

Associations between social media-based digital contact with family and friends on loneliness and well-being outcomes in middle-aged and older adults: a mediation analysis

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Associations Between Social Media-Based Digital Contact with Family and Friends on Loneliness and Well-being Outcomes in Middle-aged and Older Adults: A Mediation Analysis

Author Notes

Declaration of conflicting interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

Data Disclosure Statement

This study used publicly available data from the Midlife in the United States (MIDUS) project, specifically the MIDUS 3 dataset (<https://doi.org/10.3886/ICPSR36346.v7>) and the MIDUS Refresher 1 dataset (<https://doi.org/10.3886/ICPSR36532.v4>). All data were obtained through the Inter-university Consortium for Political and Social Research (ICPSR).

Abstract

Social connections are essential for well-being, particularly in middle-aged and older adults, but maintaining them becomes challenging due to shrinking social networks and physical limitations that hinder participation in social events. Social media offers a potential avenue for increasing social interaction and online social support, thereby reducing loneliness and enhancing well-being. Links among social media, loneliness, and well-being remain unclear due in part to age-related differences in how social media is used and perceived. This study utilized data from MIDUS wave 3 and MIDUS refresher 1 (n=6,871) adults in the Midlife in the United States (MIDUS) survey to investigate how social media-based digital contact mediates the relationships between age, loneliness, and emotional and psychological well-being outcomes. Older age was associated with a lower frequency of social media contact with family and friends. Reduced family contact was linked to greater loneliness, lower positive affect, higher negative affect, and poorer psychological well-being. Significant indirect effects of age on emotional and psychological well-being, mediated by family-related social media-based digital contact and loneliness, were observed. These findings highlight the unique emotional importance of family connections in later life. Enhancing family-focused social media engagement could mitigate loneliness and improve psychological health, offering a valuable strategy to reduce social isolation in aging populations.

Keywords: social connections, social support, older adults, middle-aged adults, social media, loneliness, well-being

Introduction

Social connections are a cornerstone of well-being across adulthood, with their importance only growing as people transition from middle to later life (Antonucci et al., 2014). Well-being during these stages is a critical predictor of longevity and quality of life, making it a priority for healthcare and social policy. Yet maintaining social ties can be difficult for middle-aged and older adults, who often experience shrinking social networks due to retirement, bereavement, or health-related limitations (Fuller et al., 2020). Loneliness, defined as the discrepancy between desired and actual levels of social interaction (Perlman & Peplau, 1981), is a particularly salient risk factor. Nearly one-third of adults aged 45 and older report experiencing loneliness (National Academies of Sciences et al., 2020), which is linked to adverse outcomes ranging from cardiovascular disease to cognitive decline and premature mortality (Crăciun, 2023). Addressing factors that shape loneliness and social disconnection is therefore crucial for promoting health and well-being in later life (Dahlberg et al., 2022).

The rise of social media offers new avenues to maintain connections and social support. Social connection, defined as the sense of closeness and belonging derived from the structure and quality of social networks (Centers for Disease Control and Prevention, 2024), and social support, the assistance exchanged within these networks (Drageset, 2021), are both strongly tied to well-being. Social media platforms are designed to foster these exchanges by enabling interaction, content sharing, and communication (Aichner et al., 2021). In the early 2010s, social networking sites were becoming increasingly common among middle-aged and older adults in the United States. In 2013, 72% of online U.S. adults used social networking sites; among older online adults, 60% of those aged 50–64 and 43% of those aged 65 and older reported using social networking sites (Brenner & Smith, 2013). By offering opportunities for both public and private interactions (Ellison et al., 2007; Pradhan & Singh, 2023; Song, 2024), social media may help older adults sustain close bonds, reduce loneliness, and promote emotional well-being.

Nevertheless, evidence remains mixed. While some studies report that social media use reduces loneliness and enhances mental health (Fu & Xie, 2021; Rennoch et al., 2023). Others suggest null effects or even detrimental impacts, such as heightened daily mood fluctuations (Lin & Lachman, 2021, 2024). These inconsistencies highlight the complexity of social media's role in later life. One key limitation is that prior studies often treat "social media use" as a monolithic construct, overlooking distinctions between contacting family versus friends. Another limitation is insufficient theorization of the mechanisms and sequences through which age, social media contact, loneliness, and well-being are connected.

In this study, we distinguish loneliness, affective states, and psychological well-being as related but conceptually distinct indicators of social and psychological functioning. Loneliness refers to the perceived discrepancy between desired and actual social connections and reflects a subjective experience of social disconnection (Perlman & Peplau, 1981). We conceptualize loneliness as a social-relational experience rather than as a general negative affective state. In this model, loneliness functions as a proximal indicator of perceived social disconnection. Whereas positive and negative affect, by contrast, capture emotional states, or the frequency with which individuals experience pleasant and unpleasant emotions (Watson et al., 1988). Psychological well-being, by contrast, reflects broader eudaimonic functioning, including autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (C. D. Ryff, 1989a). Examining these constructs together allows us to assess whether social media contact is linked not only to loneliness and emotional experiences, but also to broader psychological functioning in middle-aged and older adults.

