Minimal Social Interactions and Life Satisfaction: The Role of Greeting, Thanking, and Conversing

Social Psychological and Personality Science I-12 © The Author(s) 2023 Article reuse guidelines: sagepub.com/journals-permissions DOI: 10.1177/19485506231209793 journals.sagepub.com/home/spp Sage

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Abstract

Recent studies have highlighted the subjective well-being benefits of minimal social interactions (i.e., interactions with weak ties and strangers). However, the empirical work to date has primarily focused on minimal social interactions that involve conversations and relied on Western samples. In this research, we examined not only conversations but also momentary interactions (i.e., greeting and thanking) in a large, nationally representative, non-WEIRD sample from Turkey (N = 3,266). We used an instrumental variable approach to provide evidence for the direction of the association between minimal social interactions and life satisfaction. We also investigated the robustness of this approach by replicating one of our key findings in a very large, English-speaking, convenience sample (N = 60,141). Across the two samples, we found that having conversations with strangers and weak ties, as well as simply greeting and thanking weak ties, predicted greater life satisfaction.

Keywords

minimal social interactions, life satisfaction, instrumental variable regression, subjective well-being

Introduction

Decades of research and theorizing highlight the importance of social connections for well-being (Baumeister & Leary, 2007; Bowlby, 1973; Deci & Ryan, 2000). However, most of this work focused on interactions with close social ties, such as romantic partners, friends, and family at the expense of interactions with weak social ties (i.e., acquaintances) and strangers (minimal social interactions; Fingerman & Hay, 2002). An emerging literature in the last decade started addressing this gap and provided evidence for the crucial role of minimal social interactions in subjective well-being¹ (for reviews see Atir et al., 2023; Hirsch & Clark, 2019; Van Lange & Columbus, 2021). However, this work has primarily focused on minimal interactions that involve conversations and used Western samples. In this research, we examined not only conversations but also momentary interactions (i.e., greeting and thanking), in a large, nationally representative sample from Turkey. Using an instrumental variable approach—a widely employed technique in statistics, econometrics, and epidemiology-we estimated the *cau*sal associations of different types of minimal interactions (greeting, thanking, and conversing) with life satisfaction. Because this is the first study using an instrumental variable approach in minimal interactions research, we also leveraged a second sample (a large English-speaking sample primarily from the United Kingdom) to demonstrate the robustness of our methodological approach.

For many of us, everyday life involves numerous minimal social interactions. We may interact with a neighbor who is caring for their garden, a coworker who is working on the same shift, or our regular barista serving us our morning coffee. We may also interact with strangers, such as fellow commuters waiting for the same train or someone at the shops. In fact, on a typical day, individuals interact more often with non-close others than close ones (Kahneman et al., 2004; Sandstrom & Dunn, 2014b), documenting that minimal interactions are an essential part of daily life.

These interactions are consequential: College students and community members were happier when they interacted with more weak ties than usual (Sandstrom & Dunn,

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2014b). Even interactions with strangers can benefit subjective well-being (e.g., Boothby & Bohns, 2021). Commuters who were instructed to have (vs. not have) a conversation with a stranger on the train or the bus reported more positive feelings (Epley & Schroeder, 2014; Schroeder et al., 2022). When ordering coffee, people who were instructed to smile, make eye contact, and have a brief conversation with the barista had greater positive and lower negative affect than those instructed to have their money ready and avoid unnecessary conversation (Sandstrom & Dunn, 2014a). All in all, minimal social interactions are not only common but also important for subjective well-being.

Because past work mostly focused on interactions that involved some sort of conversation, an important question remains: Can very minimal social interactions, such as simply saying hello or thank you to a weak tie or stranger, also contribute to subjective well-being? On one hand, greeting and thanking others (i.e., momentary interactions) may have positive associations with subjective well-being. People at a college campus felt a greater sense of connection to others if a confederate minimally acknowledged them by simply making eye contact (vs. not) as they walked by (Wesselmann et al., 2012). Similarly, people appreciated their weak ties reaching out to them just to "check in and say hello" (Liu et al., 2023). These studies examined the recipients' reactions, but similar effects might occur for the initiators as shown in gratitude research (Algoe, 2012; Kumar & Epley, 2018). Overall, this work implies that momentary interactions in which people acknowledge and feel acknowledged by another person, such as when greeting or thanking, may increase subjective well-being. On the contrary, research on conversation depth suggests that momentary interactions may have no meaningful association with subjective well-being. Deeper interactions allow for greater self-disclosure and social connectedness and can have greater subjective well-being benefits than shallow interactions (Kardas et al., 2022; Mehl et al., 2010; Milek et al., 2018; Sun et al., 2020). This work suggests that momentary social interactions like greeting and thanking may not have the same subjective well-being benefits as conversations, which allow for deeper connections.

To our knowledge, only one study to date directly demonstrated that the initiators of momentary interactions experienced greater subjective well-being (Gunaydin et al., 2021). The study found that commuters between downtown and the university campus reported greater subjective well-being when they engaged in momentary interactions with shuttle drivers. This was true both in a survey in which participants reported how frequently they greeted, thanked, and expressed good wishes to drivers and in an experiment in which participants were instructed to either thank and express good wishes to the driver or to not speak with them. However, this research did not examine subjective well-being produced by different types of interactions separately. We believe this is an important gap because concerns about being rejected or not knowing what to say during conversations (Sandstrom & Boothby, 2021) apply less to a simple hello or thanks, making momentary interactions easier targets for intervention. In this study, we address this gap by examining the subjective well-being benefits of three kinds of interactions: greeting, thanking, and conversing.

