Well-Being in Social Interactions: Examining Personality-Situation Dynamics in Face-to-Face and Computer-Mediated Communication

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Abstract

Decades of research show that people's social lives are linked to their well-being. Yet, research on the relationship between social interactions and well-being has been largely inconclusive with regard to the effects of person-situation interactions, such as the interplay between contextual factors (e.g., interactions occurring in physical vs. digital contexts, different interaction partners) and dispositional tendencies (e.g., Big Five personality traits). Here, we report on exploratory and confirmatory findings from three large studies of college students (Study 1: N = 1,360; Study 2: N = 851; Study 3: N = 864) who completed a total of 139,363 experience sampling surveys (reporting on 87,976 social interactions). We focus on the effects of different modes of communication (face-to-face [FtF] interactions, computer-mediated communication [CMC], and mixed episodes [FtF + CMC]) and types of interaction partners (close peers, family members, and weak ties). Using multilevel structural equation modeling, we found that FtF interactions and mixed episodes were associated with highest well-being on the within-person level, and that these effects were particularly pronounced for individuals with high levels of neuroticism. CMC was related to lower well-being than FtF interactions, but higher well-being than not socializing at all. Regarding the type of interaction partner, individuals reported higher well-being after interactions with close peers than after interactions with family members and weak ties, and the difference between close peers and weak ties was larger for FtF interactions than for CMC. We discuss these findings with regard to theories of person-situation interactions and research on well-being and social interactions.

Keywords: well-being, social interactions, personality traits, person-situation interactions, computer-mediated communication

Well-Being in Social Interactions: Examining Personality-Situation Dynamics in Face-to-Face and Computer-Mediated Communication

Social interactions and well-being are closely related (Cohen, 2004). A large body of research has shown that people feel better in social compared to non-social situations and that people who interact more than others have higher well-being on average (Lucas et al., 2008; Sun et al., 2020). Today, many of the social interactions that people engage in throughout their daily lives take place in both physical (i.e., in person) and digital contexts (e.g., through smartphones or social media platforms). In addition, most people regularly interact with different types of interaction partners (e.g., friends vs. strangers). However, previous research has been inconclusive about whether the places where an interaction is occurring (i.e., physical vs. digital context) and the people involved (i.e., type of interaction partner) matter for well-being.

In addition, little is known about whether the relationship between social interactions and well-being differs between individuals depending on their dispositional tendencies (i.e., personality traits). A large body of research shows that personality traits are closely related to both social behaviors and well-being when considered independently. For instance, individuals with high levels of extraversion and agreeableness tend to have more numerous and more satisfying social relationships (Harris & Vazire, 2016; Wagner et al., 2014; Wilson et al., 2015; Wrzus et al., 2017). They also tend to report higher well-being on average (Anglim et al., 2020). Individuals with high levels of neuroticism, by contrast, tend to experience more problems in their social relationships (Cuperman & Ickes, 2009; Deventer et al., 2019) and they also tend to report lower well-being (Anglim et al., 2020). However, previous studies on well-being benefits from social interactions (i.e., whether personality traits moderate the relationship between social interactions and well-being) often focused on only one trait (i.e., extraversion) and yielded mixed or inconclusive results (e.g., Lucas et al., 2008). This study extends previous research by examining all Big Five personality traits and providing a higher-powered test of such moderation effects.

The present study was designed to investigate the relationship between different social contexts and momentary well-being in real-life social interactions. We focused on two contextual factors that have been linked to well-being in previous research and that can be measured relatively objectively: (1) mode of communication (e.g., Kushlev & Heintzelman, 2018) and (2) type of interaction partner (e.g., Venaglia & Lemay, 2017). Regarding mode of communication, we differentiated between face-to-face (FtF) interactions, computer-mediated communication (CMC), and mixed episodes (FtF + CMC) in which participants engaged in both FtF interactions and CMC. With respect to the type of interaction partner, we compared interactions with close peers (i.e., friends, roommates, significant others), family members, and weak ties (i.e., classmates, co-workers, strangers). In addition, we investigated whether the Big Five personality traits moderated the relationship between different social contexts and well-being.

Definition and Measurement of Well-Being

Different definitions and operationalizations of well-being exist (Mann et al., 2021). One prominent distinction is between hedonic (Diener, 1984) and eudaimonic (e.g., Ryff & Keyes, 1995) well-being. Hedonic well-being is defined as the positive evaluation of one's life and includes both cognitive (i.e., life satisfaction) and affective (i.e., presence of positive affect and absence of negative affect) aspects. Eudaimonic well-being builds on Aristoteles' emphasis on virtue and subsumes constructs related to positive psychological functioning (e.g., autonomy, personal growth, purpose in life; Ryan & Deci, 2001). In addition, a social dimension (e.g., social acceptance, positive relations) has been proposed (Mann et al., 2021).

Another important distinction is between trait and state (or momentary) well-being. Whereas studies on trait well-being focus on relatively stable life evaluations (e.g., Satisfaction With Life Scale; Diener et al., 1985) or general tendencies to experience positive or negative affect, studies on state well-being examine how well-being fluctuates from moment to moment within everyday life. These moment-to-moment fluctuations are typically measured using experience sampling methodology (ESM; Csikszentmihalyi & Larsen, 1987) by repeatedly asking participants how they

are feeling at the present moment (e.g., Mueller et al., 2019; Sun et al., 2020). Building on prior ESM studies, we operationalize momentary well-being as the presence of positive (e.g., happiness) and the absence of negative affect (e.g., sadness, anger, anxiety; see Schimmack, 2009) in everyday life. Moreover, we examine momentary loneliness to capture social aspects of well-being (Mann et al., 2021).

Social Interactions and Well-Being

Social relationships are considered one of the most important predictors of well-being. In 1995, Baumeister and Leary proposed that humans have a fundamental need to form and maintain relationships with others. In the decades since, a large body of research has demonstrated that the quantity and quality of a person's social relationships are related to better physical and mental health and higher well-being (Berkman et al., 2000; Cohen, 2004; Uchino, 2006; Umberson & Montez, 2010; Wrzus et al., 2012).

Importantly, the relationship between social interactions and well-being has typically been studied between persons, that is, whether individuals who have more frequent or more satisfying social interactions than others have higher well-being on average. More recently, researchers have become interested in within-person relationships, that is, whether people experience higher momentary well-being during social interactions compared to non-social situations (e.g., Sun et al., 2020). Within-person processes are important for understanding *when* or *why* a given individual experiences higher well-being. They, thus, play a vital role in many psychological theories and explanatory accounts of personality traits (Baumert et al., 2017; Curran & Bauer, 2011). To capitalize on all available information and to ensure comparability with previous research, we report both within- and between-person effects. We also examine whether these relationships differ across social contexts and across individuals with different personality traits. Below, we summarize past research on the contextual factors of mode of communication (FtF interactions, CMC, and mixed episodes) and type of interaction partner (close peers, family members, and weak ties). We

then describe the role of the Big Five personality traits and how they may interact with mode of communication and type of interaction partner.

Social Interactions Across Physical and Digital Contexts and Well-Being

A large body of research shows that FtF socializing is linked to higher well-being (Diener et al., 1984; Kahneman et al., 2004; Lucas et al., 2008). However, socializing behaviors have changed dramatically over the last decades. Whereas in 2000 only 52% of Americans were connected to the Internet, by 2021 nine in 10 U.S. adults went online, 85% owned a smartphone, and 72% used social media (Pew Research Center, 2021a, b, c). Among young adults, 48% reported to go online "almost constantly" (Perrin & Atske, 2021). These new forms of socializing behavior are often subsumed under the term CMC, which refers to all types of social interactions that occur through the use of technological devices such as computers or phones.

In contrast to FtF socializing, the relationship between CMC and well-being is less clear. On the one hand, CMC provides unlimited opportunities to communicate with others anytime and anywhere and may thus help to maintain and strengthen social relationships, which should be associated with higher well-being (Clark et al., 2018; Deters & Mehl, 2013; Ellison et al., 2007; Lieberman & Schroeder, 2020; Valkenburg & Peter, 2007). On the other hand, there are important structural differences between FtF socializing and CMC which may compromise its well-being benefits (Lieberman & Schroeder, 2020). In particular, CMC offers fewer nonverbal social communication cues than FtF communication (Fox & McEwan, 2017; Sherman et al., 2013), which are important for conveying emotions. In ESM studies comparing FtF and computer-mediated interactions in daily life, participants experienced more positive and less negative affect during FtF interactions than during computer-mediated interactions (Achterhof et al., 2022; Kafetsios et al., 2017). Similarly, more Facebook use was related to lower affective well-being within persons, whereas more direct social contact (including FtF interactions) was related to higher affective well-being within persons (Kross et al., 2013). These findings suggests that CMC may not be associated with the same well-being benefits as FtF interactions.

According to the interference-hypothesis, CMC may even hurt the quality of simultaneous FtF interactions because it is distracting (Kushlev, 2018). An ESM study among 174 young adults supports this idea (Kushlev & Heintzelman, 2018): FtF interactions were associated with better mood compared to no social interaction. However, this effect was significantly diminished when participants simultaneously used CMC (i.e., were engaged in mixed episodes; Dwyer et al., 2018; Kushlev & Heintzelman, 2018).

While several studies have shown that CMC is related to lower well-being compared to FtF interactions, it is unclear whether CMC is related to lower well-being compared to no social interaction. Among the studies mentioned above that examined this, positive affect was higher during online interactions compared to being alone (Achterhof et al., 2022), suggesting that CMC might be related to higher well-being than not socializing at all. However, another study found no difference between CMC and no social interaction (Kushlev & Heintzelman, 2018).

In addition, most studies cited above did not separate within- from between-person effects (e.g., Achterhof et al., 2022; Kafetsios et al., 2017), which makes it difficult to interpret the results. In longitudinal panel studies, within-person effects of social media use were considerably smaller than the corresponding between-person effects (Orben et al., 2019; Stavrova & Denissen, 2021). Based on these findings, it is unclear whether the associations reported above truly occur in the moment, or whether they are driven by between-person differences in interaction frequency.

In summary, research on the well-being correlates of social interactions in physical vs. digital contexts is inconclusive, with clear positive associations for FtF interactions and mixed findings for CMC. Because social relationships are crucial for well-being, we predicted that all modes of communication (i.e., FtF interactions, CMC, and mixed episodes) would be associated with higher momentary well-being compared to not interacting with anyone. However, because of the less positive effects of CMC and mixed episodes reported above, we also expected that CMC and mixed episodes would be associated with lower momentary well-being when compared to FtF interactions.

Social Interactions With Different Interaction Partners and Well-Being

Another important contextual factor is the type of interaction partner. Interaction partners differ in emotional closeness and reciprocity (Neyer et al., 2011), which likely affects the quality of social interactions. Most studies distinguish interactions with strong ties (e.g., family members and close friends) from interactions with weak ties (e.g., acquaintances; Granovetter, 1973). Within the domain of strong ties, a distinction can be made between family members and close peers. Peers can be defined as relationship partners who share key individual characteristics such as age, socioeconomic status, and ethnicity (Reitz et al., 2014). Peer relationships are especially important in young adulthood (Berk, 2011; Reitz et al., 2014), when friendships and romantic relationships are crucial sources of social support (Bagwell et al., 2005; Sherman et al., 2006).

Empirical studies comparing the effects of different interaction partners found that interactions with strong ties were associated with more positive affect than interactions with weak ties (e.g., Venaglia & Lemay, 2017). Within the category of strong ties, interactions with friends (a large subgroup of the category *close peers*) were associated with more positive affect than interactions with family members (Buijs et al., 2022; Kahneman et al., 2004; Quoidbach et al., 2019; Vogel et al., 2017). One possible explanation for this finding is that interactions with friends are more reciprocal and voluntary in nature and typically involve more fun leisure activities and less everyday duties than interactions with family members (Hudson et al., 2020; Larson et al., 1986; Vogel et al., 2017). Friends might even be able to compensate for missing or less positive family relationships (Wrzus et al., 2012).

Despite the clear well-being benefits of interactions with strong ties, it is unclear whether interactions with weak ties can benefit well-being compared to no social interaction. A series of studies on social interactions with strangers showed that people experienced higher well-being on days when they interacted with more weak ties than usual (Sandstrom & Dunn, 2014). This suggests that interacting with strangers may be related to higher well-being than being alone.

In summary, we predicted that all types of interaction partners should be related to higher momentary well-being than not socializing at all. However, in our college samples, interactions with family members and weak ties should be associated with lower momentary well-being compared to interactions with close peers.

In addition, previous studies did not examine whether mode of communication moderates the effects of type of interaction partner. As a result, little is known about whether the effects of interaction partners on well-being hold across all communication channels or whether they vary across different modes of communication. Therefore, we also examined interaction effects between mode of communication and type of interaction partner. However, we did not formulate any hypotheses with regard to their interactive effects on well-being due to a lack of straightforward expectations and studies in the existing literature with comparable designs.

The Moderating Role of Personality Traits

According to Kurt Lewin (1936), a person's behavior is a function of both the person and their environment. More recently, dynamic theories of personality have highlighted the role of personality traits and contextual factors in the prediction of personality states (i.e., momentary thoughts, feelings, and behaviors; Fleeson & Jayawickreme, 2015; Kuper, Modersitzki, et al., 2021; for an example in the interpersonal domain, see Moskowitz & Coté, 1995). For instance, Sherman et al. (2015) showed that real-time expression of emotion and behavior is related to both situation characteristics and personality traits. Importantly, it is currently under debate whether personality traits and contextual factors have independent or interactive effects on momentary states. To account for both types of effects, we examined whether personality traits were related to average well-being and whether personality traits were related to social reactivity (i.e., whether personality traits moderated the relationship between contextual factors and momentary well-being). We focus on extraversion, agreeableness, and neuroticism as these three traits are most closely related to both well-being and interpersonal behavior (Back, 2021), but consider all Big Five traits in our analyses.

Personality and Mode of Communication

Although several studies suggest that personality moderates the association between well-being and CMC (e.g., Ruppel et al., 2018; Spradlin et al., 2019; Van Zalk et al., 2011), predictions across studies differ based on two distinct theoretical arguments. Specifically, the *social enhancement hypothesis* (Peter et al., 2005) predicts that CMC is associated with better outcomes for individuals who are also successful in FtF interactions (i.e., individuals high in extraversion and agreeableness and low in neuroticism). Because these individuals have better interpersonal skills, they may generally be more motivated to interact and more skilled at communicating with others irrespective of the mode of communication. Therefore, these people are more likely to profit from the opportunities that digital communication technologies offer. Supporting the social enhancement hypothesis, Kraut et al. (2002) linked more internet use with more community involvement and less loneliness for individuals high in extraversion, whereas opposite outcomes were found for individuals scoring low on this trait.

By contrast, the *social compensation hypothesis* (Peter et al., 2005) predicts that CMC is associated with better outcomes for individuals who experience problems in FtF interactions. For individuals low in extraversion and agreeableness and high in neuroticism, communication technologies might provide a safe, less threatening environment to practice social skills (Forest & Wood, 2012; Rice & Markey, 2009) and thus might help to compensate for a lack of satisfying FtF interactions. Supporting the social compensation hypothesis, online chatting was associated with higher well-being only for individuals low in extraversion (Van Zalk et al., 2011) and text messaging with parents during the transition to college was related to lower stress levels only for young adults with low social competence (Ruppel et al., 2018).

Due to these contrary theoretical predictions and empirical findings, we specified two competing hypotheses: According to the social enhancement hypothesis, individuals high in extraversion and agreeableness and low in neuroticism should benefit more from all modes of communication (i.e., FtF interactions, CMC, and mixed episodes). By contrast, according to the

social compensation hypothesis, individuals low in extraversion and agreeableness and high in neuroticism should benefit more from CMC.

Personality and Type of Interaction Partner

Few studies have examined how personality traits moderate the effects of different types of interaction partners on well-being, but it seems that neuroticism may be particularly relevant. For instance, an ESM study among young adults found that individuals high in neuroticism experienced larger increases in well-being in the company of close others compared to being alone or being with less close others (Shackman et al., 2018). Further clarifying this picture, Mueller et al. (2019) studied interactions between the Big Five personality traits and four different types of interaction partners (i.e., family, friends, colleagues, others) in predicting momentary happiness following FtF interactions. Again, neuroticism moderated the effect of type of interaction partner on momentary happiness, such that individuals high in neuroticism benefitted more from interactions with friends compared to interactions with family. Therefore, we predicted that the relationship between type of interaction partner and momentary well-being would be moderated by neuroticism, such that individuals with higher levels of neuroticism would benefit more from interactions with close peers.

The Present Study

In sum, ample evidence suggests that both personality traits and contextual factors (i.e., mode of communication, type of interaction partner) are related to well-being. However, few studies have investigated how these variables interact in everyday life. To provide such an integrative and comprehensive view on momentary well-being in real-life social interactions, we investigated whether different social contexts were related to distinct well-being outcomes and whether personality traits moderated these relationships. We used extensive experience sampling data from three large college samples. We decided to focus on college students, because college is a particularly intense phase of life with a lot of (social) opportunities and challenges (Arnett, 2000). It, thus, provides a relevant context for the study of well-being fluctuations and individual differences therein.

With the data being collected in three cohorts of students (Study 1 [S1]: N = 1,360; Study 2 [S2]: N = 851; Study 3 [S3]: N = 864), we first generated theory-based hypotheses and an analysis plan for our first dataset, which we preregistered on our Open Science Framework (OSF) project page (https://osf.io/jpxts/; document "Preregistration" uploaded on April 26, 2019). After running the analyses, we specified a revised analysis plan with data-based hypotheses for the second, confirmatory dataset (https://osf.io/jpxts/; document "Addendum" uploaded on July 14, 2019). Originally, we had planned to publish the results from only these two datasets. However, in the course of the review process, we were advised to change our analytical strategy substantially (see "Deviations from the Preregistration"). To test the robustness of the revised results, we decided to replicate all findings in a third dataset. The revised analytic strategy was preregistered in a third preregistration document (https://osf.io/jpxts/; document "Preregistration2" uploaded on March 8, 2021).

