanatory mechanisms. First, increasing research suggests that collectivism (or interdependence) is not monolithic but instead varies in its form across societies (Kitayama & Salvador, 2024; Kitayama et al., 2022; Salvador et al., 2024). For example, Salvador et al. (2024)

demonstrated that Latin American cultures are characterized by a distinct cultural profile of "expressive" interdependence, with a greater emphasis on expressions of socially engaging positive emotions, such as friendliness, compassion, and feelings of connection, as reflected in their cultural script of *simpatía* (Acevedo et al., 2020). The cultural emphasis on positive emotion sharing and compassion might serve as a protective factor against the health risk of loneliness in Mexico. Another source of the country differences may lie in their variation in uncertainty avoidance. Due to their hypervigilance to social threats, people who are lonely tend to perceive uncertain or ambiguous situations as aversive and threatening, and therefore, are highly motivated to avoid such situations (Barnett et al., 2019). Importantly, societies differ in their tolerance for uncertainty; individuals in tight societies tend to be less tolerant of uncertain situations compared to those in loose societies (Triandis, 1989). Notably, Korea is tighter in social norms compared to the other three countries we tested (Gelfand et al., 2011). Accordingly, socially threatening experiences, such as perceived social isolation, could have been more troubling for Koreans due to their high levels of uncertainty avoidance. This possibility must be tested in future work.

Loneliness and Mortality: What Is the Role of Health Conditions?

Our analysis showed that the relationship between loneliness and increased mortality was robust in all four countries after adjustment of demographic variables and health behaviors. However, when health conditions were additionally controlled, this relationship became negligible in three out of four countries. Since both loneliness and ill health are experienced as negative and undesirable, they are likely related for this semantic reason (Kitayama & Park, 2017). Accordingly, when the effects of subjective ill health are taken into account, this could attenuate the independent effect of loneliness. However, chronic conditions, one of our health measures, were based on the number of physician-diagnosed health problems, and thus, the semantic overlap between loneliness and subjective health, let alone, is unlikely to account for the null effect of loneliness in the fully adjusted model. Instead, this result lends itself to the possibility that the primary mechanism through which loneliness causes premature death is via exacerbating health problems. In support of this analysis, studies found that the relationship between loneliness and increased mortality is mediated, at least in part, by health conditions (Luo & Waite, 2014; Steptoe et al., 2013). Still another possibility is that loneliness is one of the characteristics of older adults with degrading health conditions, such that those who have health problems initially are more likely to feel lonely, which in turn, can exacerbate their health problems over time. Evidence exists in support of such reciprocal relationships (Fees et al., 1999; Luo et al., 2012). Altogether, then, the relationship between loneliness and health conditions seems more complex. Future research should test the temporal relation between loneliness and health using a cross-lagged design based on multiple waves of longitudinal data and further examine whether cultural contexts modulate both directional pathways.

Limitations and Future Directions

Several limitations of the present work must be acknowledged. First, our sensitivity analysis attempted to address the possibility of reverse causality (i.e., fatal health conditions, which preceded the assessment of loneliness, caused decreased longevity) by excluding early deaths

that occurred within the first 2 years following the baseline. Nonetheless, the direction of causality cannot be determined based on the current data alone. Second, our loneliness measure was based on a single-item question. Although the validity of this measure was confirmed in several studies (e.g., Mund et al., 2023; Reinwarth et al., 2023), our results must be replicated in future work with a multi-item scale of loneliness, after establishing its measurement equivalence across cultural contexts. In addition, we relied on self-report measures for several health-related variables, which may be prone to measurement errors. This limitation was necessitated by the availability of data within the surveys, and yet, future work must replicate the current finding using objective health measures as covariates. Finally, although people lacking social integration often feel lonely, studies report that the correlation between actual and perceived social isolation is surprisingly low (Coyle & Dugan, 2012; Ge et al., 2017). This dissociation highlights the importance of testing possible cultural moderation in the mortality risk of objective social isolation vis-à-vis that of loneliness.

Concluding Remarks

Despite these limitations, the current study is the first to systematically compare the mortality hazard of loneliness using the large-scale harmonized dataset across four countries, exceeding the boundary of WEIRD societies. Our analysis shows that the mortality risk of loneliness is culture-bound. When people feel that they are chronically isolated from social networks, this perception can be fatal in Korea, but it is less so in the United States, England, and Mexico. These results underscore the need for more culturally inclusive research to globalize the theories on the health impact of social integration.

Resumen

Objetivo: ¿La soledad predice la muerte prematura? Muchas investigaciones previas así lo sugieren, pero esta evidencia se basa principalmente en poblaciones de sociedades individualistas, como América del Norte y Europa Occidental. Aquí, nuestro objetivo fue ampliar esta evidencia probando la hipótesis de que la soledad predeciría un mayor riesgo de mortalidad en sociedades colectivistas, donde la interdependencia social está normativamente sancionada. **Métodos:** Utilizando un conjunto de datos armonizados de dos países individualistas (Inglaterra y EE. UU.) y dos colectivistas (Corea y México) (N combinado = 41,869), probamos si los contextos culturales moderan el grado en que la soledad predice la mortalidad por todas las causas a 10 años. **Resultados:** Después del ajuste de las variables demográficas y los comportamientos de salud, la soledad se asoció con una mayor mortalidad a 10 años en los cuatro países, con índices de riesgo (HR, por sus siglas en inglés) de 1.13 en Inglaterra, 1.21 en EE. UU. y México, y 1.51 en Corea. Cuando se controlaron adicionalmente las condiciones de salud, esta asociación se volvió insignificante en dos países individualistas, con HR de 0.98 tanto para Inglaterra como para los EE. UU. En contraste, el HR siguió siendo muy significativa en Corea (HR = 1.27). Curiosamente, el riesgo de mortalidad por soledad en México (HR = 1.03), otro país colectivista, no fue diferente de los riesgos en Inglaterra y Estados Unidos. **Conclusiones:** Estos resultados sugieren que cuando las personas se sienten crónicamente aisladas de las redes sociales, esta percepción puede ser fatal en Corea,

pero lo es menos en otros países. La discusión se centra en otros factores culturales, además de la dimensión cultural del individualismo-colectivismo, que pueden explicar el hallazgo actual.

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