Another limitation of research on minimal social interactions (and social relationships more broadly) is being mostly restricted to Western samples (McGorray et al., 2023). Previous research focused on North American and European cultures, which are relatively more individualistic and have looser social ties (Gelfand et al., 2011; Triandis, 1995). In such cultures, being sociable is more desirable than in collectivist cultures with tighter social ties (Oishi & Schimmack, 2010). One might expect that minimal interactions are more beneficial in contexts where sociability is desirable. In this study, we estimated the association between minimal social interactions and subjective wellbeing in a nationally representative community sample from Turkey, which is characterized by a tight and collectivist culture (e.g., Gelfand et al., 2011).

To our knowledge, there is currently only one empirical study examining the associations between minimal social interactions and subjective well-being in a non-Western sample (Gunaydin et al., 2021). However, this study's sample consisted primarily of students from a private university. Because the sample was highly educated, mostly affluent, and residing in a highly developed, metropolitan area of Turkey, it may share more similarities than differences with Western samples used in prior research. Indeed, student samples across different cultures were shown to be similar to one another in their personal relationships than community samples (Adams & Plaut, 2003). Therefore, evidence from representative community samples is needed to more confidently conclude that the benefits of minimal interactions generalize to non-WEIRD cultures.

Is there a *causal* association between different types of minimal social interactions and subjective well-being? There are several experimental studies on students, commuters, and coffee shop customers that show a causal association (Epley & Schroeder, 2014; Sandstrom & Dunn, 2014a, 2014b; Schroeder et al., 2022). However, limiting causal inferences to experiments often comes at the expense of generalizability. Most experimental studies use convenience samples that are relatively small and far from being representative of the general population. Non-experimental methods of causal inference open up opportunities for accessing larger, more representative samples that researchers are unable to reach in experiments, strengthening the case for psychological science to inform intervention and policy decisions (Grosz et al., 2020). In this study, we employ one of these methods-the instrumental variable approach—which is widely used in statistics, econometrics, and epidemiology-and is now gaining traction in psychology (e.g., Obschonka et al., 2018; Talhelm et al., 2014) and other social sciences (Rajkumar et al., 2022).

Using traditional analyses-Ordinary Least Squares (OLS) regression, for instance-it is difficult to establish a causal association between two variables in cross-sectional data. In this study, we hypothesize that minimal social interactions predict life satisfaction. However, people who are more satisfied with their lives might simply engage in minimal interactions more often. Besides, there may be unobserved factors that affect both constructs, which bias the estimated association between minimal interactions and life satisfaction (i.e., the endogeneity problem). Instrumental variable analysis allows for making causal inferences by checking for the directionality of hypothesized effects (Angrist et al., 1996). It addresses the statistical endogeneity problem and unobserved factors by using an *instrument*. An instrument is an exogenous variable (Z) that directly affects the predictor (X) but does not theoretically affect the outcome (Y) except through its effect on X, and is theoretically not correlated with any unobserved determinant of Y (If Z is correlated with determinants of Y, the analysis can still be performed by statistically controlling for those variables). The analysis consists of two stages. The first stage involves predicting X from Z and storing the predicted values of X (X_{Pred}) obtained from this model. Although X may include variation due to Y (e.g., minimal social interactions may include variance due to life satisfaction), X_{Pred} obtained from this first stage is only due to variation in Z. At this point, the instrumental variable approach helps rule out the endogeneity between X_{Pred} and Y. The second stage of the instrumental variable approach predicts Y from X_{Pred}. If X_{Pred} has a significant coefficient, we can more confidently infer a causal association between X and Y than in an OLS regression.

To examine the causal association between minimal social interactions and life satisfaction, we used relational mobility as an instrument. Relational mobility is a socioecological construct that describes how much opportunity the social environment affords to meet new people (meeting dimension) and to choose and end relationships (choosing dimension; Thomson et al., 2018; Yuki & Schug, 2012). It captures a feature of people's relational ecology (Kito et al., 2017; Oishi et al., 2015; Thomson et al., 2018) albeit being typically measured via respondents' reports. To reduce bias due to respondent characteristics, the measure does not refer to one's own movement between relationships but rather to the opportunities of *others* in their environment to meet and choose relationship partners. Thinking of the people around oneself helps reduce the confound of participants' individual-level characteristics by shifting the perspective from the individual to what is happening in one's immediate society (Klein & Kozlowski, 2000). Indeed, a recent study provided evidence that relational mobility captures a society's socioecological reality, as indicated by high correlations between respondents' reports of relational mobility and societal indices of relational movement (e.g., divorce rate; Thomson et al., 2018).

The present research focused solely on the meeting dimension because it signals descriptive norms about minimal social interactions (i.e., the extent to which others engage in such interactions). Past work consistently showed that individuals behave in line with descriptive norms (e.g., Gelfand & Harrington, 2015; Rivis & Sheeran, 2003). Therefore, if *others* in the social environment easily and commonly meet new people, this may increase the person's *own* engagement in minimal social interactions. Indeed, having a broad social network with weak friendship ties was found to be more preferable for those living in high relational mobility areas (Oishi & Kesebir, 2012). Therefore, we expected relational mobility (specifically, the meeting dimension of this construct) to predict greater engagement in minimal social interactions.