To address these gaps, this study draws on Socioemotional Selectivity Theory (SST), which posits that as individuals age, they increasingly prioritize emotionally meaningful relationships, particularly with family members (Carstensen, 2021). Family members often serve as central sources of emotional closeness, continuity, and support in later life; therefore, maintaining contact with non-

resident family members through social media may be particularly relevant to loneliness, which reflects perceived deficits in meaningful social connection. However, this expectation does not imply that friendships or broader social networks are unimportant. Prior research suggests that friends and weaker ties can also support emotional well-being by providing companionship, stimulation, social integration, and access to diverse resources (Huxhold et al., 2020). Therefore, we examine family and friend contact separately to test whether relationship-specific social media contact shows distinct associations with loneliness and emotional and psychological well-being.

Drawing on this framework, we propose that age is associated with differences in the frequency with which adults use social media to contact family and friends. Because older adults tend to prioritize emotionally meaningful relationships, and because family members often represent long-standing sources of emotional closeness, continuity, and support, we expected social media contact with family to be more strongly associated with lower loneliness and better well-being than contact with friends. These differences in relationship-specific social media contact may, in turn, be associated with loneliness, which may, in turn, relate to emotional and psychological well-being. We selected a mediation framework because our primary interest was in this proposed sequential process: whether age-related differences in relationship-specific social media contact are associated with loneliness and, subsequently, well-being. This approach differs from a moderation framework, which would test whether the association between social media contact and well-being varies across age groups. Although such moderation questions are theoretically important, they are beyond the scope of the present study and represent a valuable direction for future research. Importantly, we focus on this forward direction because recent longitudinal evidence indicates that social internet use predicts subsequent reductions in loneliness, but not vice versa: loneliness does not predict changes in social internet use, nor is the relationship mediated by social contact (Janssen et al., 2025). Figure 1 illustrates this proposed conceptual model.

Guided by these perspectives, we test a chain mediation model in which age predicts patterns of social media contact with family and friends, which in turn influence loneliness and multidimensional well-being outcomes (positive affect, negative affect, and psychological well-being). We hypothesize that family contact will be the primary protective pathway, whereas friend contact will serve as a comparison. This study advances understanding of the mechanisms linking age, social media contact, loneliness, and well-being. Explicitly distinguishing between family and friend contact will provide new insights into how social media can be used more effectively to support older adults' social needs and guide future technology applications for healthy aging.

Methods

Procedure

The data for this study were derived from the Midlife in the United States (MIDUS) survey, which includes two separate samples—MIDUS 3 and the MIDUS Refresher. MIDUS 3, conducted in 2013 to 2014, is the third wave of an ongoing longitudinal study, capturing extensive data through phone interviews and self-administered questionnaires. The study innovatively assessed numerous psychological factors (i.e., well-being) and demographic variables in a national sample of the United States (C. Ryff et al., 2019). The MIDUS Refresher, carried out between 2011 and 2014, supplements the original MIDUS cohort. It encompasses a U.S. national probability sample of 3,577 adults aged 25 to 74, paralleling the baseline MIDUS age groups (C. Ryff et al., 2017). The Refresher integrates comprehensive assessments from MIDUS. Both data sets are accessible through the Inter-university Consortium for Political and Social Research (ICPSR). The research data and material are publicly available and can be viewed on the MIDUS website (<http://midus.wisc.edu>).

Participants

The study involved a total of 6,871 middle-aged to older adults aged 23 to 93 years (age = 56.80 ± 14.58 , Female = 53.35%). 3,294 participants from MIDUS 3 (age = 63.64 ± 11.35 , Female = 55%) and 3,577 from MIDUS refresher 1 (age = 50.51 ± 14.38 , Female = 52%) (C. Ryff et al., 2017, 2019). The majority were White (85.1%), with an even distribution by sex (46.6% male, 53.4% female) and a significant proportion in the late middle-age group (44.9%). Educational attainment was varied, with the largest group holding a bachelor's degree (22.5%), and most participants are married (65.4%). Please see Table 1 for more demographic information on the current sample.