Table 1 displays an overview of our research questions. Importantly, because not all ESM reports included social interactions, we were able to run a first series of models comparing different social contexts with having no social interaction at all. This first set of analyses is complemented by more thorough examinations of modes of communication across different types of interaction partners. Specifically, we examined whether mixed episodes and CMC were related to lower well-being compared to FtF interactions, and whether interactions with family members and weak ties were associated with lower well-being compared to interactions with close peers. In order to test the social enhancement and compensation hypotheses, the role of personality traits is considered in all analyses.

Our study moves beyond previous research in at least four ways: First, we use a momentary measure of the social context and, thus, overcome shortcomings that affect retrospective self-reports (Wrzus, & Mehl, 2015), such as low accuracy of self-reported internet and phone use in cross-sectional studies (Araujo et al., 2017; Boase & Ling, 2013; Scharkow, 2016). Second, we examine the relationship between social interactions and well-being on the within- and between-person level.

Third, our sample size is much larger than that of previous ESM studies on social interactions and well-being (e.g., Mueller et al., 2019; Sun et al., 2020), which allows for higher power and more precision in the estimation of effects sizes, especially for the cross-level interaction effects (Scherbaum & Ferreter, 2009). Fourth, we employ rigorous methodological standards to increase replicability, reproducibility, and transparency (e.g., open materials, preregistration, replication). Due to these methodological improvements, the study provides unique insights into social interactions and well-being that were not previously available.

Table 1

Overview of Research Questions and Hypotheses

Research question	Social context	Hypotheses	Supported?
How are different social contexts related to well-being within and between persons?	Mode of communication	FtF interactions > mixed episodes, CMC > no social interaction	Partly. No significant difference between FtF interactions and mixed episodes
	Type of interaction partner	Close peers > family > weak ties > no social interaction	Yes
How are personality traits related to social reactivity?	Mode of communication	Social enhancement hypothesis: individuals high in extraversion and agreeableness and low in neuroticism benefit more from all modes of communication (i.e., FtF interactions, CMC, and mixed episodes)	No. Individuals high in neuroticism benefitted more from FtF interactions and mixed episodes
		Social compensation hypothesis: individuals low in extraversion and agreeableness and high in neuroticism benefit more from CMC	
	Type of interaction partner	Individuals high in neuroticism benefit more from interactions with close peers	Partly. Individuals high in neuroticism benefitted more from interactions with close peers, but not significantly more than from interactions with other interaction partners

Note. The hypotheses were formulated based on theoretical expectations. For data-driven hypotheses based on the results from S1 and S2, see https://osf.io/jpxts/ (document “Addendum” uploaded on July 14, 2019 and document “Preregistration2” uploaded on March 8, 2021). The column

"Supported?" indicates whether each hypothesis was supported based on the meta-analytic results. FtF = face-to-face interactions; CMC = computer-mediated communication.

Method

S1 and S2 were based on analyses of archival data and were approved for use by the Institutional Review Board at Stanford University (Protocol No. 54300) and The University of Texas at Austin (Protocol No. 2012–07–0064). S3 was approved by the Institutional Review Board at The University of Texas at Austin (Protocol No. 2018-07-0035). Online materials for this article are available at our OSF page https://osf.io/jpxts/.

Participants

Participants were college students who were recruited from an introductory psychology class at The University of Texas at Austin. The data were collected in three semesters (S1: Fall 2017, S2: Spring 2018, S3: Fall 2020) among three different cohorts of students. A total of 1,397, 857, and 920 students participated in S1, S2, and S3, respectively. Because our focus was on young adults, we excluded all participants who were younger than 18 or older than 24 (37 in S1, six in S2, and 39 in S3). In addition, some ESM reports were removed as part of the data cleaning procedure (see "Preprocessing of Experience Sampling Data and Compliance" below). This resulted in final sample sizes of 1,360 (S1), 851 (S2), and 864 (S3). Participants were predominately female (S1: 62.5%, S2: 60.3%, S3: 69.1%), on average 19 years old (S1: M = 18.8, SD = 1.0; S2: M = 19.1, SD = 1.1; S3: M = 18.7, SD = 1.0), and mostly first-year (S1: 51.8%, S2: 56.4%, S3: 58.7%) or second-year students (S1: 31.9%, S2: 26.8%, S3: 26.1%). Most participants identified as Anglo/White (S1: 37.0%, S2: 31.9%, S3: 33.9%), followed by Asian/Asian American (S1: 23.0%, S2: 28.6%, S3: 21.2%), Hispanic/Latino (S1: 22.7%, S2: 22.8%, S3: 25.1%), and African American/Black (S1: 4.6%, S2: 5.2%, S3: 5.0%). Moreover, some students identified as multi-racial (S1: 11.6%, S2: 9.6%, S3: 12.8%). All students who participated were compensated with class credit. Moreover, they received personalized feedback reports, which summarized their responses to the ESM surveys. In S1 and S2, the reports were sent out at the end of the study. In S3, the reports were sent out at the end of each week of data collection.

Procedures

Participants completed a demographic survey during week 1 of the semester and a personality trait questionnaire during week 10 (see "Measures" below for details). The ESM component of the study was part of a class assignment.[1]

In S1 and S2, participants received five daily ESM surveys for a maximum of 14 days. Seven days with at least three surveys on each of those days were required to receive full credit for the assignment. The surveys were programmed in Qualtrics and distributed via e-mail. Participants received emails at semirandom times within five 150-minute blocks between 9am and 9:30pm, with a minimum time window of 60 minutes between each consecutive email.

In S3, participants received seven daily ESM surveys for a maximum of four weeks. Fourteen days with at least four surveys on each of those days were required to receive full credit for the assignment. As in S1 and S2, the surveys were programmed in Qualtrics. However, contrary to S1 and S2, participants installed a research app (Lind et al., 2018) on their smartphones which sent regular push notifications to complete the surveys. The notifications arrived at semirandom times within seven 120-minute blocks between 8am and 10pm, with a minimum time window of 60 minutes between each consecutive notification.[2]

In all studies, participants could use their phones or computers to fill out the ESM surveys, which took 1-2 minutes. In S1 and S2, there was no time limit for when to complete a survey. If participants missed a survey, they were allowed to respond to the survey later. To ensure interpretability and to avoid memory biases, participants were told to (a) complete the surveys as soon as they received them, (b) always report on what they were doing during the past 15 minutes (instead of recalling what they were doing at the time they initially received the survey), and (c)

[1] The class assignment consisted of three steps. In S1 and S2, students first participated in the ESM phase (Step 1). Then, they filled in a questionnaire about their lifestyle (Step 2). Lastly, they completed a writing exercise (Step 3). In S3, students first filled in a questionnaire about their political views and their experiences during the COVID-19 pandemic (Step 1). Next, they participated in the ESM phase (Step 2). Lastly, they completed the writing exercise (Step 3).

[2] The app also sent notifications for a daily survey at 8am each morning. In addition, the app collected data from smartphone sensors such as accelerometer and global positioning system (GPS) data. The daily survey data and the smartphone sensing data were not part of the present study.

only complete one survey in one sitting. Because we could not control adherence to these instructions, we employed very strict data cleaning criteria (i.e., whenever participants completed two surveys within 15 minutes, we removed all surveys after the first that fell within the subsequent three hours, based on the timing of the notifications being approximately three hours apart). This resulted in an average time window of 208 (S1) and 207 (S2) minutes between two consecutive surveys within the same day. The surveys were distributed roughly evenly throughout the day: 18% during the morning, 24% during midday, 24% during the afternoon, and 30% (S1) / 31% (S2) during the evening.

In S3, the notifications expired by the end of each block to ensure that students completed the surveys within the pre-defined time frame. This resulted in an average time window of 163 minutes between two consecutive surveys within the same day. The surveys were distributed roughly evenly throughout the day: 22% during the morning, 24% during midday, 27% during the afternoon, and 24% during the evening.

State Measures

Well-Being

In S1 and S2, participants answered the following three questions about their momentary well-being: "RIGHT NOW, I am feeling CONTENT/STRESSED/LONELY" on a 4-point scale (1 = *Not at all*, 2 = *A little bit*, 3 = *Quite a bit*, 4 = *Very much*). To increase reliability, we recoded the reversed items (i.e., stressed, lonely) and computed the average of the three items per time point per participant as an overall index for momentary well-being (S1: McDonald's ω_{within} = .60, $\omega_{between}$ = .75; S2: ω_{within} = .60, $\omega_{between}$ = .72).

In S3, momentary well-being was measured using the four adjectives "angry", "worried", "happy", and "sad". The item stem and the response options were identical to S1 and S2. Following Schimmack (2009), we calculated a measure of affect balance by subtracting the average of the three negative items from the positive item per time point per participant (McDonald's ω_{within} = .61, $\omega_{between}$ = .75).

Social Interactions

In S1 and S2, the presence versus absence of social interactions was inferred from responses to the questions about mode of communication and type of interaction partner (see below). We coded all responses when participants chose *Not applicable, was not interacting with anyone* as the absence of a social interaction.[3] If participants selected either a communication channel (incl. *Other form of interaction*) or an interaction partner (incl. *None of the above, Other*), the response was coded as the presence of a social interaction.[4]

In S3, participants completed a separate question, asking whether or not they had interacted with others during the past hour. An interaction was defined as: "an exchange between two or more people that lasts at least 5 minutes, including interactions on a smartphone or computer (e.g., talking on the phone, texting, chatting, social media)". Depending on their answer, all subsequent questions referred to either their social interactions (if the participant indicated *Yes*) or other daily activities (if the participant indicated *No*).

Mode of Communication

In S1 and S2, participants completed the following question about their mode of communication: "During the past FIFTEEN MINUTES, I spent time interacting with others by: (check all that apply)". The following response options were provided: 1 = *Talking in person*, 2 = *Talking on the phone*, 3 = *Text messaging on the phone*, 4 = *Chatting on Whatsapp or other chat app*, 5 = *Chatting on a dating app*, 6 = *Emailing*, 7 = *Video-chatting*, 8 = *Interacting on Facebook*, 9 = *Interacting on Instagram*, 10 = *Interacting on Snapchat*, 11 = *Interacting on Twitter*, 0 = *Not applicable, was not interacting with anyone*.[5] As indicated in the instructions, participants could

[3] All ESM reports when participants chose *Not applicable, was not interacting with anyone* in combination with another response option were excluded from the analyses due to the ambiguity of this response.
[4] If participants skipped both questions, the ESM report was excluded from the analyses.
[5] In addition, participants could select *Other form of interaction* or *SKIP QUESTION*. All ESM reports when participants selected these options were excluded from the analyses regarding mode of communication (although some of these were retained for the effect of social interactions generally).

check all options that applied to them in any given situation. In line with our research questions, we created three categories: FtF (*Talking in person*), CMC (any combination of response options 2-11), and mixed (*Talking in person* and any combination of response options 2-11).

In S3, the item stem ("I spent time interacting with others by (check all that apply):") referred to the past hour. The response options were: 1 = *Talking in person*, 2 = *Talking on the phone*, 3 = *Texting (e.g., SMS, Whatsapp)*, 4 = *Chatting on a dating app*, 5 = *Emailing*, 6 = *Video-chatting*, 7 = *Social media*.[6] In line with S1 and S2, we created three categories: (1) FtF (*Talking in person*), (2) CMC (any combination of response options 2-7), and (3) mixed (*Talking in person* and any combination of response options 2-7). Thus, mixed episodes referred to situations when participants engaged in both FtF interactions and CMC within the last 15 (S1 and S2) or 60 (S3) minutes.

Type of Interaction Partner

In all three studies, participants reported their interaction partner ("I was interacting with the following people: (check all that apply)") by choosing one or more of the following options: 1 = *Classmates, students*, 2 = *Co-workers*, 3 = *Family*, 4 = *Friends*, 5 = *Roommates*, 6 = *Significant Other*, 7 = *Strangers*.[7] Again, participants could select all options that applied to them. We created three categories: close peers (*Friends*, *Roommates*, and/or *Significant Other*), family (*Family*), and weak ties (*Classmates, students*, *Co-workers*, and/or *Strangers*).

Trait Measures

[6] Note that the response options *Text messaging on the phone* and *Chatting on Whatsapp or other chat app* applied in S1 and S2 were collapsed into *Texting (e.g., SMS, Whatsapp)* in S3, and the response options *Interacting on Facebook, Interacting on Instagram, Interacting on Snapchat,* and *Interacting on Twitter* were collapsed into *Social media*. As in S1 and S2, participants could select *Other form of interaction* or *SKIP QUESTION*. All ESM reports when participants selected these options were excluded from the analyses regarding mode of communication (although some of these were retained for the effect of social interactions generally).

[7] Participants could also select *None of the above, Other* or *SKIP QUESTION*. All ESM reports when participants selected these options were excluded from the analyses regarding type of interaction partner (although some of these were retained for the effect of social interactions generally).

Personality Traits

Personality traits were measured using the Big Five Inventory (BFI; John & Srivastava, 1999) in S1 and S2 and the BFI-2 (Soto & John, 2017) in S3. The BFI (BFI-2) consists of 44 (60) items, which can be averaged to create composite scores for the Big Five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Participants rated their level of agreement with each item using a 5-point Likert scale. The reliabilities (McDonald's ω) ranged from .78 (agreeableness) to .87 (extraversion) in S1 (M_ω = .81), from .78 (agreeableness) to .87 (extraversion) in S2 (M_ω = .81), and from .81 (agreeableness) to .89 (neuroticism) in S3 (M_ω = .85). The reliabilities of individual traits are reported in the supplementary materials.

Demographics

In all three studies, participants were asked about their gender (0 = *Male*, 1 = *Female*), age (in years), academic class (e.g., Freshman, Sophomore, Junior, Senior), ethnicity, and socio-economic status (SES). Because the majority of our sample was white, we created the following dummy variable to represent ethnicity: 0 = *Anglo/White only*, 1 = *Non-Anglo/White, multi-ethnic*. SES is typically measured by combining information on income, educational attainment, and occupational prestige (Duncan et al., 1972). Given that our focus was on college students, we operationalized SES as the highest level of education that participants' parents had obtained. We created the following dummy variable: 0 = *less than some college*, 1 = *at least one parent completed some college*.

Preprocessing of Experience Sampling Data and Compliance

In line with previous ESM studies (Bolger & Laurenceau, 2013; McCabe et al., 2014), we employed several exclusion criteria that we specified in our first preregistration, before analyzing the data (https://osf.io/jpxts/). In S1 and S2, we excluded partial reports. Moreover, we excluded reports that were completed too close to each other. Specifically, whenever participants completed two surveys within 15 minutes, we removed all surveys after the first that fell within the subsequent

three hours, based on the timing of the notifications being approximately three hours apart. In total, we excluded 8,654 ESM reports (15%) in S1 and 4,897 ESM reports (15%) in S2, above and beyond the reports that were excluded because of age (1,485 in S1 and 206 in S2).

In S3, we applied slightly different data cleaning criteria, based on the difference in time schedules between studies. In addition to partial reports, we excluded reports that were completed within 60 minutes after the previous report to avoid overlap between the referenced time periods (i.e., during the past hour) in consecutive surveys. We also excluded reports that took more than 60 minutes to complete and participants who indicated that they had not responded truthfully to the ESM surveys at the end of the class assignment. This resulted in the exclusion of 4,133 ESM reports (6%), above and beyond the reports that were excluded because of age (3,031).

In S1, 1,360 participants provided a total of 46,717 ESM reports (*M* = 34.4 per person, *SD* = 14.1). In S2, 851 participants provided a total of 27,150 ESM reports (*M* = 31.9 per person, *SD* = 15.5). In S3, 864 participants provided a total of 65,496 ESM reports (*M* = 75.8 per person, *SD* = 25.4).

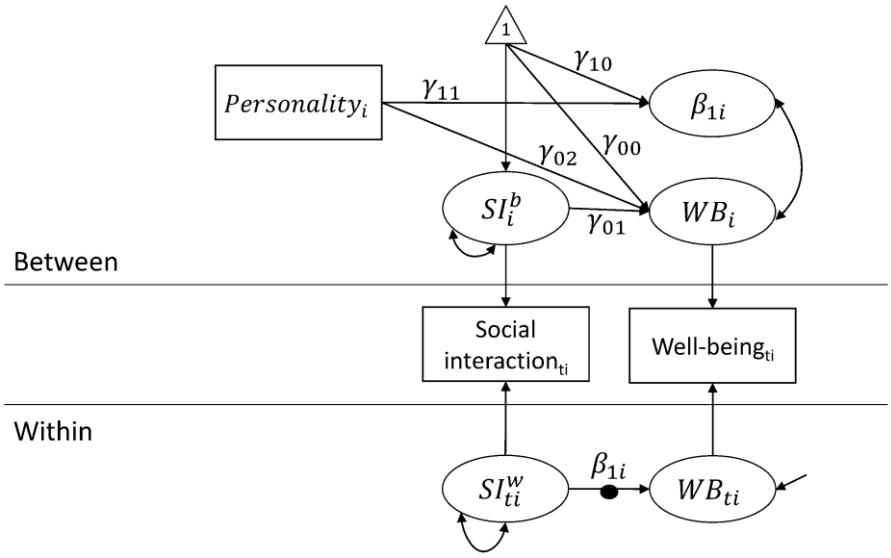
Statistical Analyses

Due to the nested structure of the data (measurement occasions nested within participants), we used Multilevel Structural Equation Modeling (MSEM) in M*plus* version 8.5 (Muthén & Muthén, 1998-2017). One of our main goals was to separate within- from between-person effects, which we achieved via centering of Level 1 predictors (Enders & Tofighi, 2007; Yaremych et al., 2021). We decided to use latent person-mean centering as this strategy has been recommended to obtain unbiased between-person effects (Asparouhov & Muthén, 2019; Lüdtke et al., 2008). As shown in Figure 1, all Level 1 variables were split into their latent within- and between-person components. The between-person components (i.e., SI_i^b and WB_i) reflect the latent intercepts, which are conceptually similar to person means corrected for measurement error. The within-person components (i.e., SI_{ti}^w and WB_{ti}) reflect the time-specific deviations from the latent intercepts.