For relational mobility to function as an appropriate instrument for our analyses, it needs to satisfy two main assumptions (Newhouse & McClellan, 1998). First, it should directly predict minimal social interactions ("relevance assumption"). For reasons outlined earlier, we expected relational mobility to satisfy this assumption. The second assumption ("exclusion restriction") is more theoretical: The instrument's effect on life satisfaction should occur only through minimal interactions. This does not preclude a direct significant association between relational mobility and life satisfaction but rather expects this association to be explained only by minimal interactions.² How easily others engage in minimal interactions should not impact one's own life satisfaction, except to the extent that others' engagement in minimal interactions influences one's own interactions. Overall, in light of both criteria, relational mobility is a good instrumental variable candidate.

In sum, the present research examined the role of minimal social interactions in life satisfaction across two large samples from different cultures. Sample A was a nationally representative sample from Turkey. Sample B was a convenience sample primarily from the United Kingdom but also included English-speaking participants from other countries. Sample A enabled us to extend prior work by examining the effects of momentary social interactions (i.e., greeting and thanking) with weak social ties, in addition to relatively deeper social interactions (i.e., having conversations) with strangers and weak ties in a nationally representative non-WEIRD sample. We also aimed to make a methodological contribution by using an instrumental variable approach to make causal inferences on the association of minimal interactions with life satisfaction. Given the novelty of the instrumental variable approach in the minimal interactions literature, we aimed to show its robustness by replicating one of our key findings in existing data (Sample B). We expected that minimal social interactions would predict greater life satisfaction in both samples.

Materials and data for Sample A and all analytic codes are available at https://osf.io/9gcf3/?view_only=205 ecef1580d476696e2f9fcc72fc21e. Materials for Sample B

Method

able in Fall 2024.

Participants

Sample A. KONDA, a leading public opinion research company in Turkey, collected the data using face-to-face interviews (N = 3,266 adults). Each month, KONDA administers a survey to a representative sample of participants (drawn using official address-based population records) across all 12 regions of Turkey. In addition to collecting demographic information, each month's survey has a specific theme. The March 2022 survey focused on minimal social interactions and included questionnaires provided by the authors.

Sample B. Data came from The Kindness Test (Banerjee et al., 2023), conducted by researchers from the University of Sussex in partnership with the British Broadcasting Corporation (BBC), and promoted on BBC Radio 4. Given BBC Radio has a wide international reach, the sample (N = 60,141 adults) included participants from the United Kingdom (68.5%) and English-speaking participants from other countries (31.5%). Participants completed an anonymous online questionnaire in English between August and October 2021.

Sample characteristics and correlations between study variables may be found in Table S1 to S4 in Online Supplemental Materials (OSM). A summary of other measures in both surveys may also be found in OSM.

Measures

Weak-Tie Interactions. In Sample A only, participants reported how frequently they engaged in interactions with weak ties on three items ("How often do you [greet/thank/ initiate conversations with] people you know but are not close to?"; 1 = Never to 6 = Multiple times a day). These questions were examined separately to understand the unique effects of greeting, thanking, and conversing.³ Other large-scale studies used similar items to measure interactions with neighbors, friends, and acquaintances (e.g., the German Socio-Economic Panel; Sander et al., 2017).

Stranger Interactions. In both samples, participants responded to an open-ended question ("How many strangers have you started a social conversation with in the past seven days?").⁴ This question was skewed (range 0–200, Geary's skewness = 8.298 in Sample A; range 0–1,500, Geary's skewness = 53.56 in Sample B; values < -2 or >2 are considered skewed, Hair et al., 2010). Therefore, we

winsorized it in both samples (Reifman & Garrett, 2010). Values larger than six in Sample A and those larger than twenty in Sample B had fewer responses per cell. We recoded these values as six and twenty, respectively, which helped reduce skewness (Geary's skewness_{winsorized} = .891 in Sample A and Geary's skewness_{winsorized} = 1.868 in Sample B).

Relational Mobility. In both samples, participants answered three questions from the meeting subscale of the relational mobility scale (e.g., "*People around me have many chances to get to know other people.*"; 0 = Do not agree at all to 5 = Completely agree, Cronbach's alpha = .86 in Sample A; 0 = Strongly disagree to 6 = Strongly agree, Cronbach's alpha = .76 in Sample B; Thomson et al., 2018).

Life Satisfaction. In both samples, participants responded to a single item ("Overall, how satisfied are you with your life nowadays?"; 0 = Not at all satisfied to 5 = Completely satisfied in Sample A; 0 = Not at all satisfied to 10 = Completely satisfied in Sample B). Single-item measures of life satisfaction are widely used and perform similarly to multiple-item measures (Cheung & Lucas, 2014).

Demographic Covariates. In both samples, participants reported gender, age, employment situation, and religiosity. In Sample A, participants also reported education level, relationship status, and household income and the surveyors recorded their region of residence and the type of settlement (rural, urban, and metropolitan). In Sample B, participants also reported their country of residence.

Analytic Plan

We first examined missingness in the data and created multiply imputed datasets for the main analyses in both samples (see OSM for details). In the results section, we report pooled results from five multiply imputed datasets. We also repeated the main analyses without imputation (using listwise deletion) and found that the results were unchanged (see OSM).

