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Cultural Variability in the Association Between Age and Well-Being: The Role of Uncertainty Avoidance

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Santa Barbara

Cultural Variability in the Association Between Age and Well-Being:

The Role of Uncertainty Avoidance

A thesis submitted in partial satisfaction of the requirements for the degree Master of Arts in

Psychological and Brain Sciences

by

Smaranda Ioana Lawrie

Committee in charge:

Professor Heejung S. Kim, Chair

Professor Nancy Collins

Professor David Sherman

December 2020

The thesis of Smaranda Ioana Lawrie is approved.

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Nancy Collins

_____

David Sherman

_____

Heejung S. Kim, Committee Chair

October 2020

ACKNOWLEDGEMENTS

To my family.

You are *everything*.

To Heejung, Nancy, and David, three wonderful role models.

VITA OF SMARANDA IOANA LAWRIE
October 2020

Education

Ph.D. in Psychological and Brain Sciences (Social Psychology) |2020|

University of California, Santa Barbara
>Dissertation: "Emotional fit, emotional accuracy, and belonging among first-generation and continuing-generation university students."
>Advisor: Heejung Kim
>Dissertation Committee: David Sherman, Nancy Collins, Karen Nylund-Gibson

Master of Arts in Psychological and Brain Sciences (Social Psychology) |2020|

University of California, Santa Barbara

>Thesis: "Cultural variability in the association between age and well-being: The role of uncertainty avoidance"
>Advisor: Heejung Kim

Master of Arts in Education, Emphasis in Quantitative Research Methods |2020|

Gevirtz Graduate School of Education, University of California, Santa Barbara

>Thesis: "Development and validation of the Convivial and Harmony Collectivism scale"
>Advisor: Karen Nylund-Gibson
>Thesis committee: Heejung Kim, Rebeca Rios

Master of Liberal Arts in International Affairs |2009|

University of Pennsylvania

Bachelor of Arts in Psychology |2004|

Yale University

Bachelor of Arts in Economics |2004|

Yale University

Awards and Fellowships

GSA Excellence in Teaching Award |2020|
>University of California, Santa Barbara campus-wide teaching award
>Also nominated in |2018, 2019|

University of California Graduate Research Fellowship |2017-2018|
>Merit-based, all University of California campuses
>$25,000 plus tuition

University of California Graduate Opportunity Fellowship |2014-2015|
>Merit and diversity based, all University of California campuses
>$24,000 plus tuition

Asia Pacific Leadership Program Fellow |2011|
>Merit-based, East West Center, Honolulu, Hawaii and Washington D.C.
>$25,000

Grants

University of California Undergraduate Research and Creative Activities Grant |2014, 2015, 2016, 2018|
   $750 x 4 = $3000
   For collaborative work with undergraduate research assistants on their own research projects

University of California Individualized Professional Skills (IPS) Grant |2019|
   $1,000
   For research in Denmark on happiness and parenting practices

Publications

Lawrie, S. I.*, Eom, K.*, Moza, D., Gavreliuc, A., & Kim, H. S. (2019). Cultural variability in the association between age and well-being: The role of uncertainty avoidance. *Psychological Science.*
   (* equal first authorship)

Kim, H. S., & **Lawrie, S. I** (2019). Culture and motivation. In D. Cohen & S. Kitayama (Eds.) Handbook of Cultural Psychology, 2nd Edition (pp. 268-291). NY: Guilford.

Lawrie, S. I. (2019). Cultural Psychology. In (Textbook) Spielman, R. M., Dumper, K., Jenkins, W., Lacombe A., Lovett, M., & Perlmutter, M. *Psychology. https://www.outlier.org/products/intro-to-psychology*

Lawrie, S. I. (2019) Lessons from cultural psychology for real world problems. *Sage Center, University of California Santa Barbara. https://psych.ucsb.edu/news-events/news/2019/sage-center-hosts-forum-lessons-cultural-psychology-real-world-problems*

Moza, D., **Lawrie, S. I,** Iacob, L., Gavreliuc, A., Kim, H. S., & Mojaverian, H. (2015). Laypeople's perceptions of the veracity of research findings regarding the differences in coping strategies between student samples from two cultures. *Romanian Journal of Experimental Applied Psychology*, 6, 65.

Manuscripts Under Review

Moza, D.*, **Lawrie, S. I.***, Maricuțoiu, L., Gavreliuc, A., & Kim, H. S. (*under review*). Not all forms of independence are created equal: Only being independent the "right way" is associated with self-esteem and life satisfaction. *Frontiers in Psychology.*
   (* equal first authorship)

Chan, M. M., Sharkey, J., **Lawrie, S. I**., Arch, D., & Nylund-Gibson, K. (*under review*). K-6 Teacher well-being at the beginning of school closures during COVID-19: How can we support teachers? *American Educational Research Journal.*

Nylund-Gibson, K., Garber, A., Carter, D., Simon, O., Arch, D., Chan, M., **Lawrie, S. I.** , Tartt, E. (*under review*). Ten Frequently Asked Questions about Latent Transition Analysis (LTA). *Psychological Methods.*

Manuscripts in Preparation

Lawrie, S.I., Carter, D., Nylund-Gibson, K. & Kim, H. S. (*in prep*). A tale of two belongings: Social and academic belonging differentially shape academic and psychological outcomes among students.

Lawrie, S.I., Nylund-Gibson, K., Chavez, J. E[+]., Campos, B., & Kim, H.S. (*in preparation*). Development and validation of the Convivial and Harmony Collectivism scale.
   ([+] *undergraduate research assistant and honor student*)

Conference Talks

Lawrie, S. I., Eom, K., Moza, D., Gavreliuc, A., & Kim, H. S. Socioemotional aging across cultures. Cultural Psychology Pre-conference Data Blitz. *Society for Personality and Social Psychology,* New Orleans, LA, 2020.

Lawrie, S.I., Eom, K., Moza, D., Gavreliuc, A., & Kim, H. S. Cultural variability in association between age and well-being: The role of uncertainty avoidance. *International Association for Cross-Cultural Psychology*, Warsaw, Poland, 2017.

Lawrie, S.I., Eom, K., & Kim, H. S. Culture and well-being across the life span. Happiness Symposium, *International Association for Cross-Cultural Psychology*, Nagoya, Japan, 2016.

Lawrie S.I., Eom, K., & Kim, H. S. Well-being across the lifespan: The role of aging, generations, and period effects. *International Association for Cross-Cultural Psychology*, Nagoya, Japan, 2016.

Conference Posters and Papers

Lawrie, S.I., Carter, D., Nylund-Gibson, K., & Kim, H.S. Not all forms of belonging are created equal: Social and academic belonging differentially shape outcomes among university students. *Society for Personality and Social Psychology,* virtual, 2021.

Chavez J. E[+]., **Lawrie, S.I.** & Kim, H.S. Measuring nuances within cultural collectivism: Harmony and Convivial collectivism scale. Society for Personality and Social Psychology, virtual, 2021. ([+] *undergraduate research assistant*)

Lawrie, S. I., Eom, K., Moza, D., Gavreliuc, A., & Kim, H. S. Socioemotional aging across cultures. *Society for Personality and Social Psychology,* New Orleans, LA, 2020.

Lawrie, S. I., Eom, K., Moza, D., Gavreliuc, A., & Kim, H. S. Cultural variability in the association between age and well-being: The role of uncertainty avoidance. *Society for Personality and Social Psychology,* Atlanta, GA, 2018.

Haumschild, S[+]. & **Lawrie, S. I.**, The effects of religiosity on binge drinking in first-generation and continuing-generation college freshman. *Society for Personality and Social Psychology*, Atlanta, GA, 2018. ([+]*undergraduate research assistant*)

Lawrie, S.I., Eom, K., & Kim, H. S., Culture's role in explaining mixed findings in the relationship between aging and well-being. *Association for Psychological Science*, San Francisco, CA, 2018.

Moza, D., **Lawrie, S.I.**, Gavreliuc, A., & Kim, H. S. The convergent validity of four self-construal measures in Romanian and American samples. *International Association for Cross-Cultural Psychology*, Warsaw, Poland, 2017.

Moza, D., **Lawrie, S.I.**, Gavreliuc, A., & Kim, H. S. Direct and indirect relationships between individual-level cultural factors, well-being, and the self. *International Convention of Psychological Science*, Vienna, Austria, 2017.

Moza, D., **Lawrie, S.I.**, Gavreliuc, A., & Kim, H. S. The mediating role of self-esteem in the relationship between multidimensional self-construal and well-being. *European Conference on Personality*, Timisoara, Romania, 2016.

Moza, D., **Lawrie, S.I.**, Gavreliuc, A., & Kim, H. S. An examination of the convergent validity of various self-construal measures on Romanian and American samples. *European Conference on Personality*, Timisoara, Romania, 2016.

Lawrie, S.I., Kim, H. S., Gavreliuc, A., & Moza, D. Culture and the role of emotions in relationships. *Society for Personality and Social Psychology*, Long Beach, CA, 2015.

Lawrie, S.I., Kim, H. S., Gavreliuc, A., & Moza, D. Culture and the role of emotions in relationships. *International Convention of Psychological Science*, Amsterdam, Holland, 2015.

Lawrie, S., Kim, H. S., Moza, D., & Gavreliuc, A. Well-being across the lifespan: The role of aging, generations, and period effects. *Society for Personality and Social Psychology*, San Diego, CA, 2015.

Lawrie, S., Mojaverian, T., Iacob, L., Moza, D., & Kim, H. S. Independent and interdependent self-construals manifest differently across cultures: USA and Romania. *Intl.l Association for Cross-Cultural Psychology*, Reims, France, 2014.

Birch, S., **Luca, S.**,*Frampton, K., Vauthier, S., & Bloom, P. Children's assessments of what others know: The effects of learning. *Society for Research in Child Development*, Atlanta, Georgia, 2005. (* Luca *is my maiden name*)

Invited Talks and Presentations

Lawrie, S. I. Positive Psychology lessons for living your best life during a global pandemic. Yale Alumni Association, New Haven, CT, 2020.

Lawrie, S. I. Workshop: Why Positive Psychology should be a part of your life (and everyone else's too). East West Center, Honolulu, HI, 2020.

Lawrie, S. I. Lessons in Positive Psychology for building better communities. Cook Islands Investment Corporation, Rarotonga, Cook Islands, 2020.

Lawrie, S. I. Wise psychological interventions for student success on campus. Center for Student Success, Westmont College, Montecito, CA., 2019.

Lawrie, S. I. Wise psychological interventions for student success on campus. Psychology Department Symposium, University of California, Santa Barbara, Santa Barbara, CA., 2019.

Lawrie, S.I. The Ever-Curious Series: A series of community workshops in Positive Psychology, Santa Barbara, California. Ongoing, multiple talks.

Lawrie, S.I. Aging like a rock star: A psychological perspective on psychological well-being in old age. Yale University Reunion Weekend, New Haven, CT, 2019.

Lawrie, S.I. Cultural change and generational theory: same or different stories? East West Center Brown Bag, Honolulu, HI, 2017.

Lawrie, S. I. Longitudinal approaches for tracking student success across the college years. Quantitative Methods in the Social Sciences (QMSS) Symposium. University of California Santa Barbara, Santa Barbara, CA., 2017.