Because we assumed that the effects would differ between individuals, we estimated random slopes for all focal predictors (Barr et al., 2013). We used the Bayesian estimator, since we had obtained multiple singular fit warnings with maximum likelihood estimation using the lme4 package (Bates et al., 2015) in R (R Core Team, 2020). All models were estimated using the default, uninformative priors (Muthén & Asparouhov, 2012). The parameter estimates were based on two chains with at least 10,000 iterations each (half of which were discarded as burn-in). Model convergence was determined based on the Potential Scale Reduction (PSR) criterion with the default settings (Gelman & Rubin, 1992).

Figure 1

Representation of the Analyses



Note. Squares represent observed variables, circles represent latent variables, and solid black circles represent random effects. Weekend was modelled as a control variable on Level 1 and is omitted in the graph for readability. SI = social interaction; WB = well-being.

We ran two sets of analyses, which are described below. We report both 95% credible intervals and Bayesian *p*-values. Bayesian *p*-values in M*plus* reflect the percentage of posterior draws in the opposite direction (i.e., negative or positive) of the point estimate (i.e., percentage of negative draws if the point estimate is positive and vice versa; Muthén, 2010). Given that Bayesian *p*-values are one-tailed, we applied an alpha level of .005 for the individual study results.

Analysis 1

Our first set of analyses (Analysis 1) focused on the relationship between different social contexts and momentary well-being compared to not interacting with anyone. For Analysis 1a, the model was estimated as follows:

Within-person level:

$$Well-being_{ti} = \beta_{0i} + \beta_{1i}Social\ interaction_{ti}^{w} + \beta_{2}Weekend_{ti} + e_{ti}$$

Between-person level:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}Social\ interaction_{i}^{b} + \gamma_{02}Personality_{i} + u_{0i}$$
$$\beta_{1i} = \gamma_{10} + \gamma_{11}Personality_{i} + u_{1i}$$

On the within-person level, the outcome variable well-being at time *t* for person *i* was equal to a person-specific intercept (β_{0i}), plus the person-specific within-person effect of social interactions (β_{1i}), plus the effect of weekend (β_{2}), plus a time-point specific residual for person *i* (e_{ti}). Weekend was dummy coded (0 = *weekday*, 1 = *weekend*). The residual was assumed to be normally distributed with constant variance for all people, $e_{ti} \sim N(0, \sigma^2)$. On the between-person level, the person-specific intercept and the person-specific within-person effect of social interactions were equal to a fixed effect (γ_{00} and γ_{10}), plus the effect of personality on the intercept (γ_{02}) or slope (γ_{11}), plus a person-specific random effect (u_{0i} and u_{1i}). The formula for the intercept additionally included the between-person effect of social interactions (γ_{01}). The random effects were assumed to be normally distributed and allowed to correlate.

We were interested in the following three parameters: (1) the within-person effect of social interactions (γ_{10}) which indicated whether social interactions were related to momentary changes in well-being, (2) the between-person effect of social interactions (γ_{01}) which indicated whether individuals who interacted more than others reported higher well-being on average, and (3) the effect of personality on the slope (γ_{11}) which indicated whether personality moderated the within-person effect of social interactions (i.e., the cross-level interaction).

In a first step, we ran a baseline model without personality (including only the within- and between-person effects of social interactions plus weekend as a control variable). In a second step, we included the effects of personality on the intercept and on the slope (i.e., γ_{02} and γ_{11}). We ran one separate model for each personality trait.

For Analysis 1b, the social interaction variable was replaced by three dummy variables, representing the three different communication channels (i.e., FtF interactions, CMC, and mixed episodes). Similar to Analysis 1a, no social interaction served as the reference category (all uncentered dummy variables = 0). Here, (1) the within-person effects indicated whether FtF interactions, CMC, and mixed episodes were related to momentary changes in well-being compared to no social interaction, (2) the between-person effects indicated whether individuals who engaged in more FtF interactions, CMC, and mixed episodes than others reported higher well-being on average, and (3) the effects of personality on the slopes indicated whether personality moderated the within-person effects of FtF interactions, CMC, and mixed episodes compared to no social interaction (i.e., the cross-level interactions).

For Analysis 1c, we used three dummy variables indicating the type of interaction partner (i.e., close peers, family, and weak ties). The interpretation of coefficients was the same as in Analysis 1b. Note that we excluded all ESM reports when participants selected interaction partners from multiple categories (i.e., episodes that involved a mixture of close peers and family, close peers and weak ties, family and weak ties, or close peers, family, and weak ties) to ensure a clear interpretability of the coefficients.[8]

Analysis 2

[8] As requested by a reviewer, we reran Analysis 1c and included episodes when participants selected interaction partners from multiple categories. The results are presented in the supplementary materials (Tables S2.1 and S2.2). Note that the interpretation of the coefficients is different for this analysis (i.e., are interactions with close peers, family, or weak ties related to higher well-being *above and beyond* other interaction partners?).

In the second set of analyses (Analysis 2), we estimated the effects of mode of communication and type of interaction partner in one model, using FtF interactions with close peers as the reference category. The change of reference category was important to test our research question of whether the social contexts differed from *each other*. Moreover, the inclusion of mode of communication and type of interaction partner in one model allowed us to estimate their interactive effects (i.e., whether the effects of mode of communication varied across different interaction partners). We excluded all situations in which no interaction took place. As a result, the number of students and ESM reports was reduced to 1,347 students and 23,778 reports in S1, 834 students and 14,019 reports in S2, and 855 students and 21,435 reports in S3.

We first included only the within-person effects of CMC, mixed episodes, family, and weak ties to test whether there were significant differences between CMC and mixed episodes compared to FtF interactions and between interactions with family and weak ties compared to close peers. We also tested whether these effects were moderated by personality traits.

In a next step, we added all possible Level 1 interactions (i.e., CMC × Family, CMC × Weak ties, Mixed × Family, Mixed × Weak ties) to test whether the effects of different modes of communication varied across interaction partners. Note that we manually person mean-centered the Level 1 variables and computed their product terms to estimate the interaction effects. Because between-person effects tend to be biased when using the observed person means (Lüdtke et al., 2008), we only estimated within-person effects in Analysis 2.

Standardization

We present standardized estimates for the focal parameters in the main text. The predictors on the within-person level were already on an interpretable scale (e.g., 0 = *no social interaction*, 1 = *social interaction*). Therefore, the within-person effects were standardized with respect to the outcome variances only (Sun et al., 2020). The within-person effects, thus, indicate the *SD* difference in well-being between situations when participants had interacted with others and situations when they had not. Effects on the between-person level were standardized with respect to

both the predictor and the outcome variances. The main effects, thus, reflect how many *SDs* the intercept of well-being increases for a 1 *SD* increase in interaction frequency or a given personality trait. The cross-level interactions reflect how many *SDs* the random slope increases for a 1 *SD* increase in a given personality trait. All parameters were standardized with respect to their level-specific standard deviations as implemented in M*plus*. In the supplementary materials, we provide all parameters in unstandardized form.

Meta-Analysis

To synthesize findings across the three datasets, we ran a fixed-effects meta-analysis of the individual findings from the three samples. The meta-analysis was conducted in R with the metafor package (Viechtbauer, 2010). Because the meta-analytic *p*-values are two-tailed, we applied an alpha level of .01 for the meta-analytic results. We also created a pooled data set, which included data from all three studies (participants N = 3,075; observations N = 139,363; Curran & Hussong, 2009). We used the pooled data set to (a) create graphs and estimate simple slopes, and (b) derive the input parameters for the power analysis (Table S7.1).

Supplementary Analyses

We ran the following additional analyses: First, we zoomed in on social interactions when participants solely used CMC and compared texting, chatting, emailing and interactions on social networking sites (SNS) with talking on the phone, video-chatting (Tables S1.1-S1.6). Second, we reran Analysis 1c and included episodes with multiple interaction partners (Tables S2.1 and S2.2). The results for different CMC channels and for episodes with multiple interaction partners are described briefly in the results section.

We ran three additional analyses which will not be discussed in this manuscript but can be found in the supplementary materials: First, as suggested by a reviewer, we examined effects for significant others and peers (i.e., friends, roommates) separately (Tables S3.1-S3.6). Second, we analyzed the well-being adjectives (S1 and S2: content, stressed, lonely; S3: angry, worried, happy, sad) separately to determine whether the findings were driven by specific emotions (Tables S4.1-

S4.55). Third, we controlled for *gender*, *ethnicity*, and *SES* on Level 2 (Tables S5.1-S5.10). The inclusion of control variables did not affect the results.

Deviations From the Preregistration

During the review process, we were advised to deviate from the analytical approach that we had preregistered in the first two preregistration documents (i.e., document "Preregistration" uploaded on April 26, 2019, and document "Addendum" uploaded on July 14, 2019). The two biggest issues were as follows: First, we had used the uncentered binary variables as predictor variables. While this modeling approach is common for binary predictors, it did not allow us to separate within- and between-person effects (Enders & Tofighi, 2007; Yaremych et al., 2021). Second, we had decided to drop the random slopes due to model convergence issues, which could lead to serious model misspecifications (Hamaker & Muthén, 2020). When revising the manuscript, we applied latent person-mean centering to all focal predictor variables in line with the reviewers' recommendations and added random slopes. Moreover, we added two additional sets of analyses (Analysis 1a and 1c) that had not been included in the first two preregistration documents. Importantly, all decisions for S3 were preregistered in the third preregistration document (document "Preregistration2" uploaded on March 8, 2021). The only exception were the data cleaning procedures for S3 which were developed after the preregistration was written (see "Preprocessing of Experience Sampling Data and Compliance").

For the sake of transparency, we uploaded the results from our initial analysis that we had preregistered in the first two preregistration documents and presented in an earlier version of this manuscript to our OSF page (https://osf.io/jpxts/). However, we think that the results presented below are more interpretable and should thus serve as the basis of any conclusions drawn from this research.

Transparency and Openness

We embrace the values of openness and transparency in science (Schönbrodt et al., 2015). We report how we determined our sample size (see Table S7.1), all data exclusions, and all

measures in the study (Simmons et al., 2012), or refer to project documentations in the OSF. All data, analysis code, and research materials are available at https://osf.io/jpxts/. This study's hypotheses and analysis plan were preregistered; see https://osf.io/jpxts/.

Results

In the following, we first provide descriptive statistics (Tables 2 and 3) and then describe the findings from the MSEMs (Tables 4-6, Figures 2-4). Note that we focus on the meta-analytic findings in the main text. The study-specific results are summarized in the tables and in the supplementary materials.

Descriptive Statistics

Table 2 shows an overview of the number of episodes per type. Descriptive statistics as well as between-person and within-person correlations among the study variables can be found in Table 3.

Table 2

Number of Episodes per Type

MOC	Close peers	Family	Weak ties	Multiple	Unknown	No interaction	Total
FtF	**6,997/4,066/6,783**	**1,319/1,144/4,290**	**3,247/2,059/1,009**	2,897/1,565/1,175	243/97/154	0/0/0	**14,703/8,931/13,411**
CMC	**6,550/3,614/4,090**	**949/658/664**	**602/455/1,780**	3,004/1,642/1,662	505/322/198	0/0/0	**11,610/6,691/8,394**
TVC	708/408/1,084	436/319/444	110/76/1,497	198/125/274	49/26/145	0/0/0	1,501/954/3,444
TCE	3,055/1,640/1,854	385/248/161	339/267/199	994/606/403	210/141/19	0/0/0	4,983/2,902/2,636
SNS	1,511/868/444	66/37/17	92/72/36	338/189/77	173/104/13	0/0/0	2,180/1,270/587
Multiple	1,276/698/708	62/54/42	61/40/48	1,474/722/908	73/51/21	0/0/0	2,946/1,565/1,727
Mixed	**3,533/1,658/2,446**	**173/139/239**	**408/226/134**	5,529/2,557/6,124	110/40/97	0/0/0	**9,753/4,620/9,040**
Unknown	114/68/94	9/5/3	79/83/48	49/33/44	57/43/94	0/0/0	308/232/283
No interaction	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	10,343/6,676/34,368	**10,343/6,676/34,368**
Total	**17,194/9,406/13,413**	**2,450/1,946/5,196**	**4,336/2,823/2,971**	11,479/5,797/9,005	915/502/543	**10,343/6,676/34,368**	46,717/27,150/65,496

Note. Numbers from S1 are depicted before the first slash; numbers from S2 are depicted in the middle; numbers from S3 are depicted after the second slash. Cells in dark grey are used in the main analyses; cells in light grey are used in the supplementary analyses on CMC channels. Participants N = 1,360 / 851 / 864. MOC = mode of communication; FtF = face-to-face interactions; CMC = computer-mediated communication; TVC = talking on the phone, video-chatting; TCE = texting, chatting, emailing; SNS = interactions on social networking sites; Mixed = mix of FtF and CMC; Close peers = interactions with friends, roommates, and/or significant others; Family = interactions with family members; Weak ties = interactions with classmates, co-workers, and/or strangers; Multiple = episodes with multiple CMC channels (i.e., TVC and TCE; TVC and SNS; TCE and SNS; or TVC, TCE, and SNS) or with interaction partners from multiple categories (i.e., close peers and family; close peers and weak ties; family and weak ties; or close peers, family, and weak ties); Unknown = mode of communication or type of interaction partner is unknown because participants selected *Other form of interaction*/*None of the above*, *Other* or *SKIP QUESTION* when responding to the question about mode of communication or type of interaction partner.

Table 3

Descriptive Information

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Well-being		.05/.05/**.23**	.06/**.11**/**.19**	**-.15**/**-.14**/-.04	**.12**/**.11**/**.18**	.04/.06/**.20**	.01/-.00/.03	-.03/-.03/-.01	**.18**/**.09**/**.34**	**.20**/**.15**/**.22**	**.17**/**.19**/**.20**	**-.43**/**-.42**/**-.49**	.02/.04/.01
2. Social interaction	**.11**/**.11**/**.16**		-.01/.07/**.40**	**.44**/**.48**/**.39**	**.57**/**.56**/**.72**	**.73**/**.69**/**.73**	.02/**.12**/**.23**	**.08**/.05/**.22**	**.32**/**.33**/**.21**	**.11**/**.09**/**.12**	.07/-.03/.07	-.01/-.02/.01	-.05/.05/.04
3. FtF	**.13**/**.15**/**.14**	**.44**/**.47**/**.57**		**-.54**/**-.57**/**-.30**	**-.46**/**-.33**/**-.09**	**-.11**/-.07/**.28**	.04/.06/**.30**	**.27**/**.25**/**.15**	**.10**/**.11**/**.11**	.01/.01/.03	-.02/.04/.02	-.07/-.02/-.08	-.00/.02/.04
4. CMC	**-.11**/**-.11**/**-.01**	**.28**/**.30**/**.41**	**-.37**/**-.38**/**-.18**		.02/.03/.07	**.39**/**.38**/**.33**	.02/**.11**/-.05	**-.09**/**-.11**/**.19**	.03/.08/.01	-.02/.04/**.09**	.02/-.06/.07	**.10**/.01/**.10**	.01/.00/.03
5. Mixed	**.08**/**.06**/**.07**	**.20**/**.19**/**.33**	**-.33**/**-.32**/**-.23**	**-.37**/**-.32**/**-.21**		**.46**/**.46**/**.50**	-.03/-.04/.08	**-.11**/-.08/.02	**.18**/**.21**/**.17**	**.12**/.06/.07	**.07**/-.02/.03	-.03/-.01/.02	-.06/.04/-.00
6. Close peers	**.13**/**.11**/**.16**	**.62**/**.58**/**.68**	**.18**/**.19**/**.41**	**.31**/**.30**/**.32**	**.19**/**.17**/**.24**		**-.42**/**-.40**/**-.36**	**-.40**/**-.41**/**-.11**	**.25**/**.26**/**.23**	.05/.05/**.13**	.01/**-.11**/**.09**	-.02/-.02/-.04	**-.08**/.03/.04
7. Family	**.05**/**.08**/**.05**	**.22**/**.25**/**.44**	**.12**/**.16**/**.49**	**.11**/**.10**/**.02**	**-.02**/-.00/**.02**	**-.25**/**-.27**/**-.13**		.00/-.06/.02	-.06/-.06/**-.10**	.04/.01/-.03	.06/.08/-.06	.05/.04/.04	.02/-.03/.01
8. Weak ties	**-.05**/**-.05**/-.01	**.28**/**.31**/**.31**	**.33**/**.33**/**.06**	**-.08**/**-.04**/**.38**	-.01/-.00/.00	**-.39**/**-.35**/**-.14**	**-.12**/**-.14**/**-.09**		.01/.07/.03	.02/.06/.01	.01/.08/.02	-.02/-.05/.06	.04/.04/.01
9. E										.07/**.11**/**.11**	**.12**/.07/**.27**	**-.26**/**-.22**/**-.33**	.07/**.18**/**.24**
10. A											**.26**/**.26**/**.22**	**-.26**/**-.29**/**-.27**	**.09**/**.10**/**.13**
11. C												**-.26**/**-.24**/**-.25**	-.00/-.03/.06
12. N													.01/-.04/-.00
13. O													
M	3.00/2.98/0.99	0.78/0.75/0.48	0.32/0.33/0.21	0.25/0.25/0.13	0.21/0.17/0.14	0.50/0.45/0.24	0.07/0.09/0.09	0.13/0.14/0.05	3.14/3.06/3.27	3.74/3.71/3.73	3.46/3.44/3.47	3.05/3.12/3.18	3.52/3.53/3.73
SD within	0.50/0.51/1.00	0.38/0.39/0.44	0.43/0.44/0.38	0.40/0.39/0.31	0.36/0.34/0.30	0.44/0.43/0.37	0.24/0.26/0.27	0.31/0.32/0.22					
SD between	0.47/0.45/0.88	0.18/0.19/0.23	0.19/0.19/0.15	0.19/0.20/0.12	0.19/0.17/0.18	0.25/0.27/0.22	0.10/0.14/0.12	0.14/0.15/0.08	0.82/0.83/0.73	0.62/0.62/0.58	0.63/0.64/0.64	0.76/0.74/0.80	0.61/0.61/0.65

Note. Results from S1 are depicted before the first slash; results from S2 are depicted in the middle; results from S3 are depicted after the second slash. Correlations above the diagonal reflect between-person correlations; correlations below the diagonal reflect within-person correlations. Participants N = 1,360 / 851 / 864; observations N = 46,717 / 27,150 / 65,496. Note that well-being was measured on different scales across studies: In S1 and S2, we calculated the average of the three items content, stressed (reverse coded), and lonely (reverse coded) on a scale from 1 to 4. In S3, we calculated a measure of affect balance by subtracting the average of the three negative items angry, worried, and sad from the positive item happy (Schimmack, 2009). The affect balance measure could range from -3 to 3. Personality traits were measured using the BFI in S1 and S2 and the BFI-2 in S3. Social interaction = any kind of social interaction; FtF = face-to-face interactions; CMC = computer-mediated communication; Mixed = mix of FtF and CMC; Close peers = interactions with friends, roommates, and/or significant others; Family = interactions with family members; Weak ties = interactions with classmates, co-workers, and/or strangers; E = extraversion; A = agreeableness; C = conscientiousness; N = neuroticism; O = openness.
Coefficients in bold are significant with two-tailed $p < .01$.