We used two main analytic approaches to test our hypothesis. First, we used OLS regression to examine the association between minimal social interactions and life satisfaction. Second, we used instrumental variable regression to examine whether minimal interactions have a *causal* role in life satisfaction, using relational mobility as an instrument. In the first stage of the instrumental variable analysis, when we predicted minimal interactions from relational mobility, we considered an *F*-statistic greater than 10 to indicate that the instrument was suitable (Staiger & Stock, 1997). The OLS analyses were compared with the instrumental variable analyses using diagnostic tests (see OSM).⁵

Table 1. Sample A OLS Analyses

	Outcome: Life satisfaction					
	Weak tie greeting model	Weak tie thanking model	Weak tie conversation model	Stranger conversation model		
Predictors	Unstandardized estimates [CI]					
Intercept Weak tie greeting	.21 [27, .69] .11*** [.07, .15]	.23 [25, .71]	.19 [29, .66]	.47* [.00, .93]		
Weak tie thanking	[.07,0]	. *** [.07, . 5]				
Weak tie conversation		[.07,0]	.13*** [.09, .16]			
Stranger conversation				.05** [.02, .08]		
Gender (women)	.26*** [.13, .39]	.24*** [.11, .36]	.26*** [.13, .39]	.24*** [.11, .37]		
Age	.00 [.00, .01]	.00 [.00, .01]	.00 [.00, .01]	.01* [.00, .01]		
Education (HS)	22** [37,06]	23** [39,08]	22** [37,06]	21** [36,05]		
Education (more than HS)	.03 [15, .22]	.03 [16, .21]	.05 [13, .23]	.06 [12, .24]		
Relationship status	.26*** [.1], .4]	.27**** [.12, .4]]	.27**** [.12, .4]]	.26**** [.12, .4]]		
Employment	01 [Ì5, .12]	01 [Ì5, .I3] `	02 [Ì6, .I2]	.00 [14, .14]		
Religiosity	.57**** [.30, .83]	.57**** [.31, .83]	.59**** [.33, .85]	.56**** [.29, .82]		
Household income	.10*** [.04, .16]	.10*** [.04, .16]	.10** [.04, .15]	.10** [.04, .15]		
Urban	.16 [—.05, .38]	.16 [—.06, .38]	.18 [04, .39]	.16 [06, .38]		
Metropolitan	.29* [.06, .52]	.28* [.04, .51]	.31** [.08, .54]	.27* [.03, .50]		
Western Marmara Region	.24 [08, .56]	.26 [06, .59]	.18 [14, .50]	.19 [[–] .13, .5 Ī]		
Aegean Region	.33** [.11, .56]	.33** [.11, .56]	.32** [.09, .54]	.32** [.09, .54]		
Eastern Marmara Region	.72*** [.48, .95]	.72*** [.49, .96]	.7*** [.46, .93]	.73*** [.50, .97]		
Western Anatolia	.38** [.15, .61]	.38** [.15, .62]	.41*** [.18, .65]	.41*** [.17, .64]		
Mediterranean Region	. [3, .34]	. [4, .33]	.08 [15, .31]	. [2, .35]		
Central Anatolian Region	.22 [08, .51]	.21 [09, .50]	.19 [–.10, .49]	.19 [10, .49]		
Western Black Sea Region	.36* [.06, .67]	.34* [.03, .64]	.35* [.05, .66]	.34* [.03, .64]		
Eastern Black Sea Region	.16 [-.19, .50]	.17 [18, .51]	.18 [17, .52]	.16 [—.19, .51]		
Northeast Anatolia	.41* [.02, .80]	.38 [-.01, .76]	.35 [04, .74]	.36 [03, .75]		
East Anatolia	.34* [.02, .65]	.35* [.04, .66]	.33* [.02, .64]	.28 [-.03, .59]		
Southeast Anatolia	.13 [13, .38]	.14 [11, .40]	. [4, .37]	.14 [12, .40]		

Note. Turkey consists of 12 regions (dummy coded) that differ in population size, geography, level of socioeconomic development, and other factors (e.g., agricultural activities; Nomenclature of Territorial Units for Statistics; Eurostat, 2021). Reference groups for dummy-coded variables are men for gender, less than high school for education, not in a relationship (not currently engaged or married) for relationship status, not employed (unemployed, student, retired, or homemaker) for employment, not religious (atheist or does not follow any religion) for religiosity, rural settlement for settlement type, and Istanbul for region. The two dummy-coded variables for education indicate whether the participant's highest educational attainment was high school or more than high school. Household income was categorized into income ranges by KONDA such that higher scores indicated a higher income range (I = 0-2,000TL; 2 = 2,00I-3,000TL; 3 = 3,00I-5,000TL; 4 = 5,00I-8,000TL; 5 = 8,00I-10,000TL; 6 = 10,001TL or more per month). OLS = ordinary least squares; CI = confidence interval; HS = high school.

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

We also addressed several potential confounders that have been linked to life satisfaction in prior work by controlling for gender, age, education level, relationship status, employment situation, religiosity, household income, and urbanization (Joshanloo & Jovanović, 2020; Okulicz-Kozaryn, 2010) when available in the data. We controlled for region in Sample A and continent in Sample B (because there were very few participants from most countries) to account for any regional differences in life satisfaction. When we ran all analyses without covariates, the results remained the same (see OSM).

We ran sensitivity analyses on GPower to estimate statistical power. With 3,266 (Sample A) and 60,141 (Sample B) observations, our analyses were sufficiently powered (80%) to detect very small effects ($f^2 = .0024$ in Sample A, .0001 in Sample B) in multiple regression models with 22 (Sample A) and 14 (Sample B) predictors (our social interaction variables plus covariates; see Tables 1 and 4 for the complete list). We used the AER package to run instrumental variable analyses (Kleiber & Zeileis, 2008) in R Version 4.0.1.