Measures

Social Media Contact Frequency with Family or Friends

Participants reported their frequency of social media contact with family and friends using two 8-point Likert scales. For family, they were asked, “How often are you in contact using social media with any members of your family who do not live with you, including brothers, sisters, parents, or children? Social media includes platforms such as Facebook, Twitter, MySpace, Skype, text messages, chat rooms, etc.” For friends, they were asked, “How often are you in contact with any of your friends using social media? Social media includes platforms such as Facebook, Twitter, MySpace, Skype, text messages, chat rooms, etc.” Response options ranged from 1 = several times a day to 8 = never or hardly ever, with intermediate options indicating about once a day, several times a week, about once a week, two or three times a month, about once a month, and less than once a month. Higher scores indicated less frequent social media-based digital contact. Responses were reverse-coded for analysis, so higher scores indicated a higher frequency of social media contact. Studies have compared self-reported digital device use with objective measures, finding moderate to strong correlations (e.g., $r = 0.59$ for screen time, $r = 0.48\text{--}0.74$ for phone use frequency) across different usage metrics, supporting the use of self-report surveys to measure social media contact frequency (Boase & Ling, 2013; Faust et al., 2024).

Loneliness

A single item was used to measure loneliness (i.e., "During the past 30 days, how much of the time did you feel lonely"). A 5-point Likert scale from 1 (all the time) to 5 (none of the time) was used for this analysis (Radloff, 1977). The analysis reversed the scale, so a higher score indicated a higher frequency of loneliness. The CES-D single-item measure of loneliness has been validated and widely used in prior research (Nersesian et al., 2018). Among middle-aged and older adults, studies have demonstrated a strong correlation between this measure and the UCLA Loneliness Scale ($r = .735$, $p < .001$) (Anderson, 2010). Furthermore, the CES-D single-item measure has shown comparable sensitivity to the three-item UCLA Loneliness Scale (Shiovitz-Ezra & Ayalon, 2012), reinforcing its validity as an effective tool for assessing loneliness.

Well-Being Outcomes

Well-being outcomes were assessed via three constructs, including positive affect, negative affect, and psychological well-being.

Positive & Negative Affect

The Positive and Negative Affect Schedule (PANAS) developed by Watson and Tellegen (1988) were used. The self-administered survey included five abbreviated items for negative affect and four items for positive affect. PANAS assessed the frequency during the previous 30 days of various negative (afraid, jittery, irritable, ashamed, upset) or positive (enthusiastic, attentive, proud, and active) emotional states. Responses ranged from 1 (all of the time) to 5 (none of the time) for each item. Scale scores were constructed by calculating the mean across items within the same emotional valence (e.g., positive and negative). Then, scale scores were recoded with higher scores indicating higher levels of positive or negative affects. The Positive Affect scale showed strong internal consistency in MIDUS 3

($\alpha = .911$) and MIDUS Refresher 1 ($\alpha = .919$), while the Negative Affect scale also demonstrated good reliability in MIDUS 3 ($\alpha = .848$) and MIDUS Refresher 1 ($\alpha = .876$) (C. Ryff et al., 2015, 2018).

Psychological Well-being

The 42-item version of the psychological well-being scale was used (C. D. Ryff, 1989b; C. D. Ryff & Keyes, 1995). Items are rated on a 7-point scale ranging from (1) strongly agree to (7) strongly disagree. The six dimensions are autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance. Psychological well-being was calculated as the sum of each set of items. For each construct, some of the items were reverse-coded so a higher score indicated a higher standing on that dimension. In this study, we used the average across the six dimensions construct to represent psychological well-being. The scale has demonstrated acceptable internal consistency, with Cronbach's alpha values ranging from .69 to .85 across the six dimensions (Morozink et al., 2010).

Analytic Strategy

The analysis consisted of three steps. First, we conducted descriptive and bivariate analyses using R software (R Core Team, 2021). Descriptive statistics were calculated using the psych package (William Revelle, 2023) and a correlation table and analysis was created using the apaTables package (Stanley, 2021).

The mediation analyses were then conducted to evaluate the indirect pathways through which age influences well-being outcomes via social media contact and loneliness. Specifically, the Hayes PROCESS Macro for R (available at www.processmacro.org) was used to implement Model 80, a two-step mediation model ($X \rightarrow M1 \rightarrow M2 \rightarrow Y$) (Hayes, 2017), see Figure 1. Separate models were conducted for each well-being outcome: negative affect, positive affect, and psychological well-being. In this framework, the frequency of social media contact with friends (M1a) and family (M1b) served as initial mediators, while loneliness (M2) was included as a secondary mediator. The analysis further

investigated combined mediating pathways through M1a and M2, as well as M1b and M2, to provide a comprehensive understanding of the hypothesized mechanisms.

Results

The sample consisted of 6,871 participants, primarily in the late middle age (44.9%) and late adulthood (33.3%) age groups. The majority of participants were female (53.4%) and White (85.1%), with smaller proportions identifying as Black or African American (5.7%), Native American/Alaska Native/Eskimo (1.3%), or Asian (0.9%). Educational attainment varied, with 22.5% holding a bachelor's degree and 14.1% earning a master's degree or higher. Most participants were married (65.4%), while smaller percentages reported being divorced (13.3%) or widowed (8.2%). Refer to Table 1 for detailed demographic information.