Comparing Social Interactions to No Social Interaction

We first examined the effects of any kind of social interaction compared to no social interaction (Table 4).

Within-Person Effect: Do People Feel Better After Interacting With Others?

Social interactions were robustly related to higher well-being within persons. Across all three studies, individuals experienced higher momentary well-being after engaging in any kind of social interaction compared to no social interaction (Table 4: Social interaction WP). The meta-analysis showed that participants were on average .31 *SD* higher in well-being when they had interacted with others during the past 15 (60) minutes compared to when they had not.

Between-Person Effect: Do People Who Interact More Than Others Feel Better on Average?

Individuals who reported more social interactions throughout the study tended to have higher average well-being (Table 4: Social interaction BP). A one *SD* increase in social interaction frequency was related to a .10 *SD* increase in average well-being.

The Role of Personality

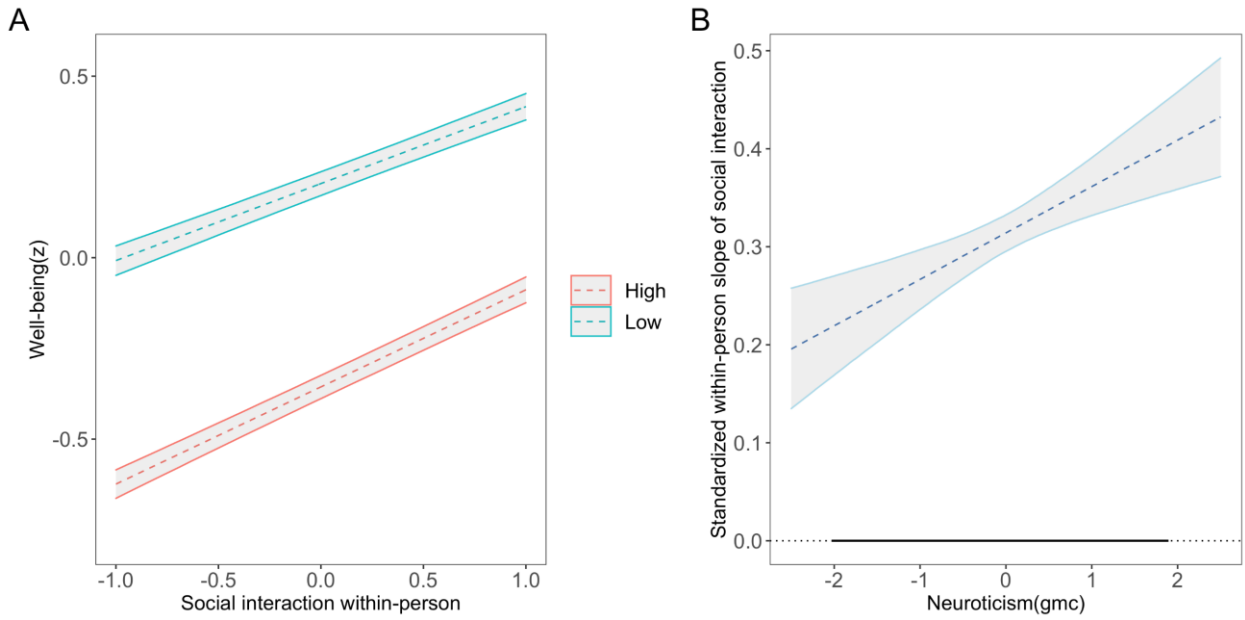
Next, we investigated whether the relationship between social interactions and well-being depended on an individual's personality. We first tested whether personality traits were related to average well-being. We found that well-being was positively related to extraversion, agreeableness, and conscientiousness and negatively related to neuroticism after controlling for social interaction frequency. Openness did not predict average well-being levels.

Second, we examined whether personality traits moderated the within-person relationship between social interactions and well-being. Our results showed that neuroticism predicted social reactivity (Table 4: Neuroticism × Social interaction WP): Individuals high in neuroticism reported stronger momentary increases in well-being after social interactions compared to individuals low in neuroticism (see Figure 2). Specifically, individuals one *SD* below the mean in neuroticism experienced a .28 *SD* ($p < .001$) increase in well-being after social interactions, whereas individuals one *SD* above the mean experienced a .35 *SD* ($p < .001$) increase (Panel a). Johnson-Neyman plots

(Panel b) showed that the within-person relationship between social interactions and well-being was positive and significant for all observed levels of neuroticism, but stronger for higher levels of the trait. We did not observe significant cross-level interaction effects for extraversion, agreeableness, conscientiousness, and openness, suggesting that these traits did not predict social reactivity.

Figure 2

Moderating Effect of Neuroticism in Social Interactions



Note. (a) Simple slopes for two levels of neuroticism: 1 *SD* below the mean (low) and 1 *SD* above the mean (high). (b) Model-implied standardized within-person effects of social interactions on well-being for varying levels of neuroticism. Neuroticism was grand-mean centered (gmc) and ranged from -2.03 to 1.89. The plots were generated in a pooled data set, which included data from all three studies (participants N = 2,533, observations N = 120,973). Due to the differences in scales across studies, well-being was z-standardized before merging the three data sets and ranged from -3 to 1.5.

Table 4

Effect of Social Interactions Compared to No Social Interaction on Momentary Well Being

Predictors	Baseline	E	A	C	N	O
Individual Studies						
Within Level						
S1: Social interaction WP	**.284 [.260, .310]**	**.283 [.256, .309]**	**.291 [.264, .317]**	**.288 [.262, .311]**	**.288 [.259, .314]**	**.288 [.262, .314]**
S2: Social interaction WP	**.271 [.241, .301]**	**.277 [.240, .315]**	**.277 [.240, .312]**	**.275 [.238, .312]**	**.275 [.238, .310]**	**.277 [.238, .312]**
S3: Social interaction WP	**.338 [.321, .356]**	**.340 [.320, .358]**	**.340 [.322, .358]**	**.338 [.320, .358]**	**.338 [.320, .356]**	**.341 [.323, .359]**
Between Level						
S1: Social interaction BP	.041 [-.018, .100]	-.009 [-.075, .058]	.025 [-.037, .089]	.039 [-.023, .103]	.045 [-.017, .107]	.053 [-.010, .117]
S2: Social interaction BP	.036 [-.040, .113]	.048 [-.045, .140]	.066 [-.022, .154]	.081 [-.007, .167]	.065 [-.021, .149]	.074 [-.014, .162]
S3: Social interaction BP	**.230 [.163, .295]**	**.181 [.107, .252]**	**.224 [.154, .294]**	**.240 [.168, .308]**	**.263 [.197, .326]**	**.246 [.175, .316]**
S1: Personality		**.135 [.092, .177]**	**.149 [.107, .189]**	**.134 [.093, .175]**	**-.323 [-.360, -.285]**	.014 [-.029, .055]
S2: Personality		.056 [-.004, .115]	**.078 [.022, .132]**	**.140 [.085, .195]**	**-.296 [-.347, -.242]**	.025 [-.031, .081]
S3: Personality		**.227 [.177, .275]**	**.127 [.076, .176]**	**.120 [.070, .169]**	**-.373 [-.415, -.330]**	-.003 [-.052, .046]
S1: Personality × Social interaction WP		-.058 [-.134, .019]	.102 [.025, .176]	-.008 [-.084, .067]	**.128 [.054, .200]**	.011 [-.064, .087]
S2: Personality × Social interaction WP		.014 [-.100, .123]	-.023 [-.143, .095]	-.004 [-.119, .106]	**.198 [.080, .325]**	-.046 [-.167, .072]
S3: Personality × Social interaction WP		-.003 [-.072, .068]	-.005 [-.078, .067]	-.053 [-.124, .018]	.021 [-.051, .092]	-.001 [-.071, .069]
Meta-Analysis						
Within Level						
Social interaction WP	**.311 [.298, .324]**	**.316 [.303, .330]**	**.319 [.305, .332]**	**.316 [.303, .330]**	**.316 [.303, .330]**	**.318 [.305, .332]**
Between Level						
Social interaction BP	**.102 [.064, .140]**	**.071 [.028, .115]**	**.105 [.063, .147]**	**.119 [.077, .161]**	**.132 [.092, .171]**	**.126 [.084, .168]**
Personality		**.149 [.120, .177]**	**.125 [.097, .152]**	**.131 [.104, .158]**	**-.334 [-.359, -.309]**	.011 [-.017, .039]
Personality × Social interaction WP		-.021 [-.067, .026]	.034 [-.014, .082]	-.027 [-.073, .020]	**.090 [.043, .137]**	-.003 [-.050, .044]

Note. Shown are standardized estimates with 95% credible intervals in square brackets. Meta-analytic results are based on a fixed-effects meta-analysis of the individual estimates from the three samples. Study 1 (S1): N = 1,135 to 1,360 participants providing a total of 40,526 to 46,717 observations; Study 2 (S2): N = 635 to 851 participants providing a total of 21,523 to 27,150 observations; Study 3 (S3): N = 759 to 864 participants providing a total of 58,699 to 65,496 observations. All models were estimated in M*plus* using the Bayesian estimator with uninformative priors. The full models with all unstandardized parameters can be found in the supplementary materials. Social interaction = any kind of social interaction; WP = within-person; BP = between-person; E = extraversion; A = agreeableness; C = conscientiousness; N = neuroticism; O = openness. Coefficients in bold are significant with one-tailed $p < .005$ (individual study results) and two-tailed $p < .01$ (meta-analytic results).

Comparing Different Modes of Communication

Next, we examined the effects of three different modes of communication (i.e., FtF interactions, CMC, and mixed episodes) compared to no social interaction (Table 5).

Within-Person Effects: Do People Feel Better After Interacting With Others FtF, via Their Computers, or a Mix Thereof?

All modes of communication were related to higher well-being within persons, as indicated by the positive meta-analytic effects in Table 5. However, the degree of well-being benefits differed across communication channels. Across all three studies, participants reported the highest momentary well-being after FtF interactions (Table 5: FtF WP) and mixed episodes (Table 5: Mixed WP). Computer-mediated interactions (Table 5: CMC WP) were also related to higher momentary well-being, but the effect was smaller than that of FtF interactions and mixed episodes. Specifically, when participants had engaged in FtF interactions or mixed episodes during the past 15 (60) minutes, their well-being was on average .41 or .37 *SD* higher compared to when they had not socialized at all. When participants had used CMC during the past 15 (60) minutes, their well-being was on average .09 *SD* higher.

In Analysis 2, we analyzed whether, for any given individual, well-being was lower after computer-mediated interactions or mixed episodes compared to FtF interactions, controlling for the type of interaction partner (for a meta-analysis, see Table S4.41). Across all three studies, individuals reported lower momentary well-being after computer-mediated interactions compared to FtF interactions (Table S4.41: negative effect of CMC WP). By contrast, momentary well-being was not lower after mixed episodes compared to FtF interactions (Table S4.41: no effect of Mixed WP).

In summary, on the within-person level, individuals felt best after interacting with others FtF or after engaging in both FtF interactions and CMC (i.e., mixed episodes). CMC was related to lower momentary well-being than FtF interactions, but higher momentary well-being than not socializing at all.

Between-Person Effects: Do People Who Report More FtF Interactions, CMC, or Mixed Episodes Than Others Feel Better on Average?

Individuals who reported more mixed episodes and more FtF interactions throughout the study tended to have higher average well-being. A one *SD* increase in the frequency of mixed episodes (Table 5: Mixed BP) or FtF interactions (Table 5: FtF BP) was related to a .17 or .15 *SD* increase in average well-being, respectively. Contrary to the positive within-person effect of CMC, there was no significant between-person effect of CMC frequency (Table 5: CMC BP) on average well-being.

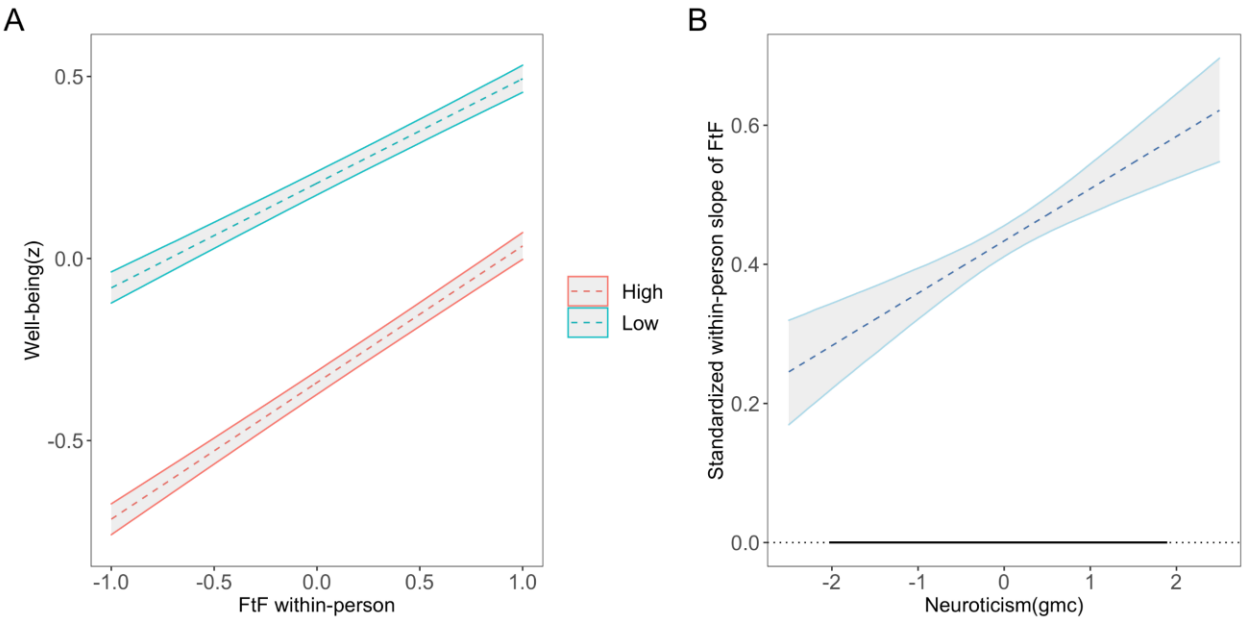
In summary, people who had more mixed episodes and more FtF interactions than others, reported higher well-being on average. The frequency of CMC was not related to average well-being.

The Role of Personality for Different Modes of Communication

We next investigated whether personality traits moderated the within-person relationship between mode of communication and well-being. Again, neuroticism predicted social reactivity: Individuals high in neuroticism reported stronger increases in momentary well-being after FtF interactions (Table 5: Neuroticism × FtF WP) and mixed episodes (Table 5: Neuroticism × Mixed WP) compared to individuals low in neuroticism. Simple slope tests in the pooled data set showed that individuals one *SD* below the mean in neuroticism experienced a .38 *SD* ($p < .001$) increase in well-being after FtF interactions, whereas individuals one *SD* above the mean experienced a .49 *SD* ($p < .001$) increase (see Figure 3, Panel a). The within-person relationship was positive and significant for all observed levels of neuroticism, but more pronounced for individuals with higher levels of the trait (see Figure 3, Panel b). The interaction effect between neuroticism and mixed episodes is shown in the supplementary materials (Figures S6.5 and S6.10).