Results

Weak-Tie Interactions

In the OLS analyses on Sample A, greeting ($\beta = .103, p < .001$), thanking ($\beta = .100, p < .001$), and conversing with weak ties more often ($\beta = .112, p < .001$) predicted greater life satisfaction (see Table 1 for unstandardized estimates and confidence intervals).

Next, we conducted the first-stage instrumental variable analyses where we tested the association between relational mobility and weak-tie interactions, and whether relational mobility fulfilled the criteria for an instrument. We found

		Outcomes			
	Weak tie greeting	Weak tie thanking	Weak tie conversation	Stranger conversation	
Predictors	Unstandardized estimates [CI]				
Intercept Relational mobility Gender (women) Age Education (HS) Education (more than HS) Relationship status Employment Religiosity Household income Urban Metropolitan Western Marmara Region Aegean Region Eastern Marmara Region Western Anatolia Mediterranean Region Central Anatolian Region Western Black Sea Region Eastern Black Sea Region	$\begin{array}{c} 2.62^{***} [2.18, 3.07] \\13^{***}[09, .17] \\37^{***}[49,25] \\ .01^{***}[.01, .02] \\14^{*} [.00, .28] \\21^{*} [.04, .37] \\07 [21, .06] \\36^{***}[.24, .49] \\02 [25, .21] \\03 [02, .08] \\19 [01, .39] \\07 [29, .14] \\43^{**} [73,14] \\12 [32, .09] \\02 [24, .19] \\07 [14, .28] \\02 [23, .20] \\53^{***}[8,26] \\84^{***}[-1.11,56] \\20 [52, .11] \end{array}$	$\begin{array}{c} 2.44^{***}[2.00, 2.88]\\ .16^{***}[.12, .20]\\17^{**}[29,05]\\ .01^{***}[.01, .02]\\ .27^{***}[.13, .41]\\ .30^{**}[.14, .46]\\16^{*}[29,02]\\ .34^{***}[.22, .47]\\05[28, .17]\\ .04[01, .09]\\ .23^{*}[.03, .43]\\ .06[16, .28]\\67^{***}[96,37]\\12[33, .09]\\09[31, .13]\\ .04[17, .25]\\ .07[15, .29]\\47^{***}[74,20]\\62^{***}[90,34]\\30[62, .02]\\ \end{array}$	$\begin{array}{c} 2.40^{***}[1.98, 2.81]\\5^{***}[.11, .18]\\32^{***}[.43,21]\\ .01^{***}[.00, .01]\\ .13 [01, .26]\\ .07 [08, .23]\\11 [24, .01]\\ .34^{***}[.22, .46]\\19 [41, .04]\\ .06^{**} [.01, .10]\\ .05 [14, .24]\\21 [41, .00]\\ .09 [19, .38]\\ .02 [18, .22]\\ .13 [07, .33]\\21^{*} [41,01]\\ .17 [04, .37]\\30^{*} [55,04]\\66^{***} [92,40]\\33^{*} [63,02]\\ \end{array}$	$\begin{array}{c} .67^* \left[.08, 1.26\right] \\ .28^{***}\left[.21, .34\right] \\47^{***}\left[64,30\right] \\ .00 \left[01, .00\right] \\ .10 \left[11, .32\right] \\07 \left[31, .16\right] \\28^{**} \left[47,09\right] \\ .54^{***}\left[.35, .72\right] \\ .17 \left[16, .49\right] \\ .16^{***}\left[.08, .24\right] \\ .47^{***}\left[.19, .75\right] \\ .25 \left[04, .55\right] \\ .00 \left[41, .41\right] \\ .07 \left[25, .38\right] \\36^{*} \left[68,05\right] \\37^{*} \left[66,08\right] \\22 \left[53, .09\right] \\79^{***}\left[-1.18,39\right] \\ -1.32^{***}\left[-1.01,03\right] \end{array}$	
Northeast Anatolia East Anatolia Southeast Anatolia First-Stage Model F-value	63***[98,28] 91***[-1.21,61] .07 [17, .30] F(22, 3243) = 21.97	34 [69, .02] -1.08***[-1.38,79] 09 [32, .15] F(22, 3243) = 20.15	07 [41, .27] 74^{***} [-1.01,47] .17 [05, .39] F(22, 3243) = 22.45	$\begin{array}{c}44 \left[95, .07 \right] \\ -1.00^{***} \left[-1.39,61 \right] \\21 \left[64, .22 \right] \\ F(22, 3243) = 30.84 \end{array}$	

Table 2. Sample A First-Stage Instrumental Variable Analyses

Note. Turkey consists of 12 regions (dummy coded) that differ in population size, geography, level of socioeconomic development, and other factors (e.g., neighboring settlements where there are similar levels of agricultural activities may be grouped together; Nomenclature of Territorial Units for Statistics; Eurostat, 2021). Reference groups for dummy-coded variables are men for gender, less than high school for education, not in a relationship (not currently engaged or married) for relationship status, not employed (unemployed, student, retired, or homemaker) for employment, not religious (atheist or does not follow any religion) for religiosity, rural settlement for settlement type, and Istanbul for region. The two dummy-coded variables for education indicate whether the participant's highest educational attainment was high school or more than high school. Household income was categorized into income ranges by KONDA such that higher scores indicated a higher income range (I = 0-2,000TL; 2 = 2,001-3,000TL; 3 = 3,001-5,000TL; 4 = 5,001-8,000TL; 5 = 8,001-10,000TL; 6 = 10,001TL or more per month). CI = confidence interval; HS = High school.

that relational mobility predicted greeting ($\beta = .114$, p < .001), thanking ($\beta = .140$, p < .001), and conversing with weak ties more often ($\beta = .133$, p < .001; see Table 2). The first-stage *F* statistics were all greater than 10, suggesting that relational mobility was a suitable instrument that satisfied the relevance assumption. Diagnostic tests also confirmed the strength of the instrument and the appropriateness of the IV approach (see OSM).