Participants reported moderate use of social media to contact family ($M = 4.17$, $SD = 2.63$, $Mdn = 5$) and friends ($M = 4.11$, $SD = 2.63$, $Mdn = 4$) on an 8-point scale. Additional details, including the mean age and outcomes such as positive affect, negative affect, and psychological well-being, are presented in Table 2.

A Correlation analysis of the study variables is presented in Table 3. Notably, age was negatively correlated with social media-based digital contact frequency with family ($r = -.21$, 95% CI $[-0.24, -0.18]$) and friends ($r = -.32$, 95% CI $[-0.34, -0.29]$), indicating less social media-based digital contact at older ages. Loneliness exhibited a weak negative correlation with the frequency of social media contact with family ($r = -0.04$, 95% CI $[-0.06, -0.01]$) but was not significantly correlated with contact with friends. Social media contact frequency showed positive associations with positive affect (family: $r=0.06$, 95% CI $[0.03, 0.08]$; friends: $r=0.06$, 95% CI $[0.04, 0.09]$) and psychological well-being (family: $r=0.10$, 95% CI $[0.08, 0.13]$; friends: $r=0.12$, 95% CI $[0.10, 0.15]$). No significant correlations were found between negative affect and social media-based digital contact with family or friends.

Figure 2 illustrates the path analysis model. The direct and indirect effects for the pathways are summarized in Tables 4 and 5. Completely standardized indirect effects, bootstrap standard errors (BootSE), and 95% bootstrap confidence intervals (BootLLCI, BootULCI) were estimated for all paths.

Pathways and Direct Effects

The results indicated that as age increases, individuals engage less frequently with family ($b = -0.039$, $p < 0.001$) and friends ($b = -0.060$, $p < 0.001$) on social media. Reduced contact with family was associated with greater loneliness ($b = -0.017$, $p < 0.001$), which, in turn, significantly impacted well-being by increasing negative affect ($b = 0.363$, $p < 0.001$), decreasing positive affect ($b = -0.362$, $p < 0.001$), and reducing psychological well-being ($b = -2.776$, $p < 0.001$). Despite this mediated pathway, age remained significantly associated with lower negative affect ($b = -0.0065$, $p < .001$), higher positive affect ($b = 0.0060$, $p < .001$), and greater psychological well-being ($b = 0.0496$, $p < .001$), indicating both direct and indirect influences of age on well-being outcomes.

Indirect Effects

Total Indirect Effects

The total indirect effect of age on negative affect was significant ($b = -0.0331$, $SE = 0.0089$, 95% CI $[-0.0509, -0.0159]$). Similarly, the total indirect effect on psychological well-being was significant ($b = -0.0187$, $SE = 0.0074$, 95% CI $[-0.0334, -0.0042]$). The total indirect effect on positive affect was not significant (see Table 5).

Age, Social Media Contact, and Well-Being Outcomes

The indirect effect of age through social media contact with friends was significant for positive affect ($b = -0.0291$, $SE = 0.0061$, 95% CI $[-0.0410, -0.0170]$). No other indirect effects through social media contact with friends or family were significant (see Table 5).

Age, Loneliness, and Well-Being Outcomes

The indirect effect of age through loneliness was significant for negative affect, ($b = -0.0487$, $SE = 0.0084$, 95% CI $[-0.0652, -0.0327]$), positive affect, ($b = 0.0344$, $SE = 0.0060$, 95% CI $[0.0227, 0.0464]$), and psychological well-being, ($b = 0.0363$, $SE = 0.0062$, 95% CI $[0.0242, 0.0488]$).

Sequential Pathways: Social Media Contact, Loneliness, and Well-Being Outcomes

The age $\rightarrow$ social media contact with family $\rightarrow$ loneliness pathway was significant for negative affect, ($b = 0.0061$, $SE = 0.0025$, 95% CI $[0.0014, 0.0110]$), positive affect, ($b = -0.0042$, $SE = 0.0017$, 95% CI $[-0.0077, -0.0009]$), and psychological well-being, ($b = -0.0044$, $SE = 0.0018$, 95% CI $[-0.0080, -0.0010]$).

The age $\rightarrow$ social media contact with friends $\rightarrow$ loneliness pathway was not significant for any outcome (see Table 5).

Discussion

Summary of Key Findings

This study found that age indirectly influenced well-being through social media contact with family members via loneliness, forming a relatively stable sequential pathway. By contrast, the pathway through friend contact was less consistent, suggesting that its effects may depend on contextual or measurement factors. Together, these findings support the idea that family relationships remain central to well-being in later life, while friend-based digital contact warrants more cautious interpretation.