Figure 3

Moderating Effect of Neuroticism in FtF Interactions



Note. (a) Simple slopes for two levels of neuroticism: 1 *SD* below the mean (low) and 1 *SD* above the mean (high). (b) Model-implied standardized within-person effects of FtF interactions on well-being for varying levels of neuroticism. Neuroticism was grand-mean centered (gmc) and ranged from -2.02 to 1.89. The plots were generated in a pooled data set, which included data from all three studies (participants N = 2,531, observations N = 120,315). Due to the differences in scales across studies, well-being was z-standardized before merging the three data sets and ranged from -3 to 1.5. FtF = face-to-face interactions.

Neuroticism also moderated the difference between FtF interactions and CMC in Analysis 2, such that the difference was larger in individuals high in neuroticism (Table S4.41: negative interaction effect Neuroticism × CMC WP). By contrast, individuals high in conscientiousness reported a smaller difference between FtF interactions and CMC (Table S4.41: positive interaction effect Conscientiousness × CMC WP). We did not observe any cross-level interaction effects for the other personality traits.

Table 5

Effect of Mode of Communication Compared to No Social Interaction on Momentary Well-Being

Predictors	Baseline	E	A	C	N	O
Individual Studies						
Within Level						
S1: FtF WP	**.387 [.359, .412]**	**.383 [.354, .413]**	**.393 [.361, .420]**	**.388 [.358, .418]**	**.388 [.358, .415]**	**.390 [.361, .418]**
S2: FtF WP	**.395 [.361, .426]**	**.397 [.366, .435]**	**.397 [.366, .433]**	**.399 [.368, .435]**	**.397 [.366, .433]**	**.397 [.366, .435]**
S3: FtF WP	**.424 [.401, .448]**	**.425 [.402, .449]**	**.423 [.399, .446]**	**.423 [.399, .446]**	**.423 [.399, .446]**	**.425 [.402, .449]**
S1: CMC WP	.020 [-.010, .052]	.025 [-.015, .057]	.032 [-.005, .064]	.027 [-.010, .059]	.025 [-.007, .059]	.030 [-.010, .062]
S2: CMC WP	.018 [-.020, .055]	.030 [-.008, .078]	.033 [-.008, .078]	.033 [-.008, .078]	.033 [-.008, .075]	.030 [-.008, .075]
S3: CMC WP	**.162 [.137, .191]**	**.165 [.137, .194]**	**.168 [.140, .197]**	**.164 [.136, .193]**	**.164 [.139, .190]**	**.168 [.140, .197]**
S1: Mixed WP	**.370 [.340, .400]**	**.367 [.332, .400]**	**.376 [.340, .405]**	**.373 [.338, .405]**	**.366 [.334, .398]**	**.373 [.338, .405]**
S2: Mixed WP	**.338 [.292, .381]**	**.329 [.283, .375]**	**.326 [.281, .369]**	**.326 [.281, .369]**	**.326 [.281, .366]**	**.329 [.281, .372]**
S3: Mixed WP	**.381 [.351, .411]**	**.390 [.361, .420]**	**.387 [.357, .416]**	**.390 [.357, .420]**	**.387 [.354, .420]**	**.387 [.354, .416]**
Between Level						
S1: FtF BP	.083 [-.004, .166]	.019 [-.078, .115]	.068 [-.026, .158]	.084 [-.008, .174]	.058 [-.032, .148]	.094 [.001, .184]
S2: FtF BP	.107 [.005, .210]	.093 [-.026, .210]	.108 [-.007, .220]	.111 [-.002, .223]	.098 [-.014, .207]	.115 [.001, .226]
S3: FtF BP	**.212 [.142, .281]**	**.178 [.103, .253]**	**.211 [.137, .284]**	**.219 [.145, .289]**	**.203 [.133, .271]**	**.225 [.149, .295]**
S1: CMC BP	-.095 [-.171, -.020]	**-.129 [-.208, -.045]**	-.089 [-.168, -.008]	-.087 [-.166, -.006]	-.069 [-.148, .012]	-.080 [-.160, .001]
S2: CMC BP	-.072 [-.168, .024]	-.025 [-.132, .082]	-.012 [-.118, .091]	.002 [-.104, .104]	-.025 [-.129, .076]	-.007 [-.114, .096]
S3: CMC BP	.027 [-.044, .097]	.017 [-.059, .094]	.015 [-.060, .093]	.021 [-.056, .098]	.079 [.005, .148]	.035 [-.041, .112]
S1: Mixed BP	**.166 [.097, .233]**	**.107 [.028, .183]**	**.132 [.057, .204]**	**.153 [.079, .223]**	**.146 [.072, .215]**	**.171 [.097, .241]**
S2: Mixed BP	**.147 [.065, .227]**	.127 [.031, .221]	**.136 [.044, .225]**	**.146 [.055, .234]**	**.138 [.049, .225]**	**.145 [.053, .233]**
S3: Mixed BP	**.183 [.117, .247]**	**.150 [.078, .221]**	**.185 [.114, .254]**	**.196 [.126, .263]**	**.209 [.145, .271]**	**.196 [.125, .264]**
S1: Personality		**.122 [.077, .164]**	**.138 [.096, .179]**	**.128 [.087, .168]**	**-.312 [-.350, -.273]**	.019 [-.022, .060]
S2: Personality		.043 [-.015, .103]	**.072 [.018, .128]**	**.131 [.078, .186]**	**-.292 [-.343, -.238]**	.023 [-.032, .080]
S3: Personality		**.219 [.168, .267]**	**.130 [.081, .179]**	**.122 [.074, .171]**	**-.363 [-.406, -.320]**	-.003 [-.053, .045]
S1: Personality × FtF WP		-.069 [-.139, .001]	.074 [.004, .145]	-.016 [-.086, .052]	**.142 [.074, .212]**	.032 [-.037, .100]
S2: Personality × FtF WP		.020 [-.079, .120]	.016 [-.091, .121]	-.060 [-.161, .036]	**.214 [.112, .318]**	-.007 [-.107, .086]
S3: Personality × FtF WP		.019 [-.054, .089]	.039 [-.036, .110]	-.044 [-.114, .026]	.047 [-.026, .121]	-.002 [-.074, .071]
S1: Personality × CMC WP		-.070 [-.170, .029]	.105 [.016, .205]	.040 [-.054, .134]	.074 [-.020, .168]	.012 [-.083, .105]
S2: Personality × CMC WP		-.015 [-.168, .116]	-.072 [-.233, .081]	.037 [-.107, .185]	.076 [-.065, .228]	-.065 [-.213, .068]

S3: Personality × CMC WP		-.050 [-.145, .045]	-.090 [-.189, .009]	-.001 [-.097, .094]	-.019 [-.117, .080]	.035 [-.063, .129]
S1: Personality × Mixed WP		-.054 [-.127, .020]	.069 [-.004, .142]	-.039 [-.113, .032]	**.163 [.090, .241]**	.024 [-.050, .097]
S2: Personality × Mixed WP		-.041 [-.157, .071]	.000 [-.108, .108]	.016 [-.095, .124]	.137 [.032, .248]	-.036 [-.147, .068]
S3: Personality × Mixed WP		-.066 [-.149, .017]	.001 [-.080, .084]	-.078 [-.164, .006]	.062 [-.027, .146]	.002 [-.080, .080]
Meta-Analysis						
Within Level						
FtF WP	**.407 [.392, .421]**	**.406 [.388, .423]**	**.407 [.390, .425]**	**.406 [.389, .424]**	**.404 [.388, .421]**	**.408 [.390, .425]**
CMC WP	**.086 [.069, .103]**	**.086 [.066, .107]**	**.106 [.088, .124]**	**.103 [.084, .121]**	**.102 [.084, .120]**	**.089 [.069, .110]**
Mixed WP	**.368 [.348, .388]**	**.369 [.349, .389]**	**.370 [.350, .390]**	**.370 [.350, .390]**	**.366 [.346, .386]**	**.370 [.349, .390]**
Between Level						
FtF BP	**.150 [.103, .198]**	**.113 [.061, .166]**	**.147 [.096, .198]**	**.155 [.104, .205]**	**.140 [.091, .189]**	**.163 [.112, .214]**
CMC BP	-.039 [-.084, .007]	-.045 [-.095, .005]	-.029 [-.078, .019]	-.023 [-.072, .026]	.006 [-.041, .053]	-.017 [-.066, .032]
Mixed BP	**.168 [.127, .208]**	**.130 [.084, .176]**	**.154 [.110, .199]**	**.169 [.125, .212]**	**.172 [.130, .213]**	**.175 [.131, .219]**
Personality		**.136 [.108, .164]**	**.119 [.092, .146]**	**.127 [.100, .154]**	**-.325 [-.351, -.300]**	.013 [-.014, .040]
Personality × FtF WP		-.016 [-.061, .028]	.049 [.004, .095]	-.036 [-.080, .008]	**.120 [.075, .164]**	.011 [-.033, .055]
Personality × CMC WP		-.051 [-.113, .010]	-.000 [-.063, .062]	.023 [-.038, .083]	.038 [-.024, .099]	.007 [-.054, .067]
Personality × Mixed WP		-.056 [-.105, -.006]	.031 [-.017, .080]	-.042 [-.091, .008]	**.123 [.072, .173]**	.003 [-.045, .052]

Note. Shown are standardized estimates with 95% credible intervals in square brackets. Meta-analytic results are based on a fixed-effects meta-analysis of the individual estimates from the three samples. Study 1 (S1): N = 1,135 to 1,360 participants providing a total of 40,284 to 46,409 observations; Study 2 (S2): N = 633 to 849 participants providing a total of 21,349 to 26,918 observations; Study 3 (S3): N = 759 to 864 participants providing a total of 58,456 to 65,213 observations. All models were estimated in M*plus* using the Bayesian estimator with uninformative priors. The full models with all unstandardized parameters can be found in the supplementary materials. FtF = face-to-face interactions; CMC = computer-mediated communication; Mixed = mix of FtF and CMC; WP = within-person; BP = between-person; E = extraversion; A = agreeableness; C = conscientiousness; N = neuroticism; O = openness.

Coefficients in bold are significant with one-tailed $p < .005$ (individual study results) and two-tailed $p < .01$ (meta-analytic results).

Supplementary Analyses

We ran another set of analyses which compared the effects of different CMC channels (i.e., talking on the phone, video-chatting vs. texting, chatting, emailing vs. interactions on SNS; for meta-analyses, see Tables S1.4-S1.6). In the meta-analysis, we found that all three CMC channels were related to higher momentary well-being compared to no social interaction (Table S1.4: positive effects of Talking on the phone, video-chatting WP, Texting, chatting, emailing WP, and interactions on SNS WP), but the positive within-person effects were stronger for audio-visual communication channels (i.e., talking on the phone, video-chatting) compared to textual communication channels (i.e., texting, chatting, emailing; Table S1.5: negative effect of Texting, chatting, emailing WP).

Comparing Different Interaction Partners

Next, we examined the effects of three different interaction partners (i.e., close peers, family, and weak ties) compared to no social interaction (Table 6).

Within-Person Effects: Do People Feel Better After Interacting With Close Peers, Family, or Weak Ties?

Interactions with all types of interaction partners were related to higher well-being within persons, but the degree of well-being benefits differed between close peers, family, and weak ties. In the meta-analysis, interactions with close peers (Table 6: Close peers WP) were related to highest momentary well-being. Interactions with family (Table 6: Family WP) and weak ties (Table 6: Weak ties WP) were also related to higher momentary well-being, but the effects were smaller than that of interactions with close peers. Specifically, when participants had interacted with close peers during the past 15 (60) minutes, their well-being was on average .37 *SD* higher compared to when they had not socialized at all. When participants had interacted with family or weak ties during the past 15 (60) minutes, their well-being was on average .28 or .09 *SD* higher, respectively. Note that the positive effect of weak ties became nonsignificant when including episodes with multiple interaction partners (for a meta-analysis, see Table S2.2).

In Analysis 2, we tested whether, for any given individual, well-being was lower after interactions with family or interactions with weak ties compared to interactions with close peers, controlling for mode of communication (for a meta-analysis, see Table S4.41). Indeed, individuals reported lower momentary well-being after interactions with family and interactions with weak ties compared to interactions with close peers (Table S4.41: negative effects of Family WP and Weak ties WP).

In summary, on the within-person level, people felt best after interacting with close peers, followed by interactions with family and interactions with weak ties. All interaction partners were related to higher momentary well-being compared with not socializing at all.

Between-Person Effects: Do People Who Report More Interactions With Close Peers, Family, or Weak Ties Than Others Feel Better on Average?

Individuals who reported more interactions with close peers throughout the study tended to have higher average well-being. A one *SD* increase in the frequency of interactions with close peers (Table 6: Close peers BP) was related to a .12 *SD* increase in average well-being. The between-person effects of family (Table 6: Family BP) and weak ties (Table 6: Weak ties BP) were not significant in the meta-analysis.

In summary, people who had more interactions with close peers than others, reported higher well-being on average. The frequency of interactions with family or weak ties was not related to average well-being.

Table 6

Effect of Interaction Partner Compared to No Social Interaction on Momentary Well-Being

Predictors	Baseline	E	A	C	N	O
Individual Studies						
Within Level						
S1: Close peers WP	**.329 [.302, .358]**	**.332 [.303, .364]**	**.341 [.312, .370]**	**.339 [.308, .368]**	**.337 [.303, .368]**	**.337 [.308, .368]**
S2: Close peers WP	**.316 [.280, .353]**	**.323 [.280, .366]**	**.323 [.282, .366]**	**.323 [.280, .364]**	**.321 [.278, .364]**	**.325 [.282, .366]**
S3: Close peers WP	**.433 [.409, .460]**	**.438 [.414, .465]**	**.441 [.414, .465]**	**.438 [.412, .465]**	**.438 [.412, .465]**	**.438 [.414, .462]**
S1: Family WP	**.305 [.251, .358]**	**.321 [.263, .379]**	**.333 [.272, .387]**	**.321 [.263, .379]**	**.325 [.259, .383]**	**.329 [.272, .387]**
S2: Family WP	**.355 [.289, .426]**	**.332 [.265, .399]**	**.332 [.265, .399]**	**.332 [.265, .399]**	**.332 [.261, .395]**	**.321 [.257, .388]**
S3: Family WP	**.253 [.212, .291]**	**.254 [.213, .294]**	**.254 [.213, .294]**	**.254 [.210, .290]**	**.254 [.213, .294]**	**.254 [.213, .294]**
S1: Weak ties WP	**.072 [.031, .109]**	**.068 [.025, .109]**	**.078 [.034, .118]**	**.071 [.031, .112]**	**.074 [.031, .118]**	**.074 [.031, .115]**
S2: Weak ties WP	**.076 [.040, .122]**	**.099 [.043, .154]**	**.099 [.046, .154]**	**.099 [.043, .157]**	**.099 [.043, .154]**	**.099 [.046, .154]**
S3: Weak ties WP	**.125 [.083, .171]**	**.128 [.087, .173]**	**.132 [.087, .178]**	**.128 [.087, .178]**	**.132 [.087, .169]**	**.132 [.087, .178]**
Between Level						
S1: Close peers BP	.031 [-.043, .104]	-.008 [-.091, .072]	.035 [-.046, .112]	.053 [-.027, .129]	.053 [-.022, .126]	.064 [-.018, .140]
S2: Close peers BP	.058 [-.038, .152]	.071 [-.042, .177]	.088 [-.019, .191]	.108 [.002, .209]	.087 [-.018, .187]	.099 [-.008, .201]
S3: Close peers BP	**.232 [.163, .300]**	**.185 [.107, .261]**	**.229 [.152, .302]**	**.247 [.172, .318]**	**.254 [.185, .321]**	**.253 [.178, .324]**
S1: Family BP	.020 [-.053, .092]	.032 [-.046, .108]	.026 [-.052, .101]	.027 [-.051, .102]	.069 [-.004, .142]	.046 [-.033, .121]
S2: Family BP	-.006 [-.101, .088]	.050 [-.053, .152]	.054 [-.049, .156]	.038 [-.063, .138]	.065 [-.034, .161]	.058 [-.045, .159]
S3: Family BP	**.114 [.040, .184]**	**.125 [.047, .201]**	**.114 [.036, .192]**	**.125 [.048, .200]**	**.137 [.065, .207]**	**.122 [.044, .198]**
S1: Weak ties BP	-.025 [-.102, .056]	-.054 [-.137, .033]	-.033 [-.115, .052]	-.024 [-.106, .062]	-.038 [-.117, .040]	-.015 [-.098, .072]
S2: Weak ties BP	-.017 [-.115, .082]	-.038 [-.150, .076]	-.032 [-.143, .080]	-.037 [-.146, .074]	-.052 [-.158, .057]	-.020 [-.130, .091]
S3: Weak ties BP	.001 [-.073, .072]	.000 [-.074, .077]	.015 [-.064, .093]	.021 [-.055, .098]	.053 [-.021, .125]	.024 [-.054, .100]
S1: Personality		**.139 [.095, .182]**	**.146 [.104, .188]**	**.132 [.089, .174]**	**-.329 [-.367, -.290]**	.016 [-.027, .058]
S2: Personality		.055 [-.009, .115]	**.079 [.022, .135]**	**.146 [.088, .202]**	**-.295 [-.348, -.241]**	.021 [-.036, .077]
S3: Personality		**.228 [.179, .277]**	**.128 [.078, .178]**	**.115 [.066, .164]**	**-.367 [-.410, -.322]**	-.004 [-.053, .046]
S1: Personality × Close peers WP		-.072 [-.149, .006]	.079 [.006, .154]	-.039 [-.114, .036]	**.103 [.029, .179]**	.003 [-.072, .081]
S2: Personality × Close peers WP		-.023 [-.145, .104]	-.027 [-.146, .101]	.003 [-.114, .127]	**.181 [.060, .308]**	-.005 [-.124, .113]
S3: Personality × Close peers WP		-.031 [-.108, .044]	-.043 [-.119, .033]	-.074 [-.150, .001]	.065 [-.014, .140]	-.010 [-.084, .064]
S1: Personality × Family WP		-.045 [-.134, .043]	.081 [-.008, .171]	.053 [-.037, .143]	.116 [.028, .203]	.030 [-.056, .118]
S2: Personality × Family WP		.014 [-.115, .140]	-.020 [-.148, .105]	-.013 [-.148, .117]	.087 [-.040, .219]	**-.201 [-.338, -.074]**