The second-stage instrumental variable analyses used the predicted values of weak-tie interactions from the first stage with life satisfaction as the outcome. We found that greeting ($\beta = .493$, p = .004), thanking ($\beta = .401$, p = .003), and conversing with weak ties more often ($\beta = .422$, p = .003) predicted greater life satisfaction (see Table 3).

Stranger Interactions

We examined the association between stranger interactions and life satisfaction in both samples. In the OLS analyses, we found that conversing with more strangers predicted greater life satisfaction (β = .063, p = .003 in Sample A; β = .118, p < .001 in Sample B; see Tables 1 and 4, respectively).

In the first-stage instrumental variable analyses, we found that relational mobility predicted conversing with more strangers ($\beta = .173$, p < .001 in Sample A; $\beta = .175$, p < .001 in Sample B; see Tables 2 and 4, respectively). The *F* statistics were again greater than 10 and the diagnostic tests confirmed the strength of the instrument and the appropriateness of the IV approach (see OSM).

The second-stage instrumental variable analyses used the predicted values of stranger interaction scores from the first stage with life satisfaction as the outcome. We found that conversing with more strangers predicted greater life satisfaction ($\beta = .326$, p = .005 in Sample A; $\beta = 1.029$, p< .001 in Sample B; see Tables 3 and 4, respectively).

Discussion

This research examined conversations and momentary interactions with weak ties and strangers, and their causal

Table 3.	Sample A Second	d Stage Instrument	al Variable Analyses

	Outcome: Life satisfaction					
	Weak tie greeting model	Weak tie thanking model	Weak tie conversation model	Stranger conversation model		
Predictors	Unstandardized estimates [CI]					
Intercept Weak tie greeting _(Pred)	-1.04 [-2.24, .15] .53** [.17, .89]	70 [-1.65, .26]	78 [-1.80, .24]	.18 [36, .73]		
Weak tie thanking _(Pred)		.43** [.15, .71]				
Weak tie conversation _(Pred)			.47** [.16, .79]			
Stranger conversations _(Pred)			[,, ,]	.25** [.08, .42]		
Gender (women)	.42***[.22, .61]	.29***[.15, .44]	.37***[.20– .54]	.34***[.18, .49]		
Age	.00 [01, .01]	.00 [.00, .01]	.00 [.00, .01]	.01* [.00, .01]		
Education (HS)	28*** [45,II]	32****[50,14]	26** [43,09]	23** [40,06]		
Education (more than HS)	06 [27, .15]	08 [29, .13]	.02 [18, .21]	.07 [12, .26]		
Relationship status	.30****[.14, .45]	.32****[.17, .48]	.31****[.15, .46]	.33****[.17, .48]		
Employment	17 [36, .03]	12 [29, .05]	14 [31, .04]	11 [28, .06]		
Religiosity	.57****[.29, .86]	.59****[.31, .86]	.65****[.37, .93]	.52****[.25, .79]		
Household income	.08** [.02, .14]	.08** [.02, .14]	.07* [.01, .13]	.06 [01, .12]		
Urban	.09 [15, .33]	.10 [14, .33]	.17 [06, .39]	.07 [16, .31]		
Metropolitan	.34*** [.09, .60]	.28* [.03, .52]	.40*** [.14, .66]	.24 [01, .49]		
Western Marmara Region	.45* [.06, .84]	.51* [.11, .90]	.18 [16, .51]	.22 [̈́—.11, .56]		
Aegean Region	.38** [.13, .62]	.37** [.13, .61]	.31* [.07, .54]	.30* [.06, .54]		
Eastern Marmara Region	.72***[.47, .98]	.75***[.50, 1.00]	.65***[.40, .90]	.80***[.55, 1.05]		
Western Anatolia	.35** [.10, .61]	.37** [.13, .62]	.49***[.24, .74]	.48***[.23, .74]		
Mediterranean Region	.12 [13, .37]	.08 [17, .32]	.03 [21, .28]	.16 [08, .41]		
Central Anatolian Region	.45* [.08, .83]	.37* [.03, .72]	.31 [01, .64]	.37* [.01, .73]		
Western Black Sea Region	.71** [.27, 1.14]	.53** [.17, .89]	.57** [.21, .94]	.59** [.20, .98]		
Eastern Black Sea Region	.24 [14, .62]	.26 [11, .64]	.29 [09, .67]	.26 [-.11, .64]		
Northeast Anatolia	.70** [.21, 1.19]	.51* [.09, .93]	.40 [–.01, .81]	.47* [.05, .90]		
East Anatolia	.72** [.24, 1.2]	.70** [.25, 1.15]	.58** [.19, .98]	.48* [.12, .85]		
Southeast Anatolia	.12 [15, .40]	.20 [07, .47]	.08 [19, .35]	.21 [07, .50]		