Lawrie, S.I., The role of cultural psychology in business practice. University of Hawaii at Manoa Shidler College of Business, Honolulu, HA, 2013.

Teaching

F=fall, SP=spring, S=summer

Adjunct Professor, Westmont College, Montecito, CA

General Psychology |F2018, SP2019, F2019, S2021|

The Science and Practice of Positive Psychology |S2019, SP2020, F2020|

Instructor of Record, University of California, Santa Barbara

> Positive Psychology |S2017|

> Research Methods |S2018|

Instructor of Record, University of California, Santa Barbara School of Professional and Continuing Education

> Social Psychology |S2020|

Invited Lecturer/Instructor of Record, East West Center Hawaii, Asia Pacific Leadership Program

> Leadership across Cultures |F2017|

> Whole Person Leadership: The Role of Positive Psychology in the Business of Leading |F2017|
> Generations, Gender, and the Changing Landscape of Leadership |F2017|

Invited Lecturer/Instructor of Record, University of Iasi, Iasi, Romania

> Cultural Psychology | S2014|

Invited Lecturer/Instructor of Record, Intl. Teravada Buddhist Missionary University, Yangoon, Myanmar

> Cultural Psychology | S2013|

Laboratory Section Leader, University of California Santa Barbara

> Laboratory in Introductory Research Methods, Laboratory in Advanced Research Methods, Statistics, Laboratory in Experimental Social Psychology

Teaching Assistant, University of California Santa Barbara

> Cultural Psychology, Social Influence, Psychopathology, Health Psychology, Experimental Psychology, Critical Issues in Psychology, Adult Development and Aging, Memory, Psychology of Self, Introduction to Cognitive Psychology, Cognitive Psychology of the Supernatural

Mentoring

Undergraduate honors thesis students*:* 4

Undergraduate research assistants: 25, 13 currently in graduate school

Graduate students: 8

Additional Training

AntiRacist Table – 30 Day Challenge |2020|
AntiRacist Table

Latent Class Analysis |2019| **Survey Design** |2019|
Methods University, Santa Barbara, CA

Longitudinal Structural Equation Modeling |2018|
Stats Camp, Albuquerque, NM

Hierarchical Linear Modeling |2016| **Structural Equation Modeling** |2015|
Inter-University Consortium for Political and Social Science Research Statistical Methods, Amherst, MA

Certifications

Certificate in College Teaching |2018|
University of California, Santa Barbara Summer Teaching Institute for Associates

Mindfulness and Meditation Teacher Certificate |2020|
School of Positive Transformation

Positive Psychology Practitioner Certificate |2020|
School of Positive Transformation

Chief Happiness Practitioner Certificate |2020|
World Happiness Academy

Service

Founder, UCSB Resilience Summit and Certificate Program |2020-
> In conjunction with the Department of Psychological and Brain Sciences at the University of California, Santa Barbara along with the help of the local chapter of the Psi Chi Psychology Undergraduate Honor Society developed a series of 10 workshops with accompanying assignments, quizzes, and reflections on Positive Psychology, resilience, and *suffering better* during current challenging times. Undergraduate and graduate students across UCSB are able to enroll in the free certificate program taking place during the Fall and Winter quarters of 2020 and earn a certificate in the *Science of Resilience.*

Graduate Student Representative, UCSB Building and Research (Covid) Reopening Committee |2020-

Advanced Graduate Student Mentor, UCSB Graduate Scholars Program |2017-

> The UCSB Graduate Scholars program pairs senior graduate students with incoming graduate students form populations traditionally underrepresented in academia. Mentored 8 grad. students

Program Assistant, Methods University Statistical Camp |2018|

Ad-Hoc Reviewer
> *Emotion*
> *Social Psychological and Personality Science*

Professional Association Memberships

American Psychological Association
Society for Personality and Social Psychology
Society for the Teaching of Psychology
International Association for Cross-Cultural Psychology
International Positive Psychology Association
International Positive Education Network

ABSTRACT

Cultural Variability in the Association Between Age and Well-Being:

The Role of Uncertainty Avoidance

By Smaranda Ioana Lawrie

Past research found a mixed relationship between age and subjective well-being. The current research advances the understanding of these findings by incorporating a cultural perspective. We tested whether the relationship between age and well-being is moderated by uncertainty avoidance (UA), a cultural dimension that deals with a society's tolerance for ambiguity. In Study 1, using a multilevel approach with a large international database ($N = 61,256$), we found that older age is associated with lower well-being in countries higher in UA, but not in countries lower in UA, and this cultural variation is mediated by sense of control. In Study 2, we compared a low (United States) and high (Romania) UA culture ($N=1,025$) and found a consistent pattern; age is negatively associated with well-being in Romania but not the United States. This cultural difference is mediated by use of different coping strategies reflective of different levels of sense of control.

Cultural Variability in the Association Between Age and Well-Being:

The Role of Uncertainty Avoidance

By

Smaranda Ioana Lawrie

Cultural Variability in the Association Between Age and Well-Being:
The Role of Uncertainty Avoidance

Aging is not lost youth but a new stage of opportunity and strength.

—Betty Friedan, *How to Live Longer, Better, Wiser*

Old age is the age of giving up and humility.

—Ileana Vulpescu, *De Amor, de Amar, de Inima Albastra*

Our world is aging. Over the next couple of years, elderly people will outnumber young children for the first time in human history. By 2050, nearly one quarter of the global population will be elderly (He, Goodkind, & Kowal, 2016). To respond to the changing characteristics of the global population, psychologists need to make an urgent push to understand the aging mind.

Subjective well-being over the lifespan is a particularly important topic to study because of its implications for health outcomes and longevity (e.g., Boehm & Kubzansky, 2012; Diener & Chan, 2011). However, it remains unclear how aging is associated with subjective well-being. Psychological theorizing about well-being over the lifespan has historically been inconsistent, and empirical studies have found *positive* (e.g., Carstensen, Pasupathi, Mayr, & Nessleroade, 2000; Charles, Reynold, & Gatz, 2001), *negative* (e.g., Gerstorf et al., 2008; Mroczek & Spiro, 2005; Shmotkin, 1990), *flat* (e.g., Twenge, Sherman, & Lyubomirsky, 2016), and *u-shaped* (e.g., Blanchflower & Oswald, 2008; Clark & Oswald, 1994) associations between age and various aspects of well-being (e.g., positive affect, life-satisfaction).

The present research aims to advance the understanding of these mixed findings by incorporating a cultural perspective. We propose that mixed findings in the relationship between age and subjective well-being may be attributed, at least in part, to the sociocultural contexts of the samples under investigation. How certain characteristics are associated with subjective well-

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being varies significantly across cultures (e.g., Suh, Diener, Oishi, & Triandis, 1998); thus, how age is related to well-being is also likely to depend on cultural contexts. Several studies have indeed found cultural differences in the relationship between age and well-being (or factors related to well-being). For example, research found that older Americans experience less negative emotions in unpleasant situations compared to younger Americans, whereas older and younger Japanese do not differ in their amount of experienced negative emotions (Grossmann, Karasawa, Kan, & Kitayama, 2014). Another study found that older Americans show preferential processing for positively valenced stimuli relative to negative or neutral stimuli, but this *positivity effect* does not emerge with age among Chinese participants (Fung et al, 2008). Despite clear differences, little research has empirically addressed *why* cultural differences in the association between age and subjective well-being occur.

The present paper offers an answer to this question by focusing on the cultural dimension of uncertainty avoidance (UA), which is one of six Hofstede cultural dimensions, along with individualism, masculinity, power distance, long-term orientation, and indulgence (Hofstede, Hofstede, & Minkov, 2010). Countless studies have demonstrated that individual behaviors and psychological processes are strongly influenced by specific societal forces characterized by these dimensions that differ among countries (Hofstede et al., 2010). UA refers to how cultures interpret and respond to ambiguous and uncertain situations. In low UA cultures, uncertainty is more tolerated, and people easily accept new ideas and change. In these cultures, individuals feel a sense of control over uncertainty in the environment. In contrast, in high UA cultures, uncertainty is viewed as threatening, and individuals respond to novelty and change with stress, anxiety, and decreased perceptions of control (Barr & Glynn, 2004; Hofstede et al., 2010). Previous research has found a negative relationship between a country's UA score and levels of

well-being. For example, Hofstede et al. (2010) found that, after accounting for wealth, UA is the strongest (negative) predictor of well-being above any other cultural dimension or objective factor. Moreover, high UA countries have a higher percentage of the population claiming to be unhappy (Hofstede et al., 2010).

We expected that the link between UA and subjective well-being is particularly relevant in the context of aging. Old age is associated with many changes, including shrinking incomes, uncertain societal roles, declining health, loss of loved ones, and diminished repertoires of daily activities (e.g., Martin, Poon, Kim, & Johnson, 1996). These biological, social, and environmental changes limit the range of predictable outcomes in older individuals (Rodin, 1986), thereby making uncertainty an inherent condition of old age (Ågren, 1998; Baltes & Smith, 2003). Thus, we theorized that how a culture psychologically equips individuals to deal with uncertainties is bound to have implications for well-being in old age. Indirect but consistent empirical support comes from a large-scale study of stereotypes of the elderly across 26 countries showing that individuals from higher UA cultures hold a more negative perception of aging compared to those from lower UA cultures (Löckenhoff et al., 2009). No research to date, however, has directly investigated the ways in which the cultural value of UA shapes how age is related to actual subjective well-being.

Previous research on personality and aging supports the theorized role of UA in aging and well-being. Studies show that openness to experience, an individual-level factor conceptually similar to UA (Jost et al., 2007; McCrae, & Sutin, 2009), is key to achieving positive life outcomes in older age (Gregory, Nettelbeck, & Wilson, 2010). UA may operate similarly, as a societal-level factor that shapes the ways in which individuals respond to

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uncertainty in later life, thereby influencing subjective well-being in older age. Taken together, we expected that cultures lower in UA are more likely to promote well-being into old age.

The present research also investigated how sense of control, a key element of subjective well-being in old age (Lachman, 2006), might underlie this cultural moderation. UA is associated with how much control individuals feel; individuals in high UA cultures tend to experience less control in uncertain situations compared to individuals in low UA cultures (Barr & Glynn, 2004). We therefore expected that uncertainty associated with old age would decrease sense of control in older individuals in countries higher in UA and that this would have negative implications for their well-being. In contrast, we did not expect that uncertainty in old age would impair sense of control in older individuals in countries lower in UA and this would buffer any age-associated decreases in well-being.

The current research is comprised of two studies. In Study 1, using a multilevel approach with a large international database, we investigate whether culture-level UA explains cross-country variation in the association between age and subjective well-being. In the same study, we also examine how UA moderates the ways in which age is related to sense of control and how this predicts well-being. In Study 2, we explore the relationship between age and well-being in a low (United States) and high (Romania) UA country to conceptually replicate the pattern of results found in Study 1, and to further investigate the mechanism underlying the cultural difference. Perceptions of control in old age are related to how individuals cope with stress; that is the tendency to use one type of coping strategy over another is indicative of an individual's sense of control in dealing with life problems (Holahan & Moos, 1987; Robinson & Lachman, 2017). Thus, we focus on how individuals cope with stressful events to advance mechanistic understanding of our findings.