S3: Personality × Family WP		.022 [-.068, .114]	.019 [-.067, .106]	-.047 [-.132, .039]	-.001 [-.089, .085]	.029 [-.061, .117]
S1: Personality × Weak ties WP		-.136 [-.266, -.012]	.086 [-.032, .212]	.039 [-.073, .161]	.122 [-.001, .260]	.007 [-.112, .125]
S2: Personality × Weak ties WP		-.038 [-.189, .122]	-.020 [-.183, .147]	-.064 [-.213, .092]	.160 [.006, .327]	.016 [-.138, .165]
S3: Personality × Weak ties WP		-.031 [-.175, .094]	.059 [-.074, .202]	.027 [-.106, .168]	.028 [-.100, .162]	.059 [-.076, .193]
Meta-Analysis						
Within Level						
Close peers WP	**.372 [.354, .389]**	**.379 [.362, .397]**	**.384 [.366, .401]**	**.382 [.364, .399]**	**.380 [.363, .398]**	**.381 [.364, .399]**
Family WP	**.284 [.256, .312]**	**.290 [.260, .320]**	**.294 [.263, .324]**	**.283 [.256, .311]**	**.289 [.257, .320]**	**.290 [.260, .320]**
Weak ties WP	**.087 [.064, .111]**	**.097 [.070, .124]**	**.102 [.076, .129]**	**.098 [.071, .126]**	**.101 [.074, .128]**	**.101 [.074, .128]**
Between Level						
Close peers BP	**.122 [.077, .167]**	**.089 [.038, .139]**	**.125 [.076, .173]**	**.145 [.097, .193]**	**.147 [.102, .192]**	**.151 [.103, .200]**
Family BP	.050 [.005, .095]	**.072 [.024, .120]**	**.066 [.017, .114]**	**.069 [.022, .116]**	**.096 [.051, .141]**	**.078 [.031, .126]**
Weak ties BP	-.012 [-.059, .035]	-.027 [-.078, .023]	-.013 [-.063, .038]	-.007 [-.058, .043]	-.002 [-.049, .046]	.001 [-.049, .051]
Personality		**.152 [.123, .181]**	**.124 [.097, .152]**	**.130 [.102, .157]**	**-.335 [-.361, -.309]**	.011 [-.017, .039]
Personality × Close peers WP		-.047 [-.097, .003]	.014 [-.035, .062]	-.047 [-.095, .002]	**.099 [.050, .148]**	-.004 [-.053, .045]
Personality × Family WP		-.007 [-.063, .049]	.035 [-.021, .091]	-.003 [-.058, .053]	.062 [.007, .118]	-.013 [-.069, .042]
Personality × Weak ties WP		-.075 [-.154, .005]	.052 [-.028, .131]	.009 [-.068, .086]	.097 [.017, .177]	.027 [-.050, .104]

Note. Shown are standardized estimates with 95% credible intervals in square brackets. Meta-analytic results are based on a fixed-effects meta-analysis of the individual estimates from the three samples. Study 1 (S1): N = 1,131 to 1,351 participants providing a total of 29,706 to 34,323 observations; Study 2 (S2): N = 627 to 841 participants providing a total of 16,487 to 20,851 observations; Study 3 (S3): N = 757 to 862 participants providing a total of 49,920 to 55,948 observations. All models were estimated in M*plus* using the Bayesian estimator with uninformative priors. The full models with all unstandardized parameters can be found in the supplementary materials. Close peers = interactions with friends, roommates, and/or significant others; Family = interactions with family members; Weak ties = interactions with classmates, co-workers, and/or strangers; WP = within-person; BP = between-person; E = extraversion; A = agreeableness; C = conscientiousness; N = neuroticism; O = openness.
Coefficients in bold are significant with one-tailed $p < .005$ (individual study results) and two-tailed $p < .01$ (meta-analytic results).

The Role of Personality for Different Interaction Partners

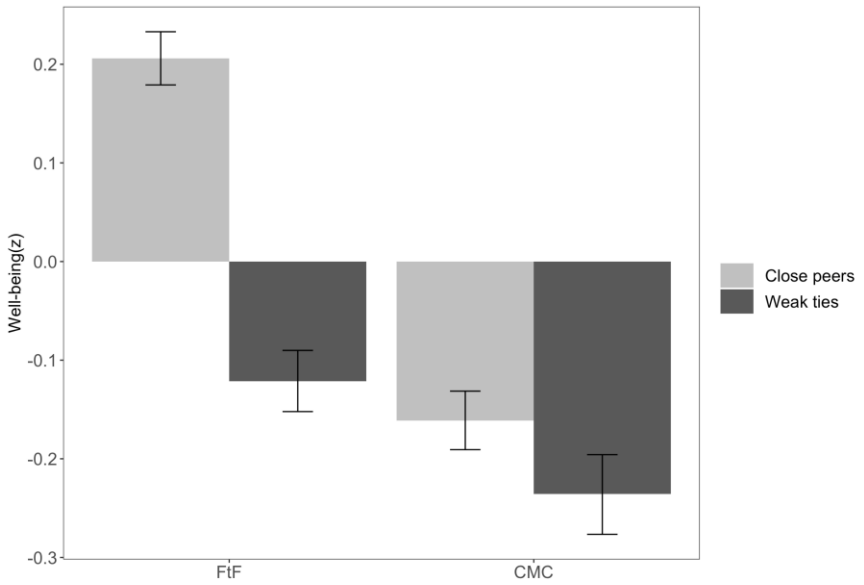
We next investigated whether personality traits moderated the within-person relationship between type of interaction partner and well-being in reference to not having a social interaction. In line with our previous analyses, we found that neuroticism predicted greater enjoyment of social interactions, particularly with close peers (Table 6: Neuroticism × Close peers WP). However, the difference between close peers and family or between close peers and weak ties was not related to neuroticism (Table S4.41: no interaction effect Neuroticism × Family WP or Neuroticism × Weak ties WP). We did not observe any cross-level interaction effects for the other personality traits.

Comparing Different Types of Social Interactions

Lastly, we zoomed in on social contexts in which an interaction occurred and estimated whether specific combinations of communication channels and interaction partners were related to distinct well-being patterns. We found that, for any given individual, the well-being benefits of FtF interactions depended on whether that person was interacting with close peers or with weak ties (Table S4.52: positive interaction effect CMC × Weak ties WP). When interacting with close peers, CMC was associated with lower momentary well-being compared to FtF interactions. For interactions with weak ties, the difference between FtF interactions and CMC was attenuated. Put differently, the type of interaction partner mattered only for FtF interactions but had much lower effects on momentary well-being following computer-mediated communication. This interaction effect is displayed in Figure 4. We observed no significant three-way interactions with personality traits.

Figure 4

Mode of Communication and Type of Interaction Partner



Note. The plot was generated in a pooled data set, which included data from all three studies (participants N = 3,036, observations N = 59,110). Due to the differences in scales across studies, well-being was z-standardized before merging the three data sets and ranged from -3 to 1.5. FtF = face-to-face interactions; CMC = computer-mediated communication.

Discussion

The present study investigated the personality and social context predictors of momentary well-being in real-life social interactions using data from over 130,000 ESM reports collected from more than 3,000 college students. In line with theoretical notions, we found that different modes of communication (FtF interactions, CMC, and mixed episodes) and different types of interaction partners (close peers, family members, and weak ties) showed distinct associations with momentary well-being and that these associations were partly related to personality traits. In the following, we discuss our results and contextualize them with regard to our initial hypotheses, focusing specifically on the effects that were significant in the meta-analysis. We conclude by presenting theoretical and practical implications and by highlighting the strengths and limitations of our research.

Face-to-Face Interactions and Mixed Episodes Associated With Highest Momentary Well-Being

Consistent across all three studies, participants reported higher momentary well-being after interacting with others in person (i.e., FtF interactions) compared to no social interaction. This finding is in line with past work showing positive effects of face-to-face socializing in everyday life (Choi et al., 2017; Diener et al., 1984; Lucas et al., 2008). On the between-person level, individuals who engaged in more FtF interactions than others tended to have higher average well-being, suggesting that FtF interactions are not only beneficial in the moment, but may also contribute to higher average well-being over time (Wrzus & Roberts, 2017).

Individuals also reported higher momentary well-being after mixed episodes compared to not interacting with anyone. Thus, the positive within-person relationship between FtF interactions and well-being remained even when participants additionally used their computers or phones to interact with others. Contrary to our hypotheses, momentary well-being did not differ between mixed episodes and FtF interactions on the within-person level. This result was unexpected based on the interference hypothesis, which posits that simultaneous use should be related to lower well-being than solely interacting FtF (see Kushlev, 2018; Kushlev & Heintzelman, 2018). However, it should be noted that mixed episodes – as measured in our study – involved both simultaneous and/or sequential FtF interactions and CMC. Whenever participants indicated that they engaged in both FtF interactions and CMC during the past 15 (60) minutes, these activities could have occurred concurrently or consecutively (e.g., chatting for 5 minutes and talking with a friend for 10 minutes). Therefore, it is possible that the effects of simultaneous interactions were conflated with the effects of sequential use or with the number of interactions.

Mixed episodes were also positively related to well-being on the between-person level: Individuals who had more mixed episodes than others had higher average well-being. A high frequency of mixed episodes might be a proxy for having more friends, a greater social circle, and

being more extraverted, which are all established indicators of well-being (e.g., Anglim et al., 2020).

CMC Associated With Higher Momentary Well-Being Compared to No Social Interaction

Participants experienced higher momentary well-being after computer-mediated interactions compared to not interacting with anyone, suggesting that CMC may help people to connect with others and alleviate negative feelings of stress and loneliness in the moment (Mitev et al., 2021). However, the effect size was small, and CMC was related to lower momentary well-being than FtF interactions. This finding converges with previous research showing that participants experience less positive and more negative affect when engaging in CMC compared to FtF interactions (Achterhof et al., 2022; Kafetsios et al., 2017). It is important to note that the within-person effect of CMC was only significant in S3, which was conducted during the COVID-19 pandemic. Given a larger share of video- as opposed to text-based interactions in S3, this may partly explain the overall more positive effects. This interpretation is also in line with our supplementary analyses, which suggest that video-based interactions were generally related to higher well-being than text-based interactions.

On the between-person level, participants who engaged in more CMC than others did not report higher (or lower) well-being on average. This result is in line with recent reviews and meta-analyses which have found small or negligible (between-person) associations between digital media use and well-being (e.g., Odgers & Jensen, 2020; Orben, 2020).

Interactions With Close Peers Associated With Highest Momentary Well-Being

Confirming previous research, individuals across all studies reported the highest momentary well-being after interactions with close peers (Buijs et al., 2022; Kahnemann et al., 2004; Quoidbach et al., 2019; Vogel et al., 2017). Interactions with family members and weak ties were also related to higher well-being within persons. The latter effect suggests that even interactions with strangers can be quite enjoyable (Epley & Schroeder, 2014; Sandstrom & Dunn, 2014). However, the effect of interactions with weak ties was small. Moreover, momentary well-being was

lower after interactions with family members or weak ties compared to interactions with close peers, and only interactions with close peers were related to higher well-being on the between-person level. Taken together, these findings underline the high importance of peer relationships in college.

FtF Interactions More Beneficial for Interactions With Close Peers

Being one of the first studies to also test the interaction between diverse contextual factors, we were able to show that the negative effect of CMC compared to FtF interactions might be attenuated in certain relationship contexts. Specifically, the large difference between FtF interactions and CMC that we observed for interactions with close peers was attenuated for interactions with weak ties. This result suggests that FtF interactions provide neligible well-being benefits compared to CMC when interacting with weak ties. One possible explanation is that interactions with weak ties are generally lower-quality interactions (e.g., superficial, task-focused) and therefore do not have much potential to boost well-being, independent of the mode of communication. By contrast, FtF interactions have clear well-being benefits when interacting with close peers, suggesting that FtF interactions should not be substituted by CMC for close relationship partners.

Individuals High in Neuroticism React More Positively to FtF Interactions and Mixed Episodes

We replicated well-established relationships between personality and well-being (Anglim et al., 2020; Soto, 2015; Steel et al., 2008; also see Mueller et al., 2019): Individuals high in extraversion, agreeableness and conscientiousness and low in neuroticism consistently reported higher average levels of well-being across all studies. However, our results provided only limited support for the social enhancement or social compensation hypotheses.

Contrary to our hypotheses, individuals with high (vs. low) levels of extraversion did not report stronger increases in momentary well-being following social interactions. This finding may seem surprising, as sociability and positive affect are among the key definitional features of

extraversion (Costa & McCrae, 1992; John & Srivastava, 1999). Yet, it is in line with previous studies on extraversion and positive affect in social situations, which failed to find significant interaction effects (Lucas et al., 2008; Srivastava et al., 2008; also see Fleeson et al., 2002). Similarly, agreeableness did not moderate the momentary relationship between social interactions and well-being, and neither extraversion nor agreeableness predicted social reactivity to CMC. Thus, neither the social enhancement hypothesis nor the social compensation hypothesis was supported for these two traits.

Neuroticism was related to social reactivity, such that individuals high in neuroticism reacted more positively to social interactions. Specifically, the positive effects of FtF interactions and mixed episodes compared to no social interaction were higher for individuals with high (vs. low) levels of neuroticism. Similarly, the difference between FtF and computer-mediated interactions was higher for individuals with high (vs. low) levels of neuroticism. The finding that neuroticism emerged as an important predictor of momentary well-being in social interactions is in line with other studies in young adulthood (Deventer et al., 2019). However, the direction of the effects was unexpected, given that we had predicted larger well-being benefits of FtF interactions for emotionally stable individuals. Our results can be understood when considering previous findings on personality and coping behavior: Specifically, neuroticism is partly defined by high negative emotionality (Costa & McCrae, 1992) and previous studies found that individuals high in dispositional negativity are especially likely to use emotional support as a coping strategy (Connor-Smith & Flachsbart, 2007). Thus, individuals high in neuroticism may more frequently engage in FtF interactions and mixed episodes to receive emotional support from others. This type of coping behavior should be linked to increases in well-being (Hefner & Eisenberg, 2009; Jackson et al., 2000; Kawachi & Berkman, 2001) and may thus strengthen the association between social interactions and well-being in individuals high in neuroticism. In line with this interpretation, previous studies have shown that FtF interactions are a more effective way of receiving social

support than online communication (Holtzman et al., 2017). However, this interpretation is only tentative and should be tested in experimental studies.

Neuroticism only moderated the effects of FtF interactions and mixed episodes and not the effect of CMC. We, thus, did not find any support for the social compensation hypothesis, which states that individuals high in neuroticism use CMC to compensate for their social deficits in offline communication (Ruppel et al., 2018; Spradlin et al., 2019; Van Zalk et al., 2011). Instead, our findings suggest that individuals high in neuroticism might be especially dependent on the positive effects of FtF interactions.

We observed one additional interaction effect which we had not predicted based on previous literature: The difference between FtF interactions and CMC was smaller in individuals high in conscientiousness. However, given that the effect was theoretically unexpected and only significant in one of the three samples, we will not further discuss this effect in the present manuscript.

Individuals High in Neuroticism React More Positively to Social Interactions Irrespective of the Interaction Partner

In line with our predictions, we found that the relationship between type of interaction partner and momentary well-being was moderated by neuroticism, such that individuals with high (vs. low) levels of neuroticism reported larger increases in well-being following interactions with close peers. The result is partly in line with a previous ESM study which showed that individuals high in neuroticism experienced stronger increases in well-being when they were in the company of close others compared to being alone (Shackman et al., 2018). However, contrary to previous studies, neuroticism did not moderate the difference between interactions with close peers and weak ties (cf. Shackman et al., 2018) or between interactions with close peers and family members (cf. Mueller et al., 2019). Thus, our findings suggest that college students high in neuroticism find all social interactions more enjoyable, irrespective of the interaction partner.

Theoretical and Practical Implications

Our results are of high theoretical and practical relevance. On a theoretical level, our findings provide new insights into the nature of person-situation interactions in social interactions. Specifically, our findings both parallel and extend those from previous studies that employed a dynamic, interactionist approach (e.g., Breil et al., 2019; Sherman et al., 2015). First, momentary well-being was related to both dispositional and contextual factors. This finding was predicted based on theoretical approaches that emphasize the importance of both types of variables (e.g., Fleeson & Jayawickreme, 2015; Funder, 2006). Moreover, it is in line with previous studies that reported effects of both dispositional and contextual factors on real-time expression of emotions (e.g., Sherman et al., 2015). Second, most of the dispositional and contextual effects were independent from each other. This result converges with many other studies that reported small and rarely significant interaction effects (e.g., Kuper, Breil, et al., 2021; Sherman et al., 2015; Wilt & Revelle, 2019). Importantly, our study had several limitations which may explain why we did not find all of the expected interaction effects (see "Strengths, Limitations, and Future Directions"). Moreover, we observed one exception: Neuroticism was related to individual differences in reactivity to social situations. The effect was small according to the conventions by Funder and Ozer (2019) but replicated across two of the three studies. Thus, interaction effects may be rare, but exist for selected pairs of personality traits and situation-state contingencies (also see Breil et al., 2019; Kroencke et al., 2020; Mueller et al., 2019; Quintus et al., 2021; Wieczorek et al., 2021).