Note. The second-stage analyses used the predicted weak-tie and stranger interaction scores obtained from the first-stage analyses. Turkey consists of 12 regions (dummy coded) that differ in population size, geography, level of socioeconomic development, and other factors (e.g., agricultural activities; Nomenclature of Territorial Units for Statistics; Eurostat, 2021). Reference groups for dummy-coded variables are men for gender, less than high school for education, not in a relationship (not currently engaged or married) for relationship status, not employed (unemployed, student, retired, or homemaker) for employment, not religious (atheist or does not follow any religion) for religiosity, rural settlement for settlement type, and Istanbul for region. The two dummy-coded variables for education indicate whether the participant's highest educational attainment was high school or more than high school. Household income was categorized into income ranges by KONDA such that higher scores indicated a higher income range (1 = 0-2,000TL; 2 = 2,001-3,000TL; 3 = 3,001-5,000TL; 4 = 5,001-8,000TL; 5 = 8,001-10,000TL; 6 = 10,001TL or more per month). CI = confidence interval; HS = High school. **p < .05. **p < .01. ***p < .001.

association with life satisfaction using an instrumental variable approach. In a large, nationally representative sample from Turkey (Sample A), we found that having conversations with strangers and weak ties, as well as simply greeting and thanking weak ties, predicted greater life satisfaction. We also replicated our findings on conversations with strangers in a very large, English-speaking sample (Sample B).

A notable strength of our work is showing that even momentary interactions (greeting and thanking) can increase subjective well-being. This is an important contribution given that prior research and interventions mainly focused on minimal interactions involving conversation. For example, an intervention study demonstrated that people who had repeated conversations with strangers over the course of a week experienced greater enjoyment of such conversations (Sandstrom et al., 2022). Although this research only examined the effects of momentary interactions with *weak ties* and not strangers, our results suggest that interventions and policies targeting greeting and thanking might be a simple and low-cost way of boosting subjective well-being. For example, a recent study in London increased the number of passengers greeting bus drivers from 23% to 30% by placing stickers with encouraging messages (e.g., "A 'thanks' or 'hey' can make my day") on the plexiglass partition separating the driver from passengers (Sandstrom et al., 2023), which may have implications for subjective well-being.

This research also increases the evidence base for the generalizability of the association between minimal social interactions and subjective well-being. In Sample A, we tested our hypotheses in a large, non-WEIRD, nationally

	Outcome: Life satisfaction	Outcome: Stranger conversation	Outcome: Life satisfaction	
	OLS model	First-stage model	Second stage model	
Predictors	Unstandardized estimates [CI]			
Intercept	5.44*** [5.3, 5.58]	16 [43, .12]	4.42*** [4.21, 4.64]	
Stranger conversation	.05*** [.05, .06]		.45*** [.42, .48]	
Relational mobility		.79*** [.75, .83]		
Gender (non-binary)	7*** [95,46]	18 [76, .4]	66*** [99,34]	
Gender (prefer not to say)	46** [78,15]	.56* [.05, 1.07]	67** [-I.I2,23]	
Gender (prefer to self-describe)	48*** [•] [73,23]	.31 [20, .82]	66*** [•] [95,38]	
Gender (women)	.22*** [.18, .26]	.19**** [.09, .29]	.08* [.02, .14]	
Age	.02*** [.02, .02]	.02*** [.02, .02]	.01*** [.01, .01]	
Employment	.07** [.02, .11]	.21** [.09, .34]	01 [09, .07] ¹	
Religiosity (prefer not to say)	12** [19,05]	.09 [09, .26]	I4* [26,03]	
Religiosity (religious)	.19*** [.15, .23]	.30**** [.21, .39]	.05* [.00, .10]	
Continent (Africa)	19 [50, .12] 1	70* [-I.23,I7]	.01 [41, .44]	
Continent (Asia)	.08 [10, .25]	-1.14*** [-1.46,82]	.53**** [.29, .77]	
Continent (North America)	.10 [.00, .21]	06 [24, .11]	.09 [06, .24]	
Continent (Oceania)	.16 [01, .33]	7I** [-I.I4,29]	.41*** [.2, .6]]	
Continent (South America)	.02 [36, .39]	93* [-1.67,20]	.33 [11, .78]	
First-Stage Model F-value	1	F(14, 60126) = 359.39		

Table 4. Sample B OLS and Instrumental Variable Analyses

Note. In Sample B, only participants from the United Kingdom reported their household income; therefore, we did not include income in the main analyses. We also repeated the analyses in the U.K. sample by controlling for income and the U.K. postal region, and the results remained the same (see OSM). Reference groups for dummy-coded variables are men for gender, not religious for religiosity, not employed (not working full-time, part-time, casually, or as self-employed) for employment, and Europe for the continent. The four dummy-coded variables for gender indicate whether the participants reported being a woman, reported being non-binary, preferred to self-describe their gender, or preferred not to report their gender. The second-stage analysis used the predicted stranger interaction scores obtained from the first-stage analysis. OLS = Ordinary Least Squares; CI = confidence interval. *p < .05. **p < .01. ***p < .001.

representative sample. In line with a previous study using a convenience sample primarily consisting of Turkish university students (Gunaydin et al., 2021), we showed that the subjective well-being benefits of minimal interactions are not limited to Western cultures. Notably, the effect size of having conversations with strangers in Sample B (vs. Sample A) was larger. This may be due to Turkey being culturally tighter and more interdependent than Western countries that constituted the majority of Sample B. Past research implies that engaging in minimal social interactions might be deemed less appropriate in tighter cultures (Gelfand et al., 2011) and individuals adopt a cautious approach toward new relationships in interdependent cultures (Adams, 2005; Adams et al., 2004). Whether our findings would generalize to other non-Western countries remains an open question. Although Sample B included other non-Western populations, they constituted only a fraction of the sample and were all English-speaking. So, we cannot rule out that individuals in this sample might be originally from Western countries and temporarily living abroad.