Study 1: Cross-Country Variation in the Relationship Between Age and Well-Being

Method

The data for the first study were retrieved from Wave 6 (2010-2014) of the World Values Survey (World Values Survey Association, 2016; 60 nations, $N = 90,350$). Because country-level UA was the key moderator, 16 countries for which an UA score was not available were not included in the analyses. One additional country was excluded because of unavailability of a country-level covariate score (i.e., age dependency ratio). We also removed participants who had missing data on our key/control variables (age, happiness, life satisfaction, sense of control, education, perceived relative income, gender). This list-wise deletion resulted in a final sample of 64,228 participants from 43 countries.

For age, respondents reported their age in an open-ended format ($M = 42.49$, $SD = 16.48$). Subjective well-being was measured by respondents' ratings of happiness ("Taking all things together, would you say you are…" 1 = *not at all happy* to 4 = *very happy*; $M = 3.15$, $SD = 0.75$) and life satisfaction ("All things considered, how satisfied are you with your life as a whole these days?" 1= *completely dissatisfied* to 10 = *completely satisfied*; $M = 6.94$, $SD = 2.24$). The scores of happiness and life satisfaction were standardized and then were averaged to create a composite measure of subjective well-being, $r(64,226) = .463$, $p < .001$.[1] Sense of control was measured by respondents' ratings of the degree to which they have free choice and control over what happens to them in their lives (1 = *no choice at all* to 10 = *a great deal of choice*; $M = 7.13$, $SD = 2.19$).

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[1] The key patterns and significance of moderating effects of UA on the relationship between age and subjective well-being were consistent regardless of using happiness, life satisfaction, or a composite of the two as outcomes. The results separate by happiness and life satisfaction are available in Tables S3 and S4 in Supplemental Material.

For country-level cultural dimensions, Hofstede's (Hofstede et al., 2010) six cultural dimensions were used: *individualism* (the extent to which the country places priority on personal goals over the goals of collectives), *power distance* (the extent to which the country accepts unequally distributed power), *masculinity* (the extent to which the country emphasizes achievement, assertiveness, and materials successes, particularly for men), *uncertainty avoidance* (the extent to which the members of society feel uncomfortable with uncertainty, change, and ambiguity), *long-term orientation* (the extent to which the society focuses on future-oriented values), and *indulgence* (the extent to which the society allows gratification of natural human needs). Hofstede's index consists of ratings of unidimensional country-level cultural values for given nations. Higher numbers indicate that the respective cultural values are more strongly emphasized in given countries.

The index for UA, most relevant to the current research, is based on scores from three questions (see Hofstede et al., 2010 for sources of data and more detailed information). These questions ask about work-related stress, perceptions of rules, and intentions to stay at one job or company for the long term. Overall, higher scores indicate greater country-level UA (To see how the other Hofstede cultural dimensions are measured, see Hofstede et al., 2010).

We also included a number of individual- and country-level factors as covariates (see Table 1). Education level (1 = *no formal education* to 7 = *university level education with degree*; $M = 4.58$, $SD = 1.65$; the median education level was *complete secondary school*), perceived relative income (1 = *lowest group in your country* to 10 = *highest group in your country*; $M = 4.85$, $SD = 2.13$), and gender (31,383 males and 32,845 females) were used as covariates at the individual level. GDP per capita, political stability, elderly dependency ratio, homicide rate, and

life expectancy at birth were used as covariates at the country level.[2] GDP data was obtained

from the CIA World Factbook (U.S. Central Intelligence Agency, 2018). Political stability and

elderly dependency data was obtained from the World Bank (World Bank, 2018). The homicide

rate was obtained from the United Nations' *Global Study on Homicide* (United Nations Office on

Drugs and Crimes, 2013). Life expectancy at birth was obtained from the World Health

Organization's *World Health Statistics 2014* (WHO, 2014). We used the data for country-level

covariates from years overlapping with or within five years of World Values Survey data

collection.

Table 1

Overview of the Variables in Study 1 and Their Functions in the Model Tested

Level	Variable	Function
Individual level	Age	Predictor
	Sense of control	Mediator
	Subjective Well-Being	Outcome
	Education	Covariate
	Perceived relative income	Covariate
	Gender	Covariate
Country level	Uncertainty avoidance	Moderator
	GDP per capita	Covariate
	Political stability	Covariate
	Elderly dependency ratio	Covariate
	Homicide rate	Covariate
	Life expectancy at birth	Covariate

Results

First, we examined correlates of UA by looking at its zero-order correlations with other

key variables at the country level (i.e., correlations between UA and national averages of age and

subjective well-being). There were no significant correlations between UA and the averages of

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[2] We also conducted the analysis with the GINI index, a measure of country-level income inequality, as a covariate. However, we do not report this analysis here because this resulted in the exclusion of an additional five countries. See Supplemental Material for the analysis including the GINI index.

age, $r(41) = .015$, $p = .925$, and subjective well-being, $r(41) = -.187$, $p = .230$. We also examined correlations between UA and country level covariates. UA significantly correlated with GDP per capita, $r(41) = -.329$, $p = .031$, suggesting that UA is endorsed more strongly in less economically developed countries. There were no significant correlations between UA and the other country level covariates.

Next, we examined cross-country variation in the zero-order correlations between age and subjective well-being. The correlation between age and subjective well-being in each country was calculated and compared across countries. There was considerable variation in how age was related to subjective well-being across countries; the correlations ranged from -.288 to .131. (Table S1 in Supplemental Material lists the means and standard deviations for age and subjective well-being and their correlations by country). To explore the role of UA, we first regressed the correlations between age and subjective well-being on UA at the country level. As countries' UA scores increased, stronger negative relationships between age and well-being emerged, $\beta = -.578$, $b = -0.003$, $SE = 0.001$, $t(41) = -4.536$, $p < .001$, 95% confidence interval for $b = [-0.004, -0.001]$ (see Figure 1). We also tested the independent effect of UA above and beyond Hofstede's other cultural dimensions including power distance, individualism, masculinity, UA, long-term orientation, and indulgence. UA was the only significant predictor of the correlation between age and subjective well-being after the other cultural dimensions were included in the model, $\beta = -.527$, $b = -0.002$, $SE = 0.001$, $t(34) = -4.416$, $p < .001$, 95% confidence interval for $b = [-0.003, -0.001]$.

We then used multilevel modeling to examine formally if UA explained the cross-country variation in the association between age and subjective well-being, given that the data was hierarchical, with individuals nested within countries. The intraclass correlation was .138,

indicating that 13.8% of the variance in subjective well-being was explained by the countries in which the respondents resided. In the following analyses, we used standardized scores for both individual level (zero indicating the grand mean of the respective variable across respondents; one indicating 1 SD above the mean across individuals) and country level variables (zero indicating the mean of the respective variable across countries; one indicating 1 SD above the mean across countries). We used Stata version 14 (StataCorp, 2015) for the analyses.
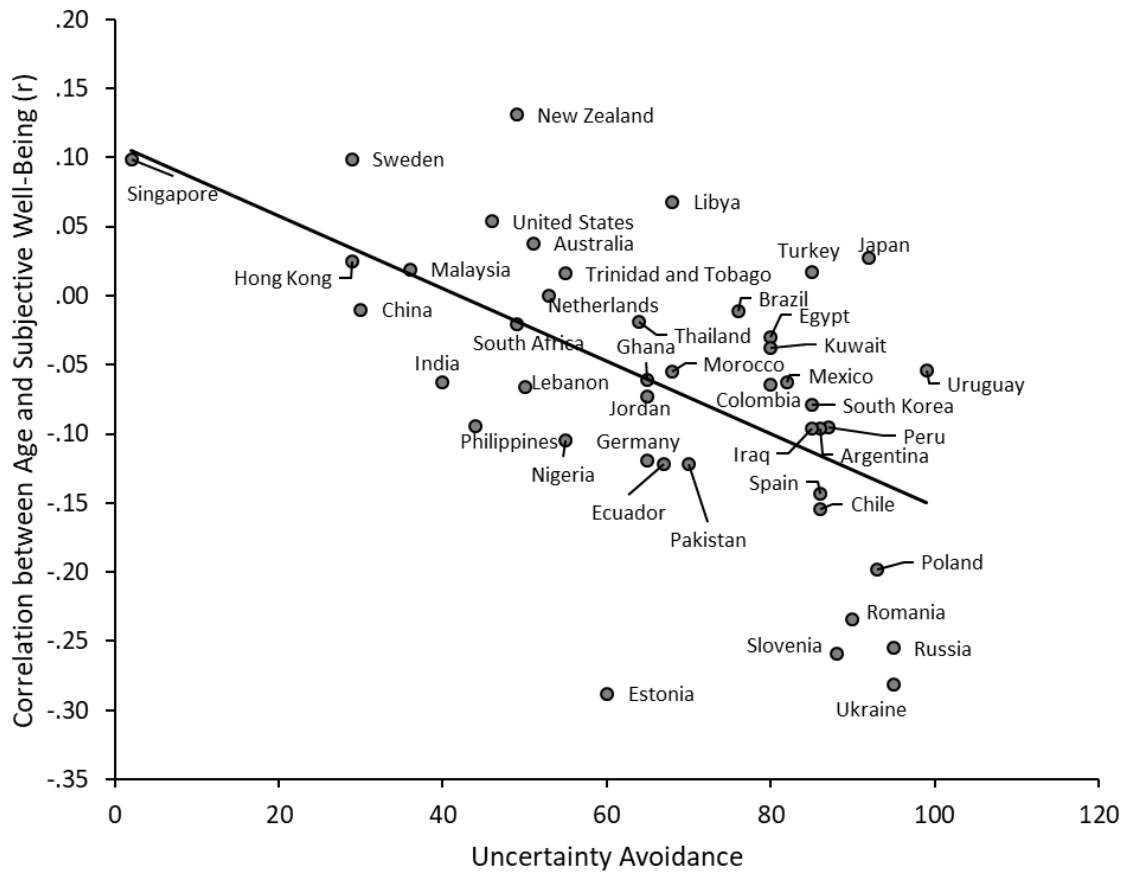
Figure 1. Scatterplot (with best-fitting regression line) showing the association between uncertainty avoidance and within-country correlations between age and subjective well-being; x-axis: Hofstede's uncertainty avoidance score (ranging from 0 to 100); y-axis: Pearson's correlation coefficient.

We first examined whether UA moderated the slope of age predicting subjective well-being by testing the cross-level interaction between age (individual level) and UA (country level) on subjective well-being without covariates (Model 1). The slope between age and subjective well-being was allowed to vary across countries (in the subsequent models as well). As expected, as UA increased, the relationship between age and subjective well-being became more negative, $\beta = -.048$, $b = -0.041$, $SE = 0.010$, $z = -4.06$, $p < .001$, 95% confidence interval for $b =$ [-0.061, -0.021].