Theoretical Implications and Dialogue with Literature

Our findings showed that social media contact with family, but not friends, was indirectly associated with well-being outcomes through loneliness. This pattern can be interpreted through Socioemotional Selectivity Theory, but with an important qualification. SST suggests that as people age, they increasingly prioritize emotionally meaningful social ties and interactions that are more likely to provide emotional reward (Carstensen, 2021). However, SST does not imply that family ties are inherently more emotionally meaningful than friendships. Rather, in the present study, contact with family may have been especially relevant because family members often represent long-standing sources of emotional closeness, continuity, and support in later life. Because loneliness reflects perceived deficits in meaningful social connection, maintaining contact with non-resident family members through social media may be particularly protective when those family ties are emotionally salient. At the same time, friendships and weaker ties can also contribute to emotional well-being by providing stimulation, companionship, social integration, and access to diverse resources (Huxhold et al., 2020). Thus, our findings should not be interpreted as evidence that family contact is universally more beneficial than friend contact. Instead, they suggest that the type of relationship may matter and

that the emotional meaning, quality, and function of specific ties should be considered when examining digital contact, loneliness, and well-being among middle-aged and older adults.

Importantly, the results align with recent longitudinal evidence from Janssen and colleagues (2025), who examined four waves of data from the Longitudinal Aging Study Amsterdam. Their analyses demonstrated that more frequent social internet use predicted decreases in loneliness over time, but this effect was not mediated by social contact, and no evidence supported reverse effects (loneliness predicting less subsequent social internet use). In other words, digital contact appears to directly influence loneliness, rather than operating solely by expanding the number of frequently contacted ties. The current study extends this literature by showing that when differentiating between family and friend contact, the family pathway appears more robust, while the friend pathway remains more fragile. These complementary findings suggest that digital communication may buffer loneliness by reinforcing emotionally close ties rather than by uniformly increasing contact frequency across all relationship types.

However, the instability of the friend contact pathway should not be dismissed as a null finding. Instead, it may reflect differences in the types of relationships, the strength of social bonds, or limitations in the sensitivity of the measures used to capture friendship quality. Future research should examine these possibilities more closely to clarify the role of friend contact in later-life loneliness and well-being.

Practical Implications

These findings also highlight practical considerations. Interventions to mitigate loneliness and promote well-being in older adults should focus on strengthening digital strategies that help sustain family contact, as this pathway appears particularly consequential. At the same time, enhancing digital literacy and comfort with technology could broaden opportunities for engaging with friends and

wider social networks. This dual approach—reinforcing strong ties while expanding capacity for broader digital engagement—can inform public health initiatives aimed at promoting healthier, more socially connected aging.

Limitations

Several limitations should be acknowledged. First, this study employed a cross-sectional design, which prevents strong causal inferences. Rather than claiming definitive causality, we relied on well-established theoretical frameworks to guide the proposed ordering of variables and used model comparisons to aggregate evidence. Thus, our findings should be viewed as more consistent with potential causal explanations than proof of specific causal processes.

Second, the reliance on self-reported measures of social media-based digital contact introduces potential biases, such as recall inaccuracies or social desirability effects. A related limitation is that our measure captured the frequency of social media contact but did not distinguish among different forms of digital engagement. Although the survey item asked about using email, social media sites, Skype, or text messages to stay in contact with family members or friends, such contact may include both bidirectional interactions, such as messaging or video calls, and less interactive forms of engagement, such as viewing posts, photos, or updates. These forms of contact may have different implications for loneliness and well-being. For example, direct exchanges may provide social support and emotional reciprocity, whereas passive viewing may increase awareness of others' lives without necessarily producing a felt sense of connection.

A further limitation is that social media contact may partly reflect broader patterns of social connection that were not fully captured in the present analysis. Individuals who frequently contact family or friends through social media may also have more frequent face-to-face, telephone, or other forms of traditional contact. Therefore, the observed associations should not be interpreted as evidence

that social media contact has effects independent of other communication modes. Instead, social media contact may function partly as a marker of broader relationship maintenance or social connectedness. Future research should measure multiple modalities of contact simultaneously, including face-to-face interaction, telephone calls, texting, video calls, active and passive social media engagement, and perceived interaction quality, to determine whether digital contact uniquely contributes to loneliness and well-being beyond offline and traditional forms of contact.

We also did not examine whether associations differed by participants' broader social network structure, such as whether their networks were primarily family-based, friend-based, or more diverse. This is an important limitation because prior work suggests that network composition, diversity, and the availability of both strong and weak ties may shape loneliness and well-being. Future research should examine whether the associations between social media contact, loneliness, and well-being vary with social network size, diversity, and the relative importance of family versus friend ties.