Another limitation of this research is relying on selfreports of minimal interactions, which may involve recall bias. For example, in Sample A, some participants could not exactly remember how many conversations they had with strangers. Similar to prior work (Sandstrom & Dunn, 2014a), future research can ask participants to use a device to track every momentary interaction with strangers and weak ties to minimize recall bias. However, doing so in very large or nationally representative samples may be difficult.

Do minimal social interactions have as big an effect on subjective well-being as close relationships? In this research, we measured relationship status (Sample A) but did not have a direct measure of close relationship quality. However, we had a measure on receiving kindness from close friends and family (Sample B), which is strongly associated with relationship quality (Henderson et al., 2018). Although our findings showed that interactions with weak ties and strangers predicted life satisfaction above and beyond being in a romantic partnership and receiving kindness from close others, effect sizes for minimal interactions were comparatively smaller (see Table 1 and Table S15). Nonetheless, these effects are still notable given minimal interactions are easier to establish and more frequent in everyday life.

Recent theorizing also highlighted the importance of studying the additive and interactive effects of minimal social interactions and close relationships (Hirsch & Clark, 2019). Exploratory analyses on Sample B indicated an interactive pattern: Individuals who received less kindness from close others showed a stronger association between stranger interactions and life satisfaction than those who received more kindness from close others (see OSM). Future research should use more direct measures of relationship quality to examine whether close relationships and minimal interactions have additive or interactive effects on life satisfaction.

This research makes a methodological contribution by using an approach that is still novel in psychological science, although widely used in other fields. To better understand causal associations, psychologists have recommended accumulating evidence using multiple methods that complement one another (Diener et al., 2022) and employing the instrumental variable approach in naturalistic research (Grosz et al., 2020). Although experiments are currently the gold standard for causal inferences in psychology, they too have their limitations such as external validity and smaller sample sizes. Our instrumental variable regression findings complement previous experimental research on minimal social interactions and provide important additional evidence for their causal association with subjective well-being. Although using an instrument assessed via individuals' reports is a limitation, past work suggesting that relational mobility is a property of the socioecology rather than the individual (Thomson et al., 2018) helps alleviate this concern. In this study too, we found that covariates explaining significant variance in relational mobility were mainly contextual (e.g., region of residence). Moreover, our results held controlling for personality factors, which are major unobserved determinants of life satisfaction that might also be linked with relational mobility (see OSM).

This research is timely. Following the onset of the COVID-19 pandemic, many people were deprived of faceto-face interactions with non-close others due to physical distancing and quarantine measures. To this day, many individuals continue to work from home, where they have fewer opportunities to engage in interactions with weak ties like coworkers or strangers like fellow commuters. Therefore, the pandemic may have deprived people of the benefits of minimal interactions. Our findings add to the existing literature on the importance of face-to-face interactions for subjective well-being (Kroencke et al., 2023) and suggest that, as things have mostly gone back to normal after the pandemic, people may benefit from harnessing the power of minimal social interactions.

Acknowledgments

Sample A data are from the KONDA Barometer Survey administered in March 2022. Sample B data are from The Kindness Test, a collaboration between researchers at the University of Sussex and BBC Radio 4, led by Robin Banerjee and Claudia Hammond. The authors express their sincere gratitude to Bekir Agirdir, Ebru Sener, Erman Bakirci, and Ali Karakas for including their measures in the survey, providing them with feedback, and making the Sample A data available for analysis. They gratefully acknowledge the work of the teams at the University of Sussex and the BBC in carrying out the research and making the Sample B data from The Kindness Test available for analysis.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Supplemental Material

Supplemental material is available in the online version of the article.

Notes

- 1. We use the term subjective well-being to refer to a construct with three separable but interrelated components: pleasant affect, unpleasant affect, and life satisfaction (Diener et al., 1999).
- 2. To our knowledge, there is no work directly linking individual-level relational mobility to subjective well-being: one study that examined the role of socioecology on wellbeing did not find a significant main effect of relational mobility (Yuki et al., 2013).
- We also examined a composite measure (Cronbach's alpha = .84) to understand the overall effects of weak tie interactions. The results remained the same as reported in the main text (see OSM).
- 4. We measured stranger interactions differently than weaktie interactions in Sample A so that this measure would be the same as in Sample B, whose data were already collected. Some Sample A participants reported that they did have conversations with strangers in the past week but could not provide an exact number. These participants were coded as missing in the main analyses (and their stranger interaction scores were multiply imputed). We also repeated the analyses using a dummy-coded version of the variable (0 = no conversation, 1 = at least one conversation). These results were in line with those reported in the main text (see OSM). We did not ask how often participants greeted or thanked strangers due to space limitations in the Sample A survey.
- 5. Because Sample A was organized by 12 regions and Sample B by 6 continents, the data could also be analyzed using multilevel regressions (by treating region or continent as a Level-2 variable). Because instrumental variable regression or its existing software packages are not yet well-developed for multilevel data, we performed single-level regressions by including region (Sample A) and continent (Sample B) as covariates. We also repeated the analyses using multilevel models by manually running the first-stage models, saving predicted values, and running the second-stage models using the predicted values from the first stage. The results remained the same (see OSM).

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Handling Editor: Jennifer Bosson