In Model 2, all of our control variables at the individual (i.e., perceived relative income, education, and gender) and country level (i.e., GDP per capita, political stability, elderly dependency ratio, homicide rate, and life expectancy at birth) were included. The main finding remained consistent such that the increase in UA was associated with more negative relationships between age and subjective well-being, $\beta = -.043$, $b = -0.037$, $SE = 0.010$, $z = -3.60$, $p < .001$, 95% confidence interval for $b =$ [-0.056, -0.017]. Figure 2 presents the cross-level interaction between age and UA. There was no significant association between age and subjective well-being in countries lower in UA (1 SD below the mean), $\beta = .016$, $b = 0.014$, $SE = 0.014$, $z = 0.97$, $p = .332$, 95% confidence interval for $b =$ [-0.014, 0.042]. In contrast, age was negatively associated with subjective well-being in countries higher in UA (1 SD above the mean), $\beta = -.069$, $b = -0.059$, $SE = 0.014$, $z = -4.10$, $p < .001$, 95% confidence interval for $b =$ [-0.087, -0.031].
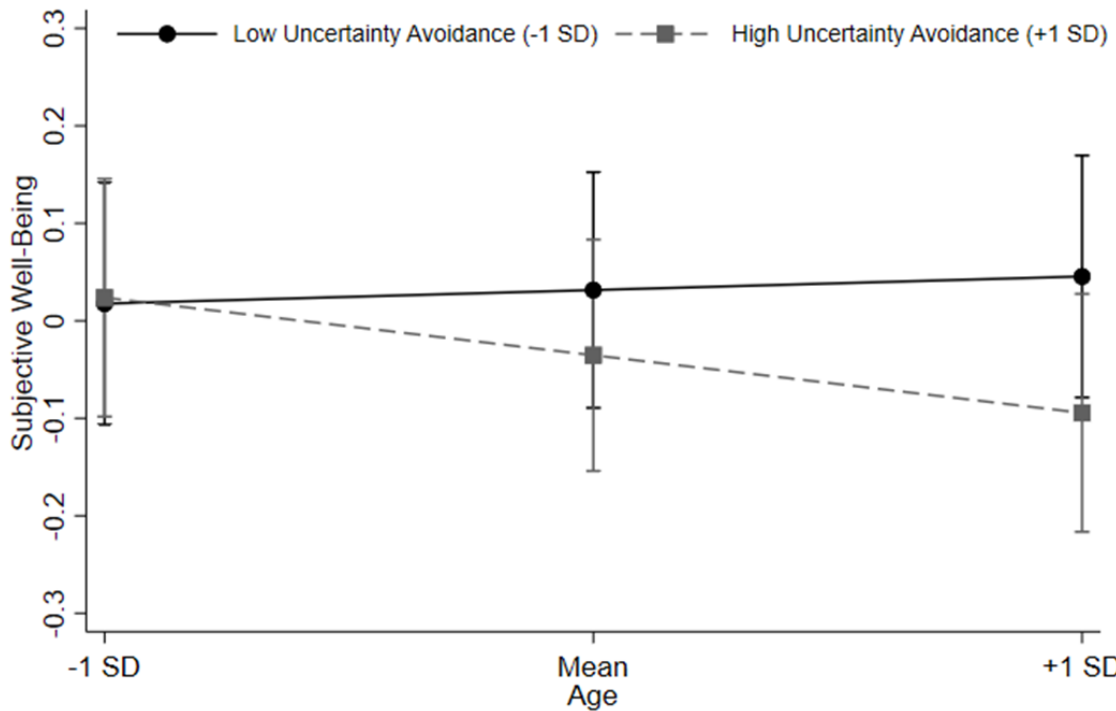
Figure 2. Subjective well-being as a function of age and country-level UA in Study 1; x-axis: standardized age; y-axis: subjective well-being operationalized by the average of standardized happiness and life satisfaction.

We hypothesized that sense of control mediates the moderation effect of UA on the association between age and subjective well-being. That is, the interaction between age and UA would predict subjective well-being via its effect on sense of control. We examined the potential role of sense of control as mediator through multiple steps. As a first step, we tested whether UA moderated the ways in which age is associated with sense of control. The same model (Model 2) was run with sense of control as the outcome variable. We found a significant negative cross-level interaction between age and UA on sense of control, $\beta = -.022$, $b = -0.049$, $SE = 0.020$, $z = -2.43$, $p = .015$, 95% confidence interval for $b = [-0.088, -0.010]$. Age was positively associated with sense of control in countries lower in UA (1 SD below the mean), $\beta = .036$, $b = 0.080$, $SE =$

0.028, $z = 2.81$, $p = .005$, 95% confidence interval for $b = [0.024, 0.135]$. In contrast, there was no association between age and sense of control in countries higher in UA (1 SD above the mean), $\beta = -.008$, $b = -0.018$, $SE = 0.029$, $z = -0.62$, $p = .538$, 95% confidence interval for $b = [-0.074, 0.039]$. That is, the overall relationship between age and sense of control was not as negative as expected (i.e., the relationship being more positive than neutral in low UA cultures and being neutral rather than negative in high UA cultures), but the expected moderation of UA was found (i.e., the association between age and sense of control is more positive in low UA cultures than in high UA cultures).

Next, we ran another model (Model 3) in which sense of control was added to Model 2 as an additional predictor to examine the mediating role of sense of control. Including sense of control significantly improved the model (compared to Model 2 without sense of control), $\chi^2(1) = 6116.55$, $p < .001$, and higher sense of control was associated with greater subjective well-being, $\beta = .286$, $b = 0.245$, $SE = 0.003$, $z = 80.11$, $p < .001$, 95% confidence interval for $b = [0.239, 0.251]$. After accounting for sense of control, the coefficient for the interaction between age and UA decreased from $\beta = -.043$, $b = -0.037$, $SE = 0.010$, $z = -3.60$, $p < .001$, 95% confidence interval for $b = [-0.056, -0.017]$ in Model 2 to $\beta = -.036$, $b = -0.031$, $SE = 0.009$, $z = -3.39$, $p = .001$, 95% confidence interval for $b = [-0.049, -0.013]$. This result suggested that sense of control partially mediated the age X UA interaction on subjective well-being. Comprehensive results across models above are available in Table S2 in Supplemental Material.

Lastly, we ran a path analysis to confirm the mediation model in which the interaction between age and UA predicts subjective well-being via sense of control. Perceived relative income, education, and gender at the individual level and GDP per capita, political stability, elderly dependency ratio, homicide rate, and life expectancy at birth at the country level were

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included as control variables. Standard errors were adjusted for the clustering of participants

within countries. Consistent with the results above, the age X UA interaction significantly

predicted sense of control, β = -.055, b = -0.055, SE = 0.016, z = -3.42, p = .001, 95% confidence

interval for b = [-0.086, -0.023], which, in turn, predicted subjective well-being, β = .318, b =

0.272, SE = 0.018, z = 15.48, p < .001, 95% confidence interval for b = [0.238, 0.306]. The

indirect path from the age X UA interaction to subjective well-being through sense of control

was significant, β = -.017, b = -0.015, SE = 0.004, z = -3.38, p = .001, 95% confidence interval

for b = [-0.023, -0.006]. The direct path between the age X UA interaction and subjective well-

being was also still significant, β = -.036, b = -0.031, SE = 0.012, z = -2.68, p = .007, 95%

confidence interval for b = [-0.053, -0.008]. Thus, sense of control partially mediated the link

between the age X UA interaction and subjective well-being (see Figure 3). The results were

consistent regardless of whether or not control variables were included.
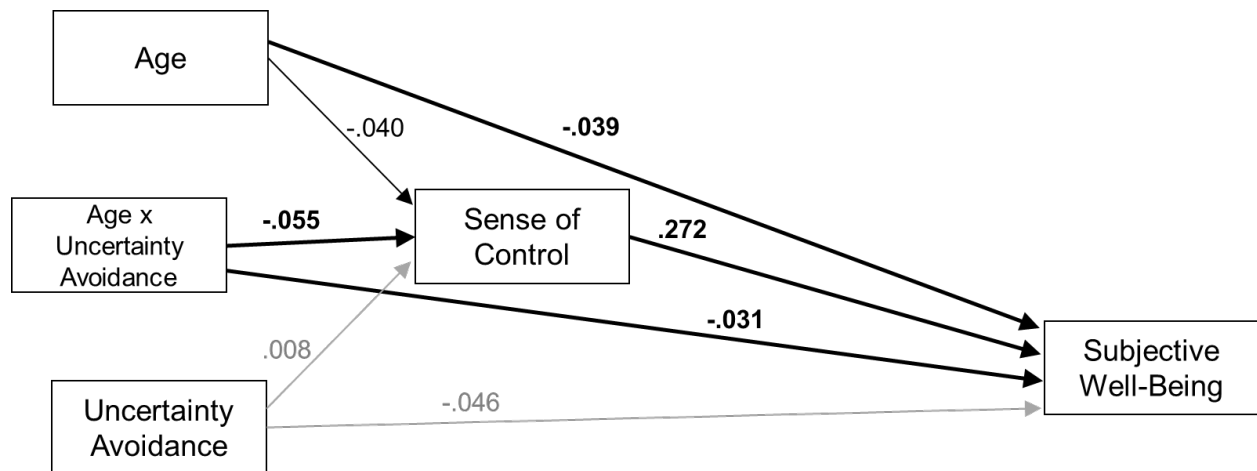
Figure 3. Path model examining whether the interaction between age and UA on subjective

well-being is mediated by sense of control. The values shown are unstandardized path

coefficients; black lines represent significant paths (bold line: p < .01; thin lines: p < .05), and

gray lines represent non-significant paths (p > .05).

Discussion

Study 1 confirmed the hypothesized role of UA in explaining the cultural variation in the association between age and subjective well-being. More negative associations between age and well-being were observed in higher UA countries. We further found that in high UA countries, there was no significant association between age and sense of control. In contrast, older individuals reported higher control over their lives than younger individuals in countries lower in UA. This positive association between age and control was not expected, but is consistent with the idea that individuals accumulate mastery experiences with age that support a sense of control (Rodin, Timko, & Harris, 1985). Nevertheless, the obtained moderation pattern suggests that lower UA cultures foster a stronger sense of control among older adults, thereby preventing the decreasing trajectory of subjective well-being. Higher UA cultures, however, do not seem to offer this psychological resource and thus show the steeper negative associations between age and well-being.

Study 2: Focused Cultural Group Comparison (Romania vs. United States)

In Study 2, we sampled two cultural groups that considerably differ in UA: Romania (UA score of 90, top 6th country) versus United States (UA score of 46, bottom 8th country).[3] We investigated stress coping strategies to discern further why high and low UA cultures differ in the relationship between age and well-being. Coping strategies reflect individuals' perceptions of control (Robinson & Lachman, 2017); perceptions of higher control are associated with active management of problems and one's state of mind, whereas perceptions of lower control are associated with avoiding problems and eschewing stressors. High and low control coping strategies, in turn, have implications for well-being, with high control coping tending to have

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[3] Country scores in Hofstede's six cultural dimensions are available at https://www.hofstede-insights.com/product/compare-countries/

better outcomes for the individual (Holahan & Moos, 1987; Kobasa, Maddi, & Kahn, 1982; Schier & Carver, 1992). We therefore investigated how age is related to coping strategies in our two cultures and how it predicts well-being.