On a practical level, our study provides some indications for what types of social interactions are most closely related to well-being. In particular, we found that FtF interactions and mixed episodes with close peers were associated with highest momentary well-being in everyday life. These effects were particularly strong for individuals with high levels of neuroticism, who are known to be at risk for loneliness and various mental health problems (Buecker et al., 2020; Lahey, 2009). These findings could be used to derive recommendations for individuals who want to improve their socializing and well-being patterns in daily life. However, experimental studies are needed to establish the causality of the effects.

Strengths, Limitations, and Future Directions

The present research has several noteworthy strengths. First, the large sample size allowed us to test a number of person-context moderation hypotheses with high statistical power which was not possible with the smaller sample sizes of similar past studies. Second, we examined the complex interplay between multiple situation and personality variables simultaneously in one comprehensive project. Lastly, we distinguished within- and between-person effects and followed open science guidelines (e.g., open materials, preregistration, replication). These advantages allow a thorough and comprehensive examination of the social interaction-well-being relationship that was not previously available.

Our study also had some limitations which point to fruitful directions for future research. First, future research might extend the assessment of the social context. Here, we used self-reported situational cues to measure mode of communication (i.e., where the interaction occurs in terms of communication channels) and type of interaction partner (i.e., who the interaction was happening with). Situational cues can be defined relatively objectively which reduces ambiguities compared to other more subjective measures of the situation (Rauthmann et al., 2014). However, the cues measured in the present study might not cover all relevant features of the social context. For instance, previous studies have shown that the effects of social media use on well-being may depend on type of use (e.g., active vs. passive use; Verduyn et al., 2017) and that interaction partners may vary on other, more subjective characteristics (e.g., familiarity, emotional closeness, or perceived personality of the interaction partner; Asendorpf, 2020), which may trigger distinct affective reactions. These additional variables should be included in future studies. Moreover, our measure of the social context only applied to the last 15 or 60 minutes. Future research should use continuous assessments (e.g., mobile sensing) to gain a more complete and fine-grained picture of the social context (Harari et al., 2016, 2020; Schmid Mast et al., 2015; Stachl et al., 2017).

Second, as explained previously, our measure of mixed episodes did not strictly imply simultaneous FtF and CMC use, as participants might have used different modes of communication

consecutively. Future studies should use more fine-grained measures of mixed episodes to further understand the role of simultaneous vs. consecutive FtF and CMC use in shaping momentary well-being.

Third, it might be fruitful to examine different types of well-being measures in everyday life. Here, we used two short adjective measures of affective well-being which consisted of three or four items (i.e., content, stressed, lonely; and angry, worried, happy, sad; Schimmack, 2009). Importantly, both scales showed good reliability and we established convergent validity with regard to the scales' correlations with personality traits, which are established correlates of well-being (Anglim et al., 2020). However, several caveats remain. First, we did not cover the full affective circumplex (Russell & Barrett, 1999), because we did not include any items measuring high-arousal positive affect. Second, both scales included more negative than positive items. Thus, the focus was on the absence of negative (rather than the presence of positive) affect. Third, we focused on affective and social aspects and, thus, do not know how well our results generalize to cognitive and eudaimonic well-being. To capture well-being more broadly, future studies should include more (high- and low-arousal) positive emotions and examine additional aspects of well-being (e.g., cognitive-evaluative aspects such as life satisfaction; Diener et al., 1999).

Fourth, all participants in our samples were college students. We believe that this group is especially well-suited to study the effects of CMC on well-being as media technologies are used more frequently by younger people (Pew Research Center, 2021c). In addition, the transition to college is a period characterized by significant changes in people's social networks (Deventer et al., 2019; Wagner et al., 2014), which increases the importance and salience of social interaction processes in this group. However, the question of generalizability beyond the college student context is still open. Previous studies using the day reconstruction method found similar effects of interaction partners among working women (i.e., interactions with friends were more enjoyable than interactions with relatives, spouses, or children, but all interaction partners were better than being alone; Kahneman et al., 2004). These findings tentatively suggest that the effects of interaction

partners reported in the present manuscript might generalize to other contexts. By contrast, generalizability may be lower for the effects of mode of communication (e.g., because of generational differences in technology use; Chan, 2018). Therefore, future studies should replicate the associations in different samples and settings.

A final limitation worth noting is the correlational nature of the study. Because our study was intensive longitudinal, we could examine how momentary well-being at the time of the prompt (*Right now*, I am feeling …) was predicted by social contexts occurring in the 15 (60) minutes preceding the prompt (*During the past 15 minutes / hour*, I …). This temporal sequence implies a causal ordering, such that social interactions predict well-being (and not vice versa). However, it is also possible that changes in well-being preceded the use of different modes of communication or the presence of different types of interaction partners. In addition, we cannot rule out the existence of unobserved third variables on Level 1 or Level 2 that may have influenced the effects. In particular, the effects of the social context may be confounded with other characteristics of the situation: Classmates and co-workers (i.e., weak ties) were probably more likely to be present in situations characterized by high dutifulness (Rauthmann et al., 2014), which have been linked to more negative affect in previous studies (Kritzler et al., 2020). To rule out confounding effects, subsequent studies should simultaneously examine additional measures of the situation or employ experimental approaches to disentangle which aspects of the situation are most crucial for well-being.

Conclusion

The present research adds to and expands previous knowledge about social interactions in different social contexts and their well-being outcomes in everyday life. First, we demonstrated that the relationship between social interactions and well-being differed across modes of communication and types of interaction partners. Second, we showed that the relationship also varied as a function of participants' personality: Students with high levels of neuroticism profited more from FtF interactions and mixed episodes. By considering interactions between person and situation

predictors, we provided a more comprehensive and nuanced understanding of how social interactions may be associated with well-being in everyday life. Our study highlights the fruitfulness of this approach (i.e., studying different types of social interactions and well-being states with intensive longitudinal data) and points to valuable directions for future research on personality-situation dynamics in FtF and computer-mediated interactions.

References

Achterhof, R., Kirtley, O. J., Schneider, M., Hagemann, N., Hermans, K. S. F. M., Hiekkaranta, A. P., Lecei, A., Lafit, G., & Myin-Germeys, I. (2022). Adolescents' real-time social and affective experiences of online and face-to-face interactions. *Computers in Human Behavior*, *129*, 107159. https://doi.org/10.1016/j.chb.2021.107159

Anglim, J., Horwood, S., Marrero, R. J., Smillie, L. D., & Wood, J. K. (2020). Predicting psychological and subjective well-being from personality: A meta-analysis. *Psychological Bulletin, 146*(4), 279–323. http://dx.doi.org/10.1037/bul0000226

Araujo, T., Wonneberger, A., Neijens, P., & de Vreese, C. (2017). How much time do you spend online? Understanding and improving the accuracy of self-reported measures of internet use. *Communication Methods and Measures*, *11*(3), 173–190. https://doi.org/10.1080/19312458.2017.1317337

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. https://doi.org/10.1037//0003-066X.55.5.469

Asendorpf, J. B. (2020). Personality as a situation. In Rauthmann, J. F., Sherman, R., & Funder, D. C. (Eds.), *The oxford handbook of psychological situations* (pp. 3-13). Oxford University Press.

Asparouhov, T., & Muthén, B. (2019). Latent variable centering of predictors and mediators in multilevel and time-series models. *Structural Equation Modeling: A Multidisciplinary Journal*, *26*(1), 119–142. https://doi.org/10.1080/10705511.2018.1511375

Back, M. D. (2021). Social interaction processes and personality. In J. Rauthmann (Ed.), *The handbook of personality dynamics and processes* (pp. 183-226). Elsevier.

Bagwell, C. L., Bender, S. E., Andreassi, C. L., Kinoshita, T. L., Montarello, S. A., & Muller, J. G. (2005). Friendship quality and perceived relationship changes predict psychosocial adjustment

in early adulthood. *Journal of Social and Personal Relationships, 22*(2), 235–254. https://doi.org/10.1177/0265407505050945

Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*(3), 255–278. https://doi.org/10.1016/j.jml.2012.11.001

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*(1), 1-48. https://doi.org/10.18637/jss.v067.i01

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Baumert, A., Schmitt, M., Perugini, M., Johnson, W., Blum, G., Borkenau, P., Costantini, G., Denissen, J. J. A., Fleeson, W., Grafton, B., Jayawickreme, E., Kurzius, E., MacLeod, C., Miller, L. C., Read, S. J., Roberts, B., Robinson, M. D., Wood, D., & Wrzus, C. (2017). Integrating personality structure, personality process, and personality development. *European Journal of Personality, 31*(5), 503-528. https://doi.org/10.1002/per.2115

Berk, L. E. (2011). *Entwicklungspsychologie* (5., aktualisierte Auflage). München: Pearson Studium.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, *51*(6), 843–857. https://doi.org/10.1016/S0277-9536(00)00065-4

Boase, J., & Ling, R. (2013). Measuring mobile phone use: Self-report versus log data. *Journal of Computer-Mediated Communication*, *18*(4), 508–519. https://doi.org/10.1111/jcc4.12021

Bolger, N., & Laurenceau, J. P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. New York: The Guilford Press.

Breil, S. M., Geukes, K., Wilson, R. E., Nestler, S., Vazire, S., & Back, M. D. (2019). Zooming into real-life extraversion - how personality and situation shape sociability in social interactions. *Collabra: Psychology, 5*(1), Article 7. https://doi.org/10.1525/collabra.170

Buecker, S., Maes, M., Denissen, J. J. A., & Luhmann, M. (2020). Loneliness and the Big Five personality traits: A meta-analysis. *European Journal of Personality*, *34*(1), 8–28. https://doi.org/10.1002/per.2229

Buijs, V. L., Jeronimus, B. F., Lodder, G. M., Riediger, M., Luong, G., & Wrzus, C. (2022). Interdependencies between family and friends in daily life: Personality differences and associations with affective well-being across the lifespan. *European Journal of Personality.* Advance online publication. https://doi.org/10.1177/08902070211072745

Chan, M. (2018). Mobile-mediated multimodal communications, relationship quality and subjective well-being: An analysis of smartphone use from a life course perspective. *Computers in Human Behavior*, *87*, 254–262. https://doi.org/10.1016/j.chb.2018.05.027

Choi, J., Catapano, R., & Choi, I. (2017). Taking stock of happiness and meaning in everyday life: An experience sampling approach. *Social Psychological and Personality Science, 8*(6), 641–651. https://doi.org/10.1177/1948550616678455

Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social network sites and well-being: The role of social connection. *Current Directions in Psychological Science*, *27*(1), 32–37. https://doi.org/10.1177/0963721417730833

Cohen, S. (2004). Social relationships and health. *American Psychologist*, *59*(8), 676–684. https://doi.org/10.1037/0003-066X.59.8.676

Connor-Smith, J. K., & Flachsbart, C. (2007). Relations between personality and coping: A meta-analysis. *Journal of Personality and Social Psychology*, *93*(6), 1080–1107. https://doi.org/10.1037/0022-3514.93.6.1080

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual.* Odessa: Psychological Assessment Resources.

Csikszentmihalyi, M., & Larsen, R. E. (1987). Validity and reliability of the experience-sampling method. In Csikszentmihalyi, M. (Ed.), *Flow and the foundations of positive psychology* (pp. 35–54). Springer Netherlands.

Cuperman, R., & Ickes, W. (2009). Big Five predictors of behavior and perceptions in initial dyadic interactions: Personality similarity helps extraverts and introverts, but hurts "disagreeables". *Journal of Personality and Social Psychology*, *97*(4), 667–684. https://doi.org/10.1037/a0015741

Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology, 62*, 583-619. https://doi.org/10.1146/annurev.psych.093008.100356

Curran, P. J., & Hussong, A. M. (2009). Integrative data analysis: The simultaneous analysis of multiple data sets. *Psychological Methods, 14*(2), 81–100. https://doi.org/10.1037/a0015914

Deters, F. G., & Mehl, M. R. (2013). Does posting facebook status updates increase or decrease loneliness? An online social networking experiment. *Social Psychological and Personality Science, 4*(5), 579–586. https://doi.org/10.1177/1948550612469233

Deventer, J., Wagner, J., Lüdtke, O., & Trautwein, U. (2019). Are personality traits and relationship characteristics reciprocally related? Longitudinal analyses of codevelopment in the transition out of high school and beyond. *Journal of Personality and Social Psychology*, *116*(2), 331–347. https://doi.org/10.1037/pspp0000191

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542– 575. http://dx.doi.org/10.1037/0033-2909.95.3.542

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

Diener, E., Larsen, R. J., & Emmons, R. A. (1984). Person × Situation interactions: Choice of situations and congruence response models. *Journal of Personality and Social Psychology, 47*(3), 580–592. https://doi.org/10.1037/0022-3514.47.3.580

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276

Duncan, O. D., Featherman, D. L., & Duncan, B. (1972). *Socio-economic background and achievement.* New York: Seminar Press.

Dwyer, R. J., Kushlev, K., & Dunn, E. W. (2018). Smartphone use undermines enjoyment of face-to-face social interactions. *Journal of Experimental Social Psychology, 78,* 233–239. https://doi.org/10.1016/j.jesp.2017.10.007

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143–1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x

Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods, 12*(2), 121–138. https://doi.org/10.1037/1082-989X.12.2.121

Epley, N., & Schroeder, J. (2014). Mistakenly seeking solitude. *Journal of Experimental Psychology: General, 143*(5), 1980–1999. https://doi.org/10.1037/a0037323

Fleeson, W., & Jayawickreme, E. (2015). Whole Trait Theory. *Journal of Research in Personality, 56,* 82–92. https://doi.org/10.1016/j.jrp.2014.10.009

Fleeson, W., Malanos, A. B., & Achille, N. M. (2002). An intraindividual process approach to the relationship between extraversion and positive affect: Is acting extraverted as "good" as being

extraverted? *Journal of Personality and Social Psychology*, *83*(6), 1409–1422. https://doi.org/10.1037/0022-3514.83.6.1409

Forest, A. L., & Wood, J. V. (2012). When social networking is not working: Individuals with low self-esteem recognize but do not reap the benefits of self-disclosure on Facebook. *Psychological Science*, *23*(3), 295–302. https://doi.org/10.1177/0956797611429709

Fox, J., & McEwan, B. (2017). Distinguishing technologies for social interaction: The perceived social affordances of communication channels scale. *Communication Monographs*, *84*(3), 298–318. https://doi.org/10.1080/03637751.2017.1332418

Funder, D. C. (2006). Towards a resolution of the personality triad: Persons, situations, and behaviors. *Journal of Research in Personality*, *40*(1), 21–34. https://doi.org/10.1016/j.jrp.2005.08.003

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, *2*(2), 156–168. https://doi.org/10.1177/2515245919847202

Gelman, A., & Rubin, D. B. (1992). Inference from iterative simulation using multiple sequences. *Statistical Science*, *7*(4), 457-472. https://doi.org/10.1214/ss/1177011136

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360-1380.

Hamaker, E. L., & Muthén, B. (2020). The fixed versus random effects debate and how it relates to centering in multilevel modeling. *Psychological Methods*, *25*(3), 365–379. https://doi.org/10.1037/met0000239

Harari, G. M., Lane, N. D., Wang, R., Crosier, B. S., Campbell, A. T., & Gosling, S. D. (2016). Using smartphones to collect behavioral data in psychological science: Opportunities, practical considerations, and challenges. *Perspectives on Psychological Science*, *11*(6), 838–854. https://doi.org/10.1177/1745691616650285

Harari, G. M., Müller, S. R., Stachl, C., Wang, R., Wang, W., Bühner, M., Rentfrow, P. J., Campbell, A. T., & Gosling, S. D. (2020). Sensing sociability: Individual differences in young adults' conversation, calling, texting, and app use behaviors in daily life. *Journal of Personality and Social Psychology, 119*(1), 204–228. https://doi.org/10.1037/pspp0000245

Harris, K., & Vazire, S. (2016). On friendship development and the Big Five personality traits. *Social and Personality Psychology Compass, 10*(11), 647–667. https://doi.org/10.1111/spc3.12287

Hefner, J., & Eisenberg, D. (2009). Social support and mental health among college students. *American Journal of Orthopsychiatry*, *79*(4), 491–499. https://doi.org/10.1037/a0016918

Holtzman, S., DeClerck, D., Turcotte, K., Lisi, D., & Woodworth, M. (2017). Emotional support during times of stress: Can text messaging compete with in-person interactions? *Computers in Human Behavior, 71*, 130–139. https://doi.org/10.1016/j.chb.2017.01.043

Hudson, N. W., Lucas, R. E., & Donnellan, M. B. (2020). Are we happier with others? An investigation of the links between spending time with others and subjective well-being. *Journal of Personality and Social Psychology, 119*(3), 672–694. https://doi.org/10.1037/pspp0000290

Jackson, T., Soderlind, A., & Weiss, K. E. (2000). Personality traits and quality of social relationships as predictors of future loneliness among American college students. *Social Behavior and Personality: An International Journal*, *28*(5), 463–470. https://doi.org/10.2224/sbp.2000.28.5.463

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York: Guilford Press.