Finally, the social media-based digital contact data were collected between 2011 and 2014, more than a decade before the present study. This is an important limitation because digital communication technologies, social media platforms, patterns of use, and social norms surrounding online interaction have changed substantially during this period. In addition, adults who are currently middle-aged or older may have had different socialization experiences with digital technologies than participants of the same age in the original MIDUS samples. For example, more recent cohorts may have encountered digital communication and social media earlier in adulthood and may therefore differ in digital literacy, familiarity, expectations, and patterns of online social interaction. These cohort and historical differences may limit the generalizability of the present findings to contemporary middle-aged and older adults. Future studies should use more recent data and examine whether associations between digital contact, loneliness, and well-being vary across birth cohorts, levels of digital experience, and specific communication platforms.

Future Research

Future research should examine how digital literacy, access, and confidence shape the potential benefits of social media-based digital contact among middle-aged and older adults. Prior work on digital inequality suggests that older adults differ substantially in internet skills, technology confidence, and opportunities to use digital tools for social connection (Hargittai et al., 2019; Hunsaker & Hargittai, 2018; Seifert et al., 2021). These differences may influence not only whether older adults use social media, but also how they use it and whether digital contact reduces loneliness or supports well-being.

Future studies should also use diary studies, ecological momentary assessment, or other micro-longitudinal designs to capture the short-term dynamics of digital contact, social interaction quality, loneliness, affect, and psychological well-being in daily life (Hülür & Macdonald, 2020; Macdonald et al., 2021). Recent experience-sampling research also suggests that associations between social interactions and well-being may differ across face-to-face, telephone, and text-based digital communication modalities (Grünjes et al., 2026). Such designs would make it possible to examine whether digital contact predicts same-day or next-day changes in loneliness and affect, whether these associations differ by contact modality and relationship type, and whether family and friend contact operate differently across everyday contexts.

Relatedly, future studies should assess multiple communication modalities simultaneously, including face-to-face interaction, telephone calls, texting, video calls, and passive social media engagement, to determine whether social media-based digital contact uniquely contributes to loneliness and well-being beyond offline and traditional forms of contact. Finally, future research should test whether age moderates the associations between relationship-specific digital contact and well-being, because the benefits of close social contact may differ across adulthood and later life.

Contributions of the current study

This study makes several important contributions to the existing literature. First, it utilizes a large, representative sample of middle-aged and older adults across the United States, providing robust insights into the relationships between age, social media-based digital contact, loneliness, and well-being outcomes. By addressing the mixed findings in previous research, this study clarifies how social media-based digital contact affects well-being differently depending on the type of connection—family versus friends. Specifically, interactions with family reduce loneliness and improve well-being, whereas interactions with friends were not significantly associated with the outcomes. Furthermore, the examination of social media-based digital contact for contacting family versus friends revealed differential effects, emphasizing the unique significance of family interactions in mitigating loneliness and enhancing well-being. These findings have implications for aging research, particularly in understanding how to harness social media as a tool to reduce loneliness and promote mental health among middle-aged and older adults. Lastly, by incorporating social media-based digital contact into the analysis, this study contributes to socioemotional selectivity theory and the social convoy theory, reinforcing the importance of emotionally meaningful relationships and their impact on well-being in later life.

Conclusion

This study highlights the important role of social media in shaping psychological health among middle-aged and older adults. The findings reveal that reduced interactions with family on social media are associated with increased loneliness and poorer well-being, whereas interactions with friends have a limited impact. These results highlight the unique emotional value of family connections in later life and the potential of social media to mitigate loneliness and enhance well-being when used to sustain meaningful relationships. Importantly, individual differences in age and social dynamics must be considered when evaluating the psychological impacts of social media. Older adults often prioritize emotionally significant connections, which influence their engagement with social media and the

benefits they derive from it. Tailored strategies that promote digital literacy and encourage family engagement could transform social media into a vital tool for improving the well-being of aging populations, addressing their social and emotional needs in an increasingly digital world.

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Ethical Approval

The original Midlife in the United States (MIDUS) Survey protocols were reviewed and approved by the Institutional Review Board at the University of Wisconsin–Madison. The MIDUS coordinating center currently lists the Survey project under IRB Protocol No. 2016-1051. The original MIDUS research was conducted in accordance with the ethical requirements of the approving institution and applicable U.S. federal regulations for the protection of human research participants, including 45 CFR Part 46. The present study involved a secondary analysis of publicly available, de-identified MIDUS public-use data. The authors had no interaction with participants and did not obtain identifiable private information or a re-identification key. Therefore, under 45 CFR §46.102(e), no additional institutional ethical approval was required for the present secondary analysis.

Informed Consent

Informed consent was obtained from all participants by the original MIDUS research team before participation. The present investigators did not recruit, contact, or interact with participants and

analyzed only publicly available, de-identified MIDUS data; therefore, no additional informed consent was required for the present secondary analysis.