We predicted that, with older age, Americans would be more likely to engage in coping strategies that are reflective of high control, and less likely to engage in coping strategies that are reflective of low control. In contrast, we predicted that Romanians would not show such changes in coping across age, as we observed no considerable age-related variation in sense of control in higher UA cultures in Study 1. We also tested whether these culturally divergent coping strategies with age explain the difference in the association between age and subjective well-being between the two cultures.

Method

Participants were 382 Americans (73.0% female; mean age = 34.81 years, *SD* = 16.40) and 643 Romanians (76.3% female; mean age = 39.16, *SD* = 19.22). We sought to have a minimum of 350 participants from each cultural group. This target sample size was determined to detect the key interaction between age (low vs. high) and culture (United States vs. Romania) on subjective well-being at a 0.05 significance level with 90% power, even if the effect size is small (partial eta-squared = 0.015).

Young participants were undergraduates from three large universities, one in the United States and two in Romania. They received course credit for participating in the study. Middle-aged and older participants were recruited in a variety of community settings (parks, cafes, libraries, gyms, retirement homes, etc.) in both countries. Older participants in Romania were also recruited in a class setting via students who were not involved in the study asking their parents or grandparents to volunteer. Unexpectedly high return rates on these surveys resulted in

Romanian oversampling. Older American participants were given $10 for their participation. Older Romanian participants were all volunteers.

Participants completed the study in their native language. Subjective well-being was measured with the Satisfaction with Life Scale (5-items; e.g. "In most ways my life is close to my ideal," "I am satisfied with my life"; Diener, Emmons, Larsen, & Griffin, 1985). The rating scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*) with higher scores indicating higher life satisfaction ($M = 4.67$, $SD = 1.33$; $\alpha = .85$ for Romanians, $\alpha = .90$ for Americans).

The Brief COPE scale (Carver, 1997) was used to measure stress-coping strategies. Participants reported their frequency of use of 14 different strategies (2 items for each strategy; 28 items in total) to cope with stress in their lives (1 = *not at all* to 5 = *very much*). (Tables S5 and S6 in Supplemental Material present descriptive statistics and cultural differences in the full list of coping strategies.) Based on our theoretical interest, we extracted two factors through a series of principal components analyses. The first factor captures coping strategies reflective of higher sense of control , consisting of strategies actively changing the actual or perceived situations to address the stressors. These included active behavioral (e.g., "I concentrate my efforts on doing something about the situation I'm in") and cognitive strategies (e.g., "I try to see it in a different light, to make it seem more positive") to cope with stressors. We refer to this factor as *high control* coping. The second factor captures coping strategies reflective of lower sense of control, consisting of strategies avoiding and disengaging oneself from the problems. It included denial (e.g., "I refuse to believe that it has happened"), behavioral disengagement (e.g., "I give up trying to deal with it"), self-blame (e.g., "I blame myself for things that happened"), and venting (e.g., "I express my negative feelings") (see Tables S7 and S8 for detailed results of principal components analyses). We refer to this factor *low control* coping. The scores of high

control coping and low control coping were calculated by averaging across the scores of coping strategies under respective category.

Results

The descriptive statistics of key variables and their mean level differences between Romanian and American participants are presented in Table S9 in Supplemental Material. Please also see Table S10 in Supplemental Material for the zero-order correlations between the key variables by each cultural group.

We examined whether there was a significant cultural difference in the association between age and subjective well-being by running a multiple regression with subjective well-being as the outcome variable and age (mean-centered), culture, and their interaction term as the predictor variables. There was a significant interaction between age and culture,[4] β = .164, b = 0.012, SE = 0.005, $t(1,021)$ = 2.619, p = .009, 95% confidence interval for b = [0.003, 0.022]. Age was significantly negatively associated with well-being among Romanians, β = -.117, b = -0.009, SE = 0.003, $t(1,021)$ = -2.77, p = .006, 95% confidence interval for b = [-0.015, -0.003]. In contrast, there was no association between age and well-being among Americans, β = .048, b = 0.004, SE = 0.004, $t(1,021)$ = 1.02, p = .306, 95% confidence interval for b = [-0.003, 0.011]. Viewed differently, a significant cultural difference in well-being was observed only among older participants (1 SD above the mean of age) such that older Americans reported significantly higher well-being than older Romanians, β = .405, b = 0.538, SE = 0.117, $t(1,021)$ = 4.60, p < .001, 95% confidence interval for b = [0.308, 0.767]. In contrast, there was no difference in subjective well-being between younger Romanian versus American participants (1 SD below the mean of age), β = .077, b = 0.102, SE = 0.122, $t(1,021)$ = 0.83, p = .404, 95% confidence interval

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[4] Culture was dummy coded (Romania = 0 and U.S. = 1).

for *b* = [-0.138, 0.341] (see Figure 4). Overall, we found a pattern of age X culture interaction on

subjective well-being, consistent with finding in Study 1.
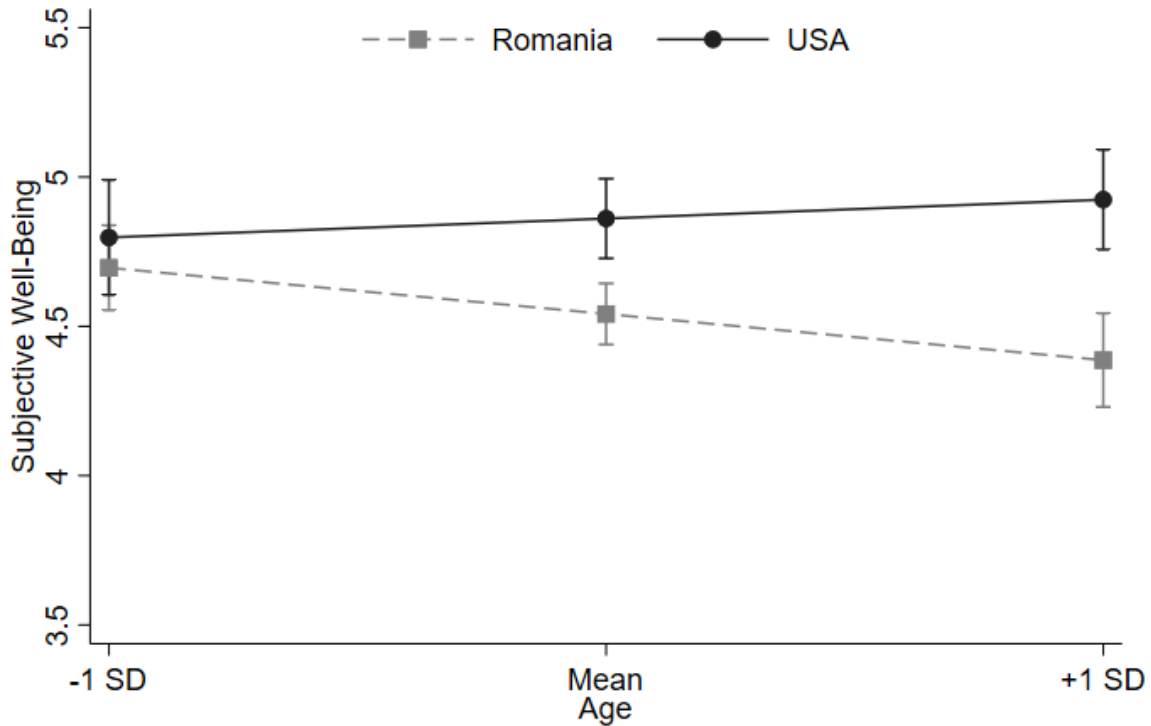
Figure 4. Subjective well-being as a function of age and culture in Study 2; x-axis: mean-

centered age; y-axis: life satisfaction score (ranging from 1 to 7).

In Study 2, we hypothesized that coping strategies would explain the cultural differences

in the association between age and subjective well-being. To test the idea, we first examined

cultural differences in how age was related to use of copying strategies in stress situations, and

then we directly tested the mediation effect of coping strategies in a path model. First, we ran a

multiple regression with high control coping as the outcome variable and age (mean-centered),

culture, and their interaction term as the predictor variables. There was a significant interaction

between age and culture, predicting high control coping, β = .174, *b* = 0.006, *SE* = 0.002,

$t(1,021) = 2.77$, $p = .006$, 95% confidence interval for $b = [0.002, 0.011]$. Older age was

associated with more high control coping among Americans, $\beta = .154$, $b = 0.006$, $SE = 0.002$,

$t(1,021) = 3.30$, $p = .001$, 95% confidence interval for $b = [0.002, 0.009]$, whereas there was no

significant relationship between age and high control coping among Romanians, $\beta = -.020$, $b = -0.001$, $SE = 0.002$, $t(1,021) = -0.47$, $p = .635$, 95% confidence interval for $b = [-0.004, 0.002]$.

Viewed differently, among older participants (1 SD above the mean of age), Americans reported

a significantly higher degree of high control coping than Romanians, $\beta = .194$, $b = 0.123$, $SE = 0.056$, $t(1,021) = 2.20$, $p = .028$, 95% confidence interval for $b = [0.013, 0.232]$. Among

younger participants (1 SD below the mean of age), there was no significant cultural difference

in high control coping, $\beta = -.154$, $b = -0.097$, $SE = 0.058$, $t(1,021) = -1.67$, $p = .095$, 95%

confidence interval for $b = [-0.212, 0.017]$.

 We also ran a multiple regression with low control coping as the outcome variable and

age (mean-centered), culture, and their interaction term as the predictor variables. There was a

significant interaction between age and culture on low control coping, $\beta = -.261$, $b = -0.010$, $SE = 0.002$, $t(1,021) = -4.21$, $p < .001$, 95% confidence interval for $b = [-0.015, -0.005]$. Older age

was associated with less low control coping among Americans, $\beta = -.184$, $b = -0.007$, $SE = 0.002$, $t(1,021) = -3.99$, $p < .001$, 95% confidence interval for $b = [-0.011, -0.004]$. In contrast,

there was no significant association between age and low control coping among Romanians, $\beta = .077$, $b = 0.003$, $SE = 0.002$, $t(1,021) = 1.86$, $p = .063$, 95% confidence interval for $b = [-0.0002, 0.006]$. Viewed differently, among older participants (1 SD above the mean of age),

Romanians reported a significantly higher degree of low control coping than Americans, $\beta = -.573$, $b = -0.386$, $SE = 0.059$, $t(1,021) = -6.59$, $p < .001$, 95% confidence interval for $b = [-0.500, -0.271]$. In contrast, among younger participants (1 SD below the mean of age), there was no

cultural difference in low control coping, $\beta = -.052$, $b = -0.035$, $SE = 0.061$, $t(1,021) = -0.57$, $p = .570$, 95% confidence interval for $b = [-0.155, 0.085]$.

In short, there were no significant cultural differences in coping strategies in younger age groups, and the noticeable cultural differences emerged among a relatively older group of individuals. As age increased, American participants reported using a higher degree of high control coping and a lower degree of low control coping. In contrast, Romanian participants did not differ in their coping strategies by age.