Kafetsios, K., Chatzakou, D., Tsigilis, N., & Vakali, A. (2017). Experience of emotion in face to face and computer-mediated social interactions: An event sampling study. *Computers in Human Behavior, 76*, 287–293. https://doi.org/10.1016/j.chb.2017.07.033

1298 Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey
1299 method for characterizing daily life experience: The day reconstruction method. *Science*,
1300 *306*(5702), 1776–1780. https://doi.org/10.1126/science.1103572
1301 Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban Health*,
1302 *78*(3), 458–467. https://doi.org/10.1093/jurban/78.3.458
1303 Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet
1304 paradox revisited. *Journal of Social Issues*, *58*(1), 49–74. https://doi.org/10.1111/1540-
1305 4560.00248
1306 Kritzler, S., Krasko, J., & Luhmann, M. (2020). Inside the happy personality: Personality states,
1307 situation experience, and state affect mediate the relation between personality and affect.
1308 *Journal of Research in Personality, 85*, 103929. https://doi.org/10.1016/j.jrp.2020.103929
1309 Kroencke, L., Geukes, K., Utesch, T., Kuper, N., & Back, M. D. (2020). Neuroticism and emotional
1310 risk during the COVID-19 pandemic. *Journal of Research in Personality, 89*, Article 104038.
1311 https://doi.org/10.1016/j.jrp.2020.104038
1312 Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., &
1313 Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults.
1314 *PLOS ONE*, *8*(8), 1-6. https://doi.org/10.1371/journal.pone.0069841
1315 Kuper, N., Breil, S. M., Horstmann, K. T., Roemer, L., Lischetzke, T., Sherman, R. A., Back, M.
1316 D., Denissen, J. J. A., & Rauthmann, J. F. (2021). *Individual differences in contingencies*
1317 *between situation characteristics and personality states* [Manuscript submitted for publication]
1318 Kuper, N., Modersitzki, N., Phan, L. V., & Rauthmann, J. F. (2021). The dynamics, processes,
1319 mechanisms, and functioning of personality: An overview of the field. *British Journal of*
1320 *Psychology, 112*(1), 1-51. https://doi.org/10.1111/bjop.12486
1321 Kushlev, K. (2018). Media technology and well-being: A complementarity-interference model. In
1322 E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* (pp. 970-982). Salt Lake City:
1323 DEF Publishers.

Kushlev, K., & Heintzelman, S. J. (2018). Put the phone down: Testing a complement-interfere model of computer-mediated communication in the context of face-to-face interactions. *Social Psychological and Personality Science*, *9*(6), 702–710. https://doi.org/10.1177/1948550617722199

Lahey, B. B. (2009). Public health significance of neuroticism. *American Psychologist*, *64*(4), 241–256. https://doi.org/10.1037/a0015309

Larson, R., Mannell, R., & Zuzanek, J. (1986). Daily well-being of older adults with friends and family. *Psychology and Aging*, *1*(2), 117–126. https://doi.org/10.1037/0882-7974.1.2.117

Lewin, K. (1936). *Principles of topological psychology*. New York: McGraw-Hill.

Lieberman, A., & Schroeder, J. (2020). Two social lives: How differences between online and offline interaction influence social outcomes. *Current Opinion in Psychology, 31*, 16-21. https://doi.org/10.1016/j.copsyc.2019.06.022

Lind, M. N., Byrne, M. L., Wicks, G., Smidt, A. M., & Allen, N. B. (2018). The Effortless Assessment of Risk States (EARS) tool: An interpersonal approach to mobile sensing. *JMIR Mental Health, 5*(3), e10334. https://doi.org/10.2196/10334

Lucas, R. E., Le, K., & Dyrenforth, P. S. (2008). Explaining the extraversion/positive affect relation: Sociability cannot account for extraverts' greater happiness. *Journal of Personality*, *76*(3), 385–414. https://doi.org/10.1111/j.1467-6494.2008.00490.x

Lüdtke, O., Marsh, H. W., Robitzsch, A., Trautwein, U., Asparouhov, T., & Muthén, B. (2008). The multilevel latent covariate model: A new, more reliable approach to group-level effects in contextual studies. *Psychological Methods, 13*(3), 203–229. https://doi.org/10.1037/a0012869

Mann, F. D., DeYoung, C. G., Tiberius, V., & Krueger, R. F. (2021). Stability and well-being: Associations among the Big Five domains, metatraits, and three kinds of well-being in a large sample. *Journal of Personality, 89*(4), 720-737. https://doi.org/10.1111/jopy.12611

McCabe, K. O., Mack, L., & Fleeson, W. (2014). A guide for data cleaning in experience sampling studies. In M. R. Mehl, & T. S. Conner (Eds.), *Handbook of research methods for studying daily life*. New York: Guilford.

Mitev, K., Weinstein, N., Karabeliova, S., Nguyen, T., Law, W., & Przybylski, A. (2021). Social media use only helps, and does not harm, daily interactions and well-being. *Technology, Mind, and Behavior*, *2*(1). https://doi.org/10.1037/tmb0000033

Moskowitz, D. S., & Coté, S. (1995). Do interpersonal traits predict affect? A comparison of three models. *Journal of Personality and Social Psychology, 69*(5), 915–924. https://doi.org/10.1037/0022-3514.69.5.915

Mueller, S., Ram, N., Conroy, D. E., Pincus, A. L., Gerstorf, D., & Wagner, J. (2019). Happy like a fish in water? The role of personality–situation fit for momentary happiness in social interactions across the adult lifespan. *European Journal of Personality*, *33*(3), 298–316. https://doi.org/10.1002/per.2198

Muthén, B. (2010). *Bayesian analysis in Mplus: A brief introduction.* Retrieved from https://www.statmodel.com/download/IntroBayesVersion%203.pdf

Muthén, B., & Asparouhov, T. (2012). Bayesian structural equation modeling: A more flexible representation of substantive theory. *Psychological Methods, 17*(3), 313–335. https://doi.org/10.1037/a0026802

Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.

Neyer, F. J., Wrzus, C., Wagner, J., & Lang, F. R. (2011). Principles of relationship differentiation. *European Psychologist*, *16*(4), 267–277. https://doi.org/10.1027/1016-9040/a000055

Odgers, C. L., & Jensen, M. R. (2020). Annual Research Review: Adolescent mental health in the digital age: facts, fears, and future directions. *Journal of Child Psychology and Psychiatry*, *61*(3), 336–348. https://doi.org/10.1111/jcpp.13190

Orben, A. (2020). Teenagers, screens and social media: A narrative review of reviews and key studies. *Social Psychiatry and Psychiatric Epidemiology, 55*(4), 407–414. https://doi.org/10.1007/s00127-019-01825-4

Orben, A., Dienlin, T., & Przybylski, A. K. (2019). Social media's enduring effect on adolescent life satisfaction. *Proceedings of the National Academy of Sciences, 116*(21), 10226–10228. https://doi.org/10.1073/pnas.1902058116

Perrin, A., & Atske, S. (2021, March 26). *About three-in-ten U.S. adults say they are 'almost constantly' online.* Retrieved from https://www.pewresearch.org/fact-tank/2021/03/26/about-three-in-ten-u-s-adults-say-they-are-almost-constantly-online/

Peter, J., Valkenburg, P. M., & Schouten, A. P. (2005). Developing a model of adolescent friendship formation on the Internet. *CyberPsychology & Behavior, 8*(5), 423–430. https://doi.org/10.1089/cpb.2005.8.423

Pew Research Center (2021a). *Internet/broadband fact sheet.* Retrieved from https://www.pewresearch.org/internet/fact-sheet/internet-broadband/

Pew Research Center (2021b). *Mobile fact sheet.* Retrieved from https://www.pewresearch.org/internet/fact-sheet/mobile/

Pew Research Center (2021c). *Social media fact sheet.* Retrieved from https://www.pewresearch.org/internet/fact-sheet/social-media/

Quintus, M., Egloff, B., & Wrzus, C. (2021). Daily life processes predict long-term development in explicit and implicit representations of Big Five traits: Testing predictions from the TESSERA (Triggering situations, Expectancies, States and State Expressions, and ReActions) framework. *Journal of Personality and Social Psychology, 120*(4), 1049–1073. https://doi.org/10.1037/pspp0000361

Quoidbach, J., Taquet, M., Desseilles, M., de Montjoye, Y.-A., & Gross, J. J. (2019). Happiness and social behavior. *Psychological Science*, *30*(8), 1111–1122. https://doi.org/10.1177/0956797619849666

Rauthmann, J. F., Gallardo-Pujol, D., Guillaume, E. M., Todd, E., Nave, C. S., Sherman, R. A., Ziegler, M., Jones, A. B., & Funder, D. C. (2014). The Situational Eight DIAMONDS: A taxonomy of major dimensions of situation characteristics. *Journal of Personality and Social Psychology*, *107*(4), 677–718. https://doi.org/10.1037/a0037250

R Core Team (2020). *R: A language and environment for statistical computing.* Vienna, Austria: R Foundation for Statistical Computing. Retrieved from https://www.R-project.org/

Reitz, A. K., Zimmermann, J., Hutteman, R., Specht, J., & Neyer, F. J. (2014). How peers make a difference: The role of peer groups and peer relationships in personality development. *European Journal of Personality, 28*(3), 279–288. https://doi.org/10.1002/per.1965

Rice, L., & Markey, P. M. (2009). The role of extraversion and neuroticism in influencing anxiety following computer-mediated interactions. *Personality and Individual Differences, 46*(1), 35–39. https://doi.org/10.1016/j.paid.2008.08.022

Ruppel, E. K., Burke, T. J., Cherney, M. R., & Dinsmore, D. R. (2018). Social compensation and enhancement via mediated communication in the transition to college. *Human Communication Research*, *44*(1), 58–79. https://doi.org/10.1093/hcr/hqx003

Russell, J. A., & Barrett, L. F. (1999). Core affect, prototypical emotional episodes, and other things called emotion: Dissecting the elephant. *Journal of Personality and Social Psychology, 76*(5), 805–819. https://doi.org/10.1037/0022-3514.76.5.805

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*(1), 141-166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719–727. http://dx.doi.org/10.1037/0022-3514.69.4.719

Sandstrom, G. M., & Dunn, E. W. (2014). Social interactions and well-being: The surprising power of weak ties. *Personality and Social Psychology Bulletin, 40*(7), 910–922. https://doi.org/10.1177/0146167214529799

Scharkow, M. (2016). The accuracy of self-reported Internet use—A validation study using client log data. *Communication Methods and Measures*, *10*(1), 13–27. https://doi.org/10.1080/19312458.2015.1118446

Scherbaum, C. A., & Ferreter, J. M. (2009). Estimating statistical power and required sample sizes for organizational research using multilevel modeling. *Organizational Research Methods*, *12*(2), 347–367. https://doi.org/10.1177/1094428107308906

Schimmack, U. (2009). Measuring wellbeing in the SOEP. *Schmollers Jahrbuch, 129*, 241- 249.

Schmid Mast, M., Gatica-Perez, D., Frauendorfer, D., Nguyen, L., & Choudhury, T. (2015). Social sensing for psychology: Automated interpersonal behavior assessment. *Current Directions in Psychological Science*, *24*(2), 154-160. https://doi.org/10.1177/0963721414560811

Schönbrodt, F. D., Maier, M., Heene, M., & Zehetleitner, M. (2015). *Voluntary commitment to research transparency.* Retrieved from http://www.researchtransparency.org

Shackman, A. J., Weinstein, J. S., Hudja, S. N., Bloomer, C. D., Barstead, M. G., Fox, A. S., & Lemay, E. P., Jr. (2018). Dispositional negativity in the wild: Social environment governs momentary emotional experience. *Emotion*, *18*(5), 707–724. https://doi.org/10.1037/emo0000339

Sherman, A. M., Lansford, J. E., & Volling, B. L. (2006). Sibling relationships and best friendships in young adulthood: Warmth, conflict, and well-being. *Personal Relationships, 13*(2), 151–165. https://doi.org/10.1111/j.1475-6811.2006.00110.x

Sherman, L. E., Michikyan, M., & Greenfield, P. M. (2013). The effects of text, audio, video, and in-person communication on bonding between friends. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *7*(2), 1-13. https://doi.org/10.5817/CP2013-2-3

Sherman, R. A., Rauthmann, J. F., Brown, N. A., Serfass, D. G., & Jones, A. B. (2015). The independent effects of personality and situations on real-time expressions of behavior and emotion. *Journal of Personality and Social Psychology, 109*(5), 872–888. https://doi.org/10.1037/pspp0000036

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2012). *A 21 word solution.* Retrieved from http://dx.doi.org/10.2139/ssrn.2160588

Soto, C. J. (2015). Is happiness good for your personality? Concurrent and prospective relations of the Big Five with subjective well-being. *Journal of Personality, 83*(1), 45–55. https://doi.org/10.1111/jopy.12081

Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology, 113*(1), 117-143. https://doi.org/10.1037/pspp0000096

Spradlin, A., Cuttler, C., Bunce, J. P., & Carrier, L. M. (2019). #Connected: Facebook may facilitate face-to-face relationships for introverts. *Psychology of Popular Media Culture, 8*(1), 34–40. https://doi.org/10.1037/ppm0000162

Srivastava, S., Angelo, K. M., & Vallereux, S. R. (2008). Extraversion and positive affect: A day reconstruction study of person–environment transactions. *Journal of Research in Personality, 42*(6), 1613–1618. https://doi.org/10.1016/j.jrp.2008.05.002

Stachl, C., Hilbert, S., Au, J.-Q., Buschek, D., Luca, A. D., Bischl, B., Hussmann, H., & Bühner, M. (2017). Personality traits predict smartphone usage. *European Journal of Personality, 31*(6), 701–722. https://doi.org/10.1002/per.2113

Stavrova, O., & Denissen, J. (2021). Does using social media jeopardize well-being? The importance of separating within- from between-person effects. *Social Psychological and Personality Science, 12*(6), 964–973. https://doi.org/10.1177/1948550620944304

Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective well-being. *Psychological Bulletin, 134*(1), 138–161. https://doi.org/10.1037/0033-2909.134.1.138

Sun, J., Harris, K., & Vazire, S. (2020). Is well-being associated with the quantity and quality of social interactions? *Journal of Personality and Social Psychology, 119*(6), 1478–1496. https://doi.org/10.1037/pspp0000272

Uchino, B. N. (2006). Social support and health: A review of physiological processes potentially underlying links to disease outcomes. *Journal of Behavioral Medicine, 29*(4), 377–387. https://doi.org/10.1007/s10865-006-9056-5

Umberson, D., & Montez, J. K. (2010). Social relationships and health: A flashpoint for health policy. *Journal of Health and Social Behavior, 51*(1_suppl.), S54-66. https://doi.org/10.1177/0022146510383501

Valkenburg, P. M., & Peter, J. (2007). Online communication and adolescent well-being: Testing the stimulation versus the displacement hypothesis. *Journal of Computer-Mediated Communication, 12*(4), 1169–1182. https://doi.org/10.1111/j.1083-6101.2007.00368.x

Van Zalk, M. H. W., Branje, S. J. T., Denissen, J., Van Aken, M. A. G., & Meeus, W. H. J. (2011). Who benefits from chatting, and why?: The roles of extraversion and supportiveness in online chatting and emotional adjustment. *Personality and Social Psychology Bulletin, 37*(9), 1202–1215. https://doi.org/10.1177/0146167211409053

Venaglia, R. B., & Lemay, E. P. (2017). Hedonic benefits of close and distant interaction partners: The mediating roles of social approval and authenticity. *Personality and Social Psychology Bulletin, 43*(9), 1255–1267. https://doi.org/10.1177/0146167217711917

Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? *Social Issues and Policy Review, 11*(1), 274–302. https://doi.org/10.1111/sipr.12033

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software, 36*(3), 1-48. https://doi.org/10.18637/jss.v036.i03

Vogel, N., Ram, N., Conroy, D. E., Pincus, A. L., & Gerstorf, D. (2017). How the social ecology and social situation shape individuals' affect valence and arousal. *Emotion, 17*(3), 509–527. https://doi.org/10.1037/emo0000244

Wagner, J., Lüdtke, O., Roberts, B. W., & Trautwein, U. (2014). Who belongs to me? Social relationship and personality characteristics in the transition to young adulthood. *European Journal of Personality*, *28*(6), 586–603. https://doi.org/10.1002/per.1974

Wieczorek, L. L., Mueller, S., Lüdtke, O., & Wagner, J. (2021). What makes for a pleasant social experience in adolescence? The role of perceived social interaction behavior in associations between personality traits and momentary social satisfaction. *European Journal of Personality*. Advance online publication. https://doi.org/10.1177/08902070211017745

Wilson, R. E., Harris, K., & Vazire, S. (2015). Personality and friendship satisfaction in daily life: Do everyday social interactions account for individual differences in friendship satisfaction? *European Journal of Personality, 29*(2), 173-186. https://doi.org/10.1002/per.1996

Wilt, J., & Revelle, W. (2019). The Big Five, everyday contexts and activities, and affective experience. *Personality and Individual Differences*, *136*, 140–147. https://doi.org/10.1016/j.paid.2017.12.032

Wrzus, C., & Mehl, M. R. (2015). Lab and/or field? Measuring personality processes and their social consequences. *European Journal of Personality*, *29*(2), 250–271. https://doi.org/10.1002/per.1986

Wrzus, C., & Roberts, B. W. (2017). Processes of personality development in adulthood: The TESSERA framework. *Personality and Social Psychology Review*, *21*(3), 253–277. https://doi.org/10.1177/1088868316652279

Wrzus, C., Wagner, J., & Neyer, F. J. (2012). The interdependence of horizontal family relationships and friendships relates to higher well-being. *Personal Relationships, 19*(3), 465–482. https://doi.org/10.1111/j.1475-6811.2011.01373.x

Wrzus, C., Zimmermann, J., Mund, M., & Neyer, F. J. (2017). Friendships in young and middle adulthood: Normative patterns and personality differences. In M. Hojjat & A. Moyer (Eds.), *Psychology of friendship* (pp. 21-38). New York: Oxford University Press.

Yaremych, H. E., Preacher, K. J., & Hedeker, D. (2021). Centering categorical predictors in multilevel models: Best practices and interpretation. *Psychological Methods.* Advance online publication. https://doi.org/10.1037/met0000434