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Table 1 Demographic Characteristics of the Total Sample

Variable	Category	N	Percentage
Age Group	Early Adulthood	695	10.1
	Early Middle Age	802	11.7
	Late Middle Age	3,087	44.9
	Late Adulthood	2,287	33.3
Sex	Male	3,205	46.6
	Female	3,666	53.4
Race	White	5,848	85.1
	Black and/or African American	395	5.7
	Native American/Alaska Native/Eskimo	88	1.3
	Asian	61	0.9
	Native Hawaiian or Pacific Islander	6	0.1
	Other (Specify)	421	6.1
	Missing	52	0.8
Education	No School/Some Grade School (1-6)	9	0.1
	Eighth Grade/Junior High School (7-8)	39	0.6
	Some High School (9-12, no diploma/GED)	306	4.5
	GED	86	1.3
	Graduated from High School	1,344	19.6
	1 to 2 Years of College, No Degree Yet	1,041	15.2
	3 or More Years of College, No Degree Yet	240	3.5
	Grad. from 2-Year College/Vocational/Assoc. Deg.	768	11.2
	Grad. from 4- or 5-Year College/Bachelor's Deg.	1,547	22.5
	Some Graduate School	156	2.3
	Master's Degree	968	14.1
	Ph.D./Ed.D./MD/DDS/LLB/LLD/JD/Other Prof. Deg.	349	5.1
	Missing	18	0.3
Marital Status	Married	4,494	65.4
	Separated	124	1.8
	Divorced	912	13.3
	Widowed	561	8.2
	Never Married	766	11.1
	Missing	14	0.2

Table 2

Descriptive statistics of survey respondents on social media usage and psychological outcomes

Variables	n	mean	sd	median	min	max
Age	6871	56.8	14.58	58	23	93
Social media family contacts frequency	5434	4.17	2.63	5	1	8
Social media friends contacts frequency	5439	4.11	2.63	4	1	8
Negative affect	5472	1.53	0.58	1.4	1	5
Positive affect	5498	3.52	0.8	3.75	1	5
Loneliness	5450	1.55	0.88	1	1	5
Psychological well-being	5505	38.23	5.83	39	11.83	49

Table 3

Means, standard deviations, and correlations with confidence intervals

Variable	1	2	3	4	5	6
1. Age						
2. Social media family contacts frequency	-.21** [-.24, -.18]					
3. Social media friends contacts frequency	-.32** [-.34, -.29]	.72** [.71, .73]				
4. Negatives affect	-.18** [-.20, -.15]	-.01 [-.04, .01]	.02 [-.01, .04]			
5. Positive affect	.10** [.08, .13]	.06** [.03, .08]	.06** [.04, .09]	-.47** [-.49, -.45]		
6. Loneliness	-.07** [-.10, -.04]	-.04** [-.06, -.01]	-.01 [-.04, .01]	.58** [.56, .60]	-.41** [-.43, -.39]	
7. Psychological well beings	.09** [.06, .11]	.10** [.08, .13]	.12** [.10, .15]	-.49** [-.51, -.47]	.61** [.59, .62]	-.43** [-.46, -.41]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation.

Table 4

Total and direct effects of age on well-being outcomes with bootstrapping methods

Outcomes	effect	se	t	p	LLCI	ULCI	c_cs
Total effect of age on negative affect	-0.0079	0.0005	-14.3657	<0.001	-0.0089	0.0068	-0.1930
Direct effect of age on negative affect	-0.0065	0.0005	-13.7320	<0.001	-0.0074	-0.0056	-0.1599
Total effect of age on positive affect	0.0061	0.0008	7.9020	<0.001	0.0046	0.0076	0.1076
Direct effect of age on positive affect	0.0060	0.0007	8.0874	<0.001	0.0046	0.0075	0.1062
Total effect of age on psychological well-being	0.0418	0.0057	7.3369	<0.001	0.0306	0.0529	0.1001
Direct effect of age on psychological well-being	0.0496	0.0054	9.2121	<0.001	0.0390	0.0601	0.1188

Table 5

Completely standardized indirect effect(s) of age on well-being outcomes

Outcomes	Indirect Pathway	Effect	BootSE	BootLLCI	BootULCI
Negative Affect	TOTAL	-0.0331	0.0089	-0.0509	-0.0159
	Ind1	0.0081	0.0055	-0.0028	0.0187
	Ind2	0.0011	0.0035	-0.0056	0.0081
	Ind3	-0.0487	0.0084	-0.0652	-0.0327
	Ind4	0.0003	0.0038	-0.0071	0.0079
	Ind5	0.0061	0.0025	0.0014	0.0110
Positive Affect	TOTAL	0.0014	0.0073	-0.0132	0.0157
	Ind1	-0.0291	0.0061	-0.0410	-0.0170
	Ind2	0.0007	0.0038	-0.0068	0.0082
	Ind3	0.0344	0.0060	0.0227	0.0464
	Ind4	-0.0003	0.0027	-0.0056	0.0050
	Ind5	-0.0042	0.0017	-0.0077	-0.0009
Psychological well-being	TOTAL	-0.0187	0.0074	-0.0334	-0.0042
	Ind1	-0.0493	0.0059	-0.0616	-0.0384
	Ind2	-0.0008	0.0036	-0.0078	0.0062
	Ind3	0.0363	0.0062	0.0242	0.0488
	Ind4	-0.0005	0.0028	-0.0060	0.0050
	Ind5	-0.0044	0.0018	-0.0080	-0.0010

Note. Indirect effect key:

Ind1 Age -> Social media friends -> Well-Being Outcomes

Ind2 Age -> Social media family -> Well-Being Outcomes

Ind3 Age -> Loneliness -> Well-Being Outcomes

Ind4 Age -> Social media friends -> Loneliness -> Well-Being Outcomes

Ind5 Age -> Social media family -> Loneliness -> Well-Being Outcomes

Figure 1

Illustration of Hayes Process Macro (Model 80)

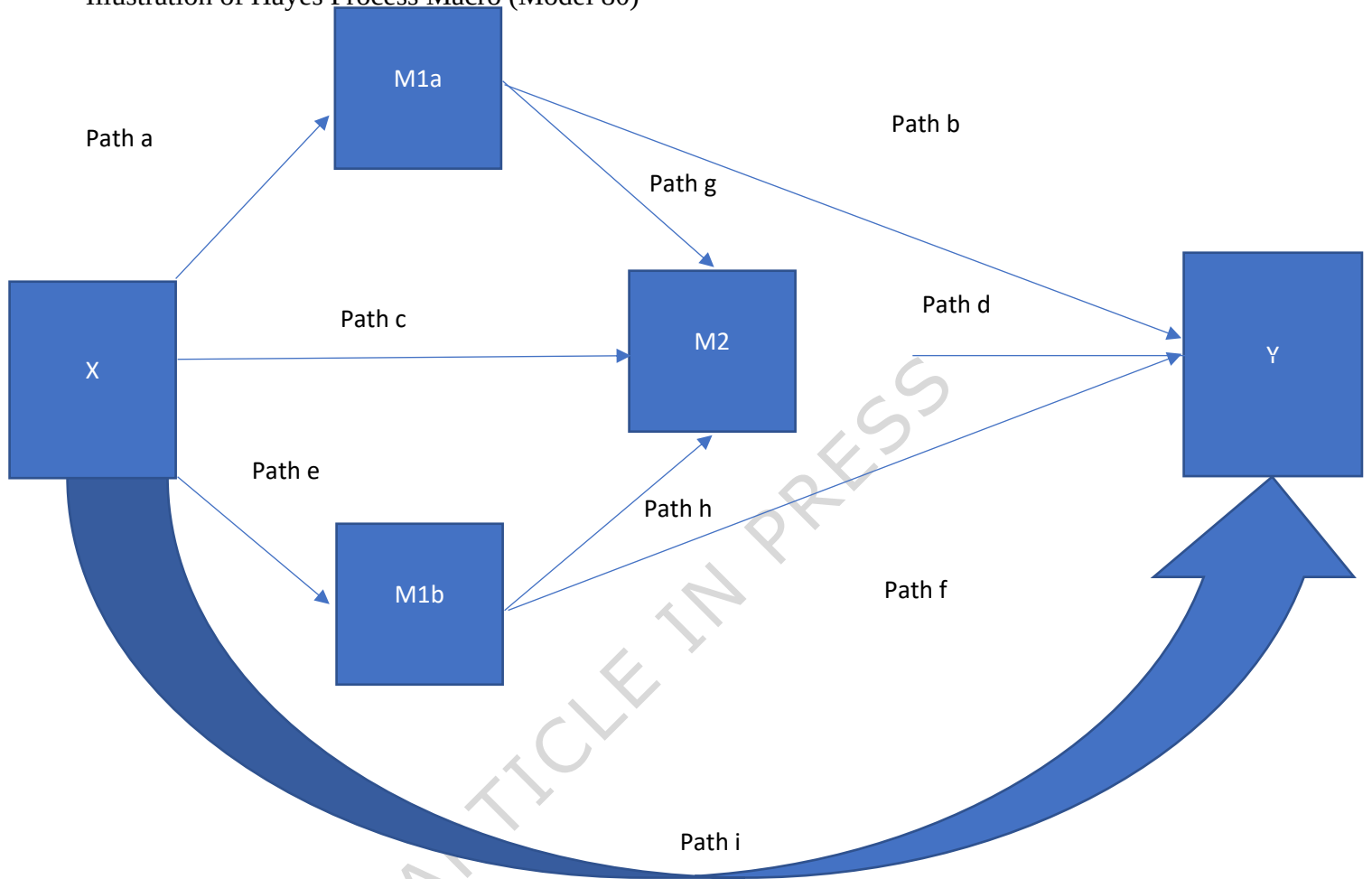