Next, we examined whether the cultural difference in the relationship between age and well-being can be explained by cultural differences in use of coping strategies with age. A path analysis (see Figure 5) revealed that, consistent with the results above, the interaction between age and culture predicted high control coping, $\beta = .174$, $b = 0.006$, $SE = 0.002$, $p = .006$, 95% confidence interval for $b = [0.002, 0.011]$, and low control coping, $\beta = -.261$, $b = -0.010$, $SE = 0.002$, $p < .001$, 95% confidence interval for $b = [-0.015, -0.005]$. High control and low control coping, in turn, significantly, but in the opposite directions, predicted subjective well-being, $\beta = .211$, $b = 0.443$, $SE = 0.062$, $p < .001$, 95% confidence interval for $b = [0.322, 0.565]$, for high control coping and $\beta = -.241$, $b = -0.475$, $SE = 0.059$, $p < .001$, 95% confidence interval for $b = [-0.591, -0.359]$ for low control coping. High control coping was positively associated with well-being, whereas low control coping was negatively associated with well-being.

The indirect effect of age X culture interaction on subjective well-being via high control coping was significant, $\beta = .037$, $b = 0.003$, $SE = 0.001$, $p = .010$, 95% confidence interval for $b = [0.001, 0.005]$, as was the indirect effect of age X culture on subjective well-being via low control coping, $\beta = .063$, $b = 0.005$, $SE = 0.001$, $p < .001$, 95% confidence interval for $b = [0.002, 0.007]$. In this path model, the direct effect of age X culture interaction on well-being

was not significant, β = .065, b = 0.005, SE = 0.005, p = .279, 95% confidence interval for b = [-0.004, 0.014]. Thus, coping strategies fully mediated the link between the age X culture interaction and subjective well-being. In summary, older age was associated with more high control coping but less low control coping in the United States, but there was no significant age-related variation in coping strategies in Romania, which explained the cultural difference in the association between age and subjective well-being.

There were no significant changes in key findings in Study 2 when we controlled for gender, education, and subjective social class. Specific results including the control variables are reported in Supplemental Material.
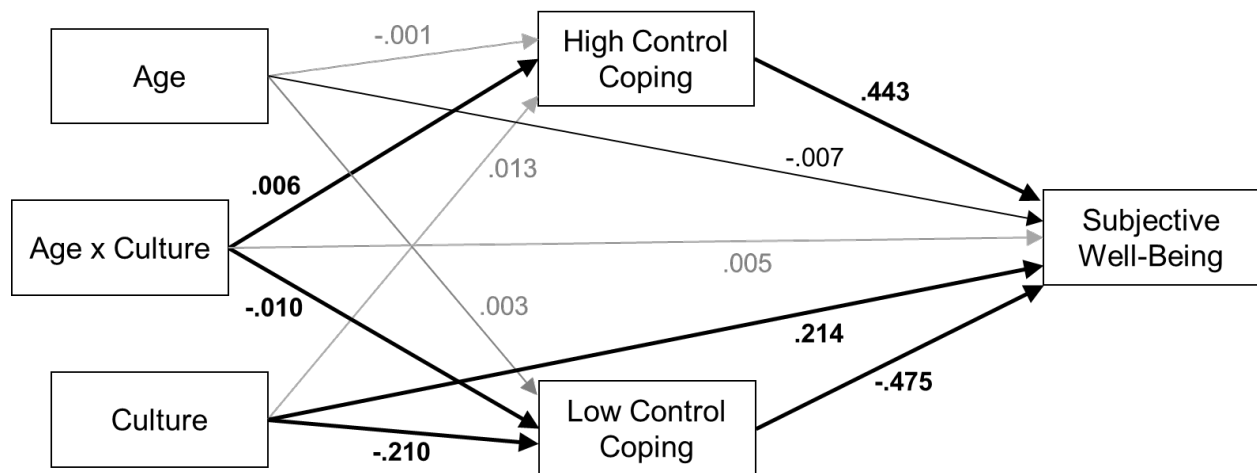
Figure 5. Path model examining whether the interaction of age and culture on subjective well-being was mediated by high control and low control coping. The values shown are unstandardized path coefficients; black lines represent significant paths (bold line: $p < .01$; thin lines: $p < .05$), and gray lines represent non-significant paths ($p > .05$); culture was dummy codded (Romania = 0, U.S. = 1).

Discussion

Study 2 provided converging evidence of cultural differences in the relationship between age and subjective well-being. Age was negatively associated with subjective well-being only in Romania, a high UA culture. This cultural difference was explained by the differences in stress coping strategies used by older individuals in the United States and Romania. Consistent with the greater sense of control with older age in lower UA cultures (Study 1), we found that Americans reported using more high control coping and less low control coping with older age, but Romanians did not show such changes. The tendency among older Americans to address stressful situations actively seems to prevent the decreasing trajectory of subjective well-being in older ages, which is markedly observed among Romanians.

General Discussion

The current research is an important step in making sense of previous mixed findings in the relationship between age and well-being. We identified, for the first time, UA as a key cultural orientation that moderates the implications of age for subjective well-being. Our findings suggest that a universal pathway for the progression of subjective well-being over the lifespan may not exist, and psychological aging occurs in a cultural and historical context. Our research also contributes to the field of cross-cultural/cultural psychology more broadly. Research studying the effects of culture on psychological functioning has mainly focused on the role of individualism versus collectivism, just one of Hofstede's cultural dimensions. In the present research, we turned our attention to an understudied cultural dimension, UA, and provided evidence for UA importantly shaping individual psychology. How UA is associated with psychological tendencies is an important but less examined area that will advance the understanding of interrelation between culture and psychology.

We note some limitations in the current research. Our data was cross-sectional so we could not distinguish clearly between aging, period, and cohort effects. However, a significant aspect of these studies was the inclusion of data from a multitude of countries with various historical backgrounds, which increases the likelihood that the present findings are driven by aging. We also note that caution should be exercised in the interpretation of the causal directions in the associations in the current research given its cross-sectional design. Further research is needed to discover the causal relationships in our model by employing diverse approaches. Moreover, Romania and the United States in Study 2 differ not only in UA, but also in other cultural dimensions and objective indices; thus, Study 2 alone cannot attest to the role of UA. However, the two studies, taken together, complement the limitations of each other, and the fact that both studies present highly consistent results increases confidence in UA as a key factor, although extensive future research is needed for full understanding.

The present studies also have significant practical implications. Responding to the changing makeup of the global population structure represents one of humanity's biggest challenges. From the global, to the national, and down to the family level, solutions are needed to deal with the quickly increasing number of elderly individuals. People living longer does not necessarily mean that they are living healthier and more satisfying lives. The present research suggests that in high UA cultures, in particular, reducing uncertainty in the environment of elderly individuals can alleviate stress and result in prolonged well-being. Subjective well-being, in turn, is associated with a variety of positive outcomes including better health. Resources allocated to preemptive measures addressing uncertainty in the environment could improve lives and minimize the costs associated with elderly care.

Author Contributions

All authors contributed to the development of the ideas presented in this article. S. I. Lawrie, K. Eom, and H. Kim designed the studies. Data collection was performed by S. I. Lawrie, D. Moza, and A. Gavreliuc. Data analysis was performed by K. Eom and S. I. Lawrie under the supervision of H. Kim. S. I. Lawrie, K. Eom, and H. Kim drafted the manuscript. All authors provided critical revisions, and all authors approved the final version of the manuscript for submission.

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Table S1. Means and standard deviations of age, subjective well-being, and correlations between age and subjective well-being by country in Study 1.

		Age		Subjective well-being		Correlation between age and subjective well-being
Nation	*N*	*M*	*SD*	*M*	*SD*	*r*
New Zealand	951	50.07	16.41	0.25	0.72	.131
Singapore	1016	41.85	16.56	0.11	0.62	.099
Sweden	1432	47.92	19.14	0.30	0.67	.099
Libya	902	38.17	13.28	0.12	0.88	.068
United States	1921	49.08	16.79	0.19	0.75	.054
Australia	1473	50.96	16.17	0.21	0.71	.038
Japan	1198	51.61	15.36	0.05	0.77	.027
Hong Kong	1474	44.51	16.41	-0.04	0.69	.025
Malaysia	1926	40.01	13.96	0.29	0.62	.019
Turkey	1552	38.40	14.49	0.09	0.86	.017
Trinidad and Tobago	970	45.73	17.64	0.29	0.82	.016
Netherlands	5492	54.77	15.85	0.19	0.63	-.000
China	1166	43.58	14.80	-0.10	0.72	-.010
Brazil	1779	42.57	16.23	0.27	0.75	-.011
Thailand	1195	45.40	12.29	0.25	0.69	-.019
South Africa	1179	36.58	13.97	-0.08	0.94	-.021
Egypt	1070	40.62	15.26	-1.24	1.08	-.030
Kuwait	1159	36.54	11.81	0.19	0.77	-.038
Uruguay	1986	44.80	18.03	0.17	0.76	-.054
Morocco	1299	37.05	13.24	-0.44	0.87	-.055
Ghana	1919	30.92	12.70	0.01	0.91	-.061
India	962	40.91	14.46	-0.16	0.84	-.063
Mexico	1543	37.28	15.00	0.66	0.67	-.063
Colombia	711	40.39	15.76	0.54	0.69	-.064
Lebanon	1759	38.20	14.83	-0.23	0.75	-.066
Jordan	1198	39.84	15.46	-0.16	0.82	-.073
South Korea	1157	43.14	14.95	-0.15	0.67	-.079
Philippines	1199	42.69	15.55	0.24	0.91	-.094
Peru	904	39.06	16.25	0.02	0.79	-.095

Argentina	1432	43.22	17.58	0.14	0.67	-.096
Iraq	2210	36.60	13.41	-0.49	0.86	-.096
Nigeria	1921	31.22	11.69	-0.02	0.91	-.105
Germany	1003	49.49	17.55	0.07	0.77	-.119
Ecuador	3357	39.79	16.13	0.45	0.66	-.122
Pakistan	1006	34.33	11.85	0.19	0.89	-.122
Spain	1133	46.36	17.75	-0.12	0.66	-.143
Chile	1137	44.17	16.14	0.03	0.72	-.154
Poland	966	48.05	17.44	0.04	0.68	-.198
Romania	1545	48.21	17.22	-0.31	0.87	-.234
Russia	1426	45.80	17.44	-0.33	0.80	-.255
Slovenia	1523	49.19	17.54	0.01	0.74	-.259
Ukraine	2144	46.91	18.24	-0.43	0.92	-.281
Estonia	933	48.37	18.49	-0.35	0.78	-.288

Table S2. Summary of the multilevel models in Study 1.

Variable	Model 1		Model 2		Model 2 with sense of control as the outcome		Model 3	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Intercept	0.017	0.047	0.012	0.040	7.222***	0.076	0.002	0.036
Age	-0.054***	0.010	-0.023*	0.010	0.031	0.020	-0.026**	0.009
Uncertainty Avoidance	-0.051	0.048	-0.034	0.045	0.056	0.085	-0.040	0.040
Age x UA	-0.041***	0.010	-0.037***	0.010	-0.049*	0.020	-0.031**	0.009
Gender			0.021***	0.003	-0.046***	0.008	0.026***	0.003
Perceived Relative Income			0.200***	0.003	0.314***	0.009	0.165***	0.003
Education			0.032***	0.004	0.129***	0.010	0.018***	0.004
GDP per capita			-0.025	0.081	-0.015	0.151	-0.024	0.072
Political Stability			0.050	0.061	0.158	0.114	0.032	0.054
Age Dependency Ratio			-0.030	0.063	-0.295*	0.118	0.003	0.055
Homicide Rate			0.150**	0.048	0.239**	0.090	0.123**	0.042
Life Expectancy at Birth			0.139†	0.074	0.214	0.139	0.115†	0.066
Sense of Control							0.245***	0.003

Note. UA: Uncertainty Avoidance;

***$p < .001$, **$p < .01$, *$p < .05$, †$p < .10$

Table S3. Summary of the multilevel models in Study 1 (happiness as an outcome).

Variable	Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE
Intercept	3.151	0.047	3.147	0.036	3.142	0.034
Age	-0.053***	0.007	-0.034***	0.007	-0.036***	0.007
Uncertainty Avoidance	-0.075†	0.040	-0.055	0.040	-0.059	0.038
Age x UA	-0.033***	0.007	-0.030***	0.007	-0.027***	0.007
Gender			0.017***	0.003	0.019***	0.003
Perceived Relative Income			0.124***	0.003	0.105***	0.003
Education			0.019***	0.003	0.011***	0.003
GDP per capita			0.010	0.072	0.011	0.068
Political Stability			0.053	0.055	0.044	0.051
Age Dependency Ratio			-0.036	0.056	-0.018	0.053
Homicide Rate			0.090*	0.043	0.076†	0.041
Life Expectancy at Birth			0.038	0.066	0.025	0.063
Sense of Control					0.132***	0.003

Note. UA: Uncertainty Avoidance

***p < .001, *p < .05, † *p* < .10

Table S4. Summary of the multilevel models in Study 1 (life satisfaction as an outcome).

Variable	Model 1		Model 2		Model 3	
	b	*SE*	*b*	*SE*	*b*	*SE*
Intercept	7.015	0.106	7.000	0.081	6.971	0.066
Age	-0.085**	0.026	-0.002	0.026	-0.013	0.023
Uncertainty Avoidance	-0.005	0.107	0.015	0.090	-0.004	0.073
Age x UA	-0.087**	0.026	-0.075**	0.026	-0.059*	0.023
Gender			0.045***	0.008	0.060***	0.008
Perceived Relative Income			0.527***	0.009	0.426***	0.008
Education			0.086***	0.010	0.044***	0.009
GDP per capita			-0.144	0.162	-0.139	0.131
Political Stability			0.065	0.122	0.014	0.099
Age Dependency Ratio			-0.028	0.126	0.067	0.102
Homicide Rate			0.402***	0.096	0.325***	0.078
Life Expectancy at Birth			0.509**	0.149	0.440***	0.120
Sense of Control					0.705***	0.008

Note. UA: Uncertainty Avoidance

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

Multilevel Analyses and a Path Model Controlling for GINI Index in Study 1

Given the significant association between income inequality and happiness (e.g., Oishi, Kesebir, & Diener, 2011), we also ran the key analyses in Study 1 controlling for the GINI index in addition to the other control variables used in Study 1. GINI estimates were obtained from the CIA World Factbook (U.S. Central Intelligence Agency, 2018). Because the GINI index is estimated less frequently than some of our other country-level variables, these estimates were within ten years of World Values Survey data collection. Five countries (Iraq, Kuwait, Lebanon, Trinidad and Tobago, and Libya) were excluded because of unavailability of the GINI index. Consequently, 38 countries ($N = 57,881$) were used in the following analyses.

Specifically, we ran Model 2 in the main text, including GINI as an additional country level factor. The results remained consistent. There was a significant negative cross-level interaction between age and UA on subjective well-being, $b = -0.039$, $SE = 0.011$, $z = -3.55$, $p < .001$, 95% confidence interval = [-0.060, -0.017]. Age was negatively associated with subjective well-being in countries higher in UA (1 SD above the mean), $b = -0.065$, $SE = 0.016$, $z = -4.20$, $p < .001$, 95% confidence interval = [-0.096, -0.035]. In contrast, there was no significant relationship between age and subjective well-being in countries lower in UA (1 SD below the mean), $b = 0.013$, $SE = 0.016$, $z = 0.81$, $p = .418$, 95% confidence interval = [-0.018, 0.043].

We also found a negative cross-level interaction between age and UA on sense of control, $b = -0.055$, $SE = 0.022$, $z = -2.55$, $p = .011$, 95% confidence interval = [-0.098, -0.013]. Age was positively associated with sense of control in countries lower in UA (1 SD below the mean), $b = 0.077$, $SE = 0.031$, $z = 2.50$, $p = .012$, 95% confidence interval = [0.017, 0.137]. In contrast, there was no significant association between age and sense of control in countries higher in UA

(1 SD above the mean), b = -0.034, SE = 0.031, z = -1.09, p = .274, 95% confidence interval = [-0.094, 0.027].

A path analysis also showed results consistent with Study 1. The age X UA interaction significantly predicted sense of control, b = -0.059, SE = 0.016, z = -3.62, p < .001, 95% confidence interval = [-0.091, -0.027], which in turn positively predicted subjective well-being, b = 0.275, SE = 0.019, z = 14.59, p < .001, 95% confidence interval = [0.238, 0.312]. The indirect path from the age X UA interaction to subjective well-being through sense of control was significant, b = -0.016, SE = 0.005, z = -3.51, p < .001, 95% confidence interval = [-0.025, -0.007]. The direct path between the age X UA interaction and subjective well-being was still significant, b = -0.034, SE = 0.011, z = -3.22, p = .001, 95% confidence interval = [-0.055, -0.013].

Table S5. Descriptive statistics of and cultural differences in stress coping strategies in Study 2.

	Romania		USA		
	M	SD	M	SD	t value
Active	4.02	0.65	4.06	0.69	-1.077
Behavioral disengagement	1.95	0.84	1.65	0.84	5.493[***]
Emotional support	3.31	0.98	3.35	1.07	-0.615
Instrumental support	3.25	0.94	3.47	1.00	-3.517[***]
Planning	3.49	0.80	3.50	0.92	-0.147
Positive reframing	3.80	0.78	3.81	0.93	-0.128
Denial	2.08	1.01	1.59	0.87	7.980[***]
Self-blame	2.87	1.06	2.93	1.13	-0.815
Substance use	1.37	0.83	1.69	1.05	-5.369[***]
Self-distraction	3.44	0.93	3.50	0.93	-1.084
Acceptance	3.44	0.83	3.77	0.80	-6.268[***]
Religion	3.00	1.30	2.72	1.50	3.100[**]
Humor	3.08	1.13	3.13	1.21	-0.582
Venting	2.85	0.91	2.69	0.94	2.749[**]

[***]$p < .001$, [**]$p < .01$

Table S6. Bivariate correlations between stress coping strategies by culture in Study 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Active	-	-.238***	.096*	.080*	.365***	.409***	-.137***	-.048	-.195***	.100*	.165***	.080*	.169***	.114**
2 Behavioral disengagement	-.245***	-	.176***	.185***	-.004	-.085*	.422***	.330***	.144***	.195***	.021	.117**	-.088*	.168***
3 Emotional support	.166**	.038	-	.824***	.357***	.145***	.238***	.193***	-.036	.306***	.153***	.413***	.101*	.315***
4 Instrumental support	.147**	.084	.754***	-	.286***	.143***	.231***	.183***	-.035	.303***	.174***	.328***	.113**	.238***
5 Planning	.466***	-.158**	.287***	.203***	-	.319***	.134**	.103**	-.068†	.190***	.214***	.832***	.074†	.167***
6 Positive reframing	.396***	-.106*	.149**	.096†	.405***	-	.035	-.118**	-.084*	.186***	.269***	.182***	.332***	.143***
7 Denial	-.034	.509***	.157**	.192***	.098†	.024	-	.227***	.139***	.330***	-.043	.235***	.004	.308***
8 Self-blame	-.172**	.432***	.164**	.188***	-.121*	-.198***	.290***	-	.215***	.195***	.033	.100*	.068†	.233***
9 Substance use	-.017	.422***	.093†	.140**	-.081	-.055	.377***	.266**	-	.128**	.068†	-.037	.143***	.141***
10 Self-distraction	-.026	.233***	.237***	.307***	-.030	.034	.335***	.277***	.186***	-	.131**	.189***	.146***	.317***
11 Acceptance	.313***	-.061	.048	.049	.159**	.359***	-.033	-.086†	.030	.048	-	.165***	.454***	.056
12 Religion	.190***	-.049	.314***	.204***	.868***	.275***	.158**	-.075	-.046	-.010	.050	-	-.020	.158***
13 Humor	.031	.131*	.083	.075	.021	.254***	.123*	.095†	.134**	.151**	.301***	-.001	-	.159***
14 Venting	.086†	.290***	.389***	.312***	.087†	-.008	.380***	.381***	.305***	.280***	.078	.083	.172	-

Note. The correlation coefficients of Romanian sample are presented on the top-right side of the diagonal; the correlation coefficients of US sample are presented on the down-left side of the diagonal.

***p < .001, **p < .01, *p < .05, †p < .10

Principal Component Analyses in Study 2

We first entered fourteen coping strategies into a principal components analysis with a promax rotation, separated by culture. The results showed noticeable cultural differences in the factor structure (Table S7).

Table S7. Initial principal components analysis by culture for fourteen coping strategies in Study 2. The factor loadings higher than .40 are bold-typed.

	Romania					USA			
	Component								
	1	2	3	4	5	1	2	3	4
Denial	**.748**	.106	-.019	-.046	-.212	**.817**	.304	-.058	-.010
Venting	**.723**	-.120	.054	.329	-.056	**.457**	.013	**.405**	.097
Self-distraction	**.649**	-.071	.118	.277	.014	.321	-.175	.399	.133
Behavioral disengagement	**.523**	.060	.079	-.392	-.069	**.851**	.025	-.159	-.047
Self-blame	**.457**	.075	.033	-.286	.125	**.543**	-.142	.228	-.139
Religion	.015	**.933**	.060	-.017	-.037	.143	**.964**	.020	-.140
Planning	.010	**.908**	-.038	.251	.019	.032	**.940**	.032	.052
Instrumental support	.049	-.027	**.942**	-.101	.095	-.070	.004	**.917**	-.042
Emotional support	.091	.061	**.893**	-.066	.052	-.089	.117	**.903**	-.052
Active	.033	.105	-.081	**.796**	.008	-.214	.297	.130	**.452**
Positive reframing	.137	.109	-.076	**.699**	.230	-.053	.304	-.050	**.633**
Acceptance	-.231	.147	.139	.007	**.814**	-.039	-.109	-.030	**.812**
Humor	.012	-.179	.049	.223	**.791**	.255	-.208	-.027	**.685**
Substance use	.339	.015	-.307	-.337	**.421**	**.676**	-.001	-.062	.122

The first factor in both cultures appeared to include mainly passive and avoidant coping strategies reflective of low control, such as denial and behavioral disengagement. The fourth factor in both cultures appeared to include strategies to cope with stressors in a more active

manner reflective of high control, such as active coping and positive reframing. Thus, these two factors were our main interests in Study 2. Since there were noticeable cultural differences in what coping strategies were included in the two factors, we selected the common ones between the U.S. and Romania. Denial, behavioral disengagement, self-blame, and venting were selected from the first factor, and active coping and positive reframing were selected from the fourth factor.

These six coping strategies were re-entered into a second principal components analysis with a promax rotation. Two factors with common coping strategies were extracted in the U.S. and Romania (Table S8). The first factor was named *low control* coping, consisting of strategies avoiding and disengaging oneself from the problems (i.e., denial, behavioral disengagement, self-blame, and venting). The second factor was named *high control* coping, consisting of strategies actively changing the actual or perceived situations to address stressors (i.e., positive reframing and active coping).

Table S8. Follow-up principal components analysis by culture for six coping strategies in Study 2. The factor loadings higher than .40 are bold-typed.

	Romania		USA	
	Component			
	1	2	1	2
Denial	**.753**	.016	**.784**	.142
Behavioral disengagement	**.718**	-.246	**.736**	-.197
Self-blame	**.624**	-.083	**.736**	.239
Venting	**.616**	**.417**	**.660**	-.238
Positive reframing	.026	**.801**	.003	**.833**
Active	-.141	**.800**	.038	**.802**

Table S9. Descriptive statistics of and cultural differences in key variables in Study 2.

	Romania		USA		
	M	SD	M	SD	*t* value
Age	34.81	16.40	39.16	19.22	-3.848***
Subjective well-being	4.55	1.26	4.87	1.41	-3.698***
High control coping	3.91	0.60	3.94	0.68	-0.652
Low control coping	2.44	0.65	2.21	0.69	5.232***

***$p < .001$

Table S10. Bivariate correlations among key variables by each culture in Study 2.

		1	2	3	4
1	Age	-	-.114**	-.020	.075†
2	Subjective well-being	.049	-	.166***	-.211***
3	High control coping	.156**	.326***	-	-.067†
4	Low control coping	-.194***	-.331***	-.138**	-

Note. The correlation coefficients of Romanian sample are presented on the top-right side of the diagonal; the correlation coefficients of US sample are presented on the down-left side of the diagonal; ***$p < .001$, **$p < .01$, †$p < .10$

Analyses with Covariates (Gender, Education, and Subjective Social Class) in Study 2

We ran all the analyses in Study 2 controlling for gender, highest level of education, and subjective social class. Education level was dummy-coded (lower than college degree = 0 vs. college degree or higher = 1). Subjective social class was measured by five categories: lower class, lower middle class, solidly middle class, upper middle class, and upper class.

It was not clear-cut how to treat the education level of students currently in college. Thus, we treated their education level in two different ways in separate analyses. In one analysis, we treated college students' highest level of education as lower than a college degree since they have not yet earned a college degree. In the other analysis, we treated their highest education as college degree or higher since they were in the process of earning a college degree and would earn one in the near future. We examined whether this variation led to changes in the effects of culture and age on subjective well-being.

In short, results remained consistent controlling for gender, education, and subjective social class. Age was negatively associated with subjective well-being only in Romania but not in the U.S. There was no significant change in key findings according to the different ways of coding highest education for current students. Specific results are reported below.

1. Analyses with college students coded as lower than college degree (controlling for gender, education, and subjective social class)

Age X culture interaction on subjective well-being. There was a significant interaction between age and culture on well-being, $b = 0.013$, $SE = 0.005$, $t(963) = 2.66$, $p = .008$, 95% confidence interval = [0.003, 0.022]. Age was significantly negatively associated with subjective well-being among Romanians, $b = -0.008$, $SE = 0.003$, $t(963) = -2.45$, $p = .014$, 95% confidence interval = [-0.014, -0.002]. In contrast, there was no significant association between age and

subjective well-being among Americans, $b = 0.005$, $SE = 0.004$, $t(963) = 1.24$, $p = .215$, 95%

confidence interval = [-0.003, 0.012].

Age X culture interaction on high control coping. There was a significant interaction

between age and culture on high control coping, $b = 0.006$, $SE = 0.002$, $t(963) = 2.66$, $p = .008$,

95% confidence interval = [0.002, 0.011]. Older age was associated with more high control

coping among Americans, $b = 0.005$, $SE = 0.002$, $t(963) = 2.89$, $p = .004$, 95% confidence

interval = [0.002, 0.009], whereas there was no significant association between age and high

control coping among Romanians, $b = -0.001$, $SE = 0.002$, $t(963) = -0.56$, $p = .578$, 95%

confidence interval = [-0.004, 0.002].

Age X culture interaction on low control coping. There was a significant interaction

between age and culture on low control coping, $b = -0.010$, $SE = 0.002$, $t(963) = -4.23$, $p < .001$,

95% confidence interval = [-0.015, -0.006]. Older age was associated with less low control

coping among Americans, $b = -0.007$, $SE = 0.002$, $t(963) = -3.74$, $p < .001$, 95% confidence

interval = [-0.011, -0.003]. In contrast, there was no significant association between age and low

control coping among Romanians, $b = 0.003$, $SE = 0.002$, $t(963) = 1.88$, $p = .061$, 95%

confidence interval = [-0.0002, 0.006].

Path analysis. A path analysis controlling for gender, education, and subjective social

class revealed consistent results such that the interaction between age and culture predicted high

control coping, $b = 0.006$, $SE = 0.002$, $p = .007$, 95% confidence interval = [0.002, 0.011] as well

as low control coping, $b = -0.010$, $SE = 0.002$, $p < .001$, 95% confidence interval = [-0.015, -

0.005]. High control and low control coping in turn predicted subjective well-being in the

opposite directions. High control coping positively predicted well-being, $b = 0.471$, $SE = 0.062$,

$p < .001$, 95% confidence interval = [0.349, 0.593]. Low control coping negatively predicted

well-being, $b = -0.420$, $SE = 0.059$, $p < .001$, 95% confidence interval = [-0.535, -0.304]. The indirect effect of age X culture interaction on subjective well-being via high control coping was significant, $b = 0.003$, $SE = 0.001$, $p = .011$, 95% confidence interval = [0.001, 0.005]. The indirect effect of age X culture on subjective well-being via low control coping was significant as well, $b = 0.004$, $SE = 0.001$, $p < .001$, 95% confidence interval = [0.002, 0.007]. Finally, the direct effect of age X culture interaction on subjective well-being was not significant, $b = 0.005$, $SE = 0.005$, $p = .233$, 95% confidence interval = [-0.004, 0.014].

2. Analyses with college students coded as college degree or higher (controlling for gender, education, and subjective social class)

Age X culture interaction on subjective well-being. There was a significant interaction between age and culture on subjective well-being, $b = 0.011$, $SE = 0.005$, $t(963) = 2.38$, $p = .017$, 95% confidence interval = [0.002, 0.021]. Although the association between age and subjective well-being was not significant in either culture, the directions were the opposite; in a negative direction among Romanians, $b = -0.006$, $SE = 0.004$, $t(963) = -1.67$, $p = .095$, 95% confidence interval = [-0.013, 0.001] and in a positive direction among Americans, $b = 0.006$, $SE = 0.004$, $t(963) = 1.56$, $p = .120$, 95% confidence interval = [-0.001, 0.012].

Age X culture interaction on high control coping. There was a significant interaction between age and culture on high control coping, $b = 0.006$, $SE = 0.002$, $t(963) = 2.44$, $p = .015$, 95% confidence interval = [0.001, 0.010]. Older age was associated with more high control coping among Americans, $b = 0.006$, $SE = 0.002$, $t(963) = 3.24$, $p = .001$, 95% confidence interval = [0.002, 0.009], whereas there was no significant relationship between age and high control coping among Romanians, $b = -0.0001$, $SE = 0.002$, $t(963) = -0.04$, $p = .965$, 95% confidence interval = [-0.003, 0.003].

Age X culture interaction on low control coping. There was a significant interaction between age and culture on low control coping, $b = -0.009$, $SE = 0.003$, $t(963) = -3.84$, $p < .001$, 95% confidence interval = [-0.014, -0.005]. Older age was associated with less low control coping among Americans, $b = -0.007$, $SE = 0.002$, $t(963) = -3.90$, $p < .001$, 95% confidence interval = [-0.011, -0.004]. In contrast, there was no significant association between age and low control coping among Romanians, $b = 0.002$, $SE = 0.002$, $t(963) = 1.29$, $p = .199$, 95% confidence interval = [-0.001, 0.006].

Path analysis. A path analysis controlling for gender, education, and subjective social class showed consistent results again. The interaction between age and culture predicted high control coping, $b = 0.006$, $SE = 0.002$, $p = .007$, 95% confidence interval = [0.002, 0.011] as well as low control coping, $b = -0.010$, $SE = 0.002$, $p < .001$, 95% confidence interval = [-0.015, -0.005]. High control and low control coping, in turn, predicted subjective well-being in the opposite directions. High control coping positively predicted well-being, $b = 0.469$, $SE = 0.062$, $p < .001$, 95% confidence interval = [0.347, 0.591]. Low control coping negatively predicted well-being, $b = -0.417$, $SE = 0.059$, $p < .001$, 95% confidence interval = [-0.533, -0.301]. The indirect effect of age X culture interaction on subjective well-being via high control coping was significant, $b = 0.003$, $SE = 0.001$, $p = .011$, 95% confidence interval = [0.001, 0.005]. The indirect effect of age X culture on subjective well-being via low control coping was also significant, $b = 0.004$, $SE = 0.001$, $p < .001$, 95% confidence interval = [0.002, 0.007]. The direct effect of age X culture interaction on subjective well-being was not significant, $b = 0.005$, $SE = 0.005$, $p = .294$, 95% confidence interval = [-0.004, 0.014].

Test of the Curvilinear Association between Age and Subjective Well-Being and

Moderating Effects of Culture.

We also examined the curvilinear relationship between age and subjective well-being and whether culture moderated the curvilinear association between age and subjective well-being, if any. We did so by additionally entering the terms of squared age and interaction between squared age and culture into the models along with other covariates in Studies 1 (Model 2) and 2. In Study 1, although the squared age term was significant in predicting subjective well-being, $b =$ 0.033, $SE = 0.003$, $z = 10.83$, $p < .001$, 95% confidence interval = [0.027, 0.039], the squared age X UA interaction was not significant, $b = 0.002$, $SE = 0.003$, $z = 0.74$, $p = .459$, 95% confidence interval = [-0.003, 0.008]. The age X UA interaction was still significant, $b = -0.039$, $SE =$ 0.010, $z = -3.72$, $p < .001$, 95% confidence interval = [-0.059, -0.018].

In Study 2, the squared age term was not significant in predicting subjective well-being, b = -0.0002, $SE = 0.0002$, $t(961) = -0.88$, $p = .377$, 95% confidence interval = [-0.0006, 0.0002]. The squared age X UA interaction was not significant, $b = 0.0006$, $SE = 0.0003$, $t(961) = 1.89$, p = .059, 95% confidence interval = [-0.00002, 0.001]. The original age X UA interaction became non-significant, $b = 0.006$, $SE = 0.006$, $t(961) = 1.00$, $p = .317$, 95% confidence interval = [-0.006, 0.017]. In short, we did not find the consistent evidence either for curvilinear association between age and subjective well-being or for culture moderating the curvilinear relationship between the two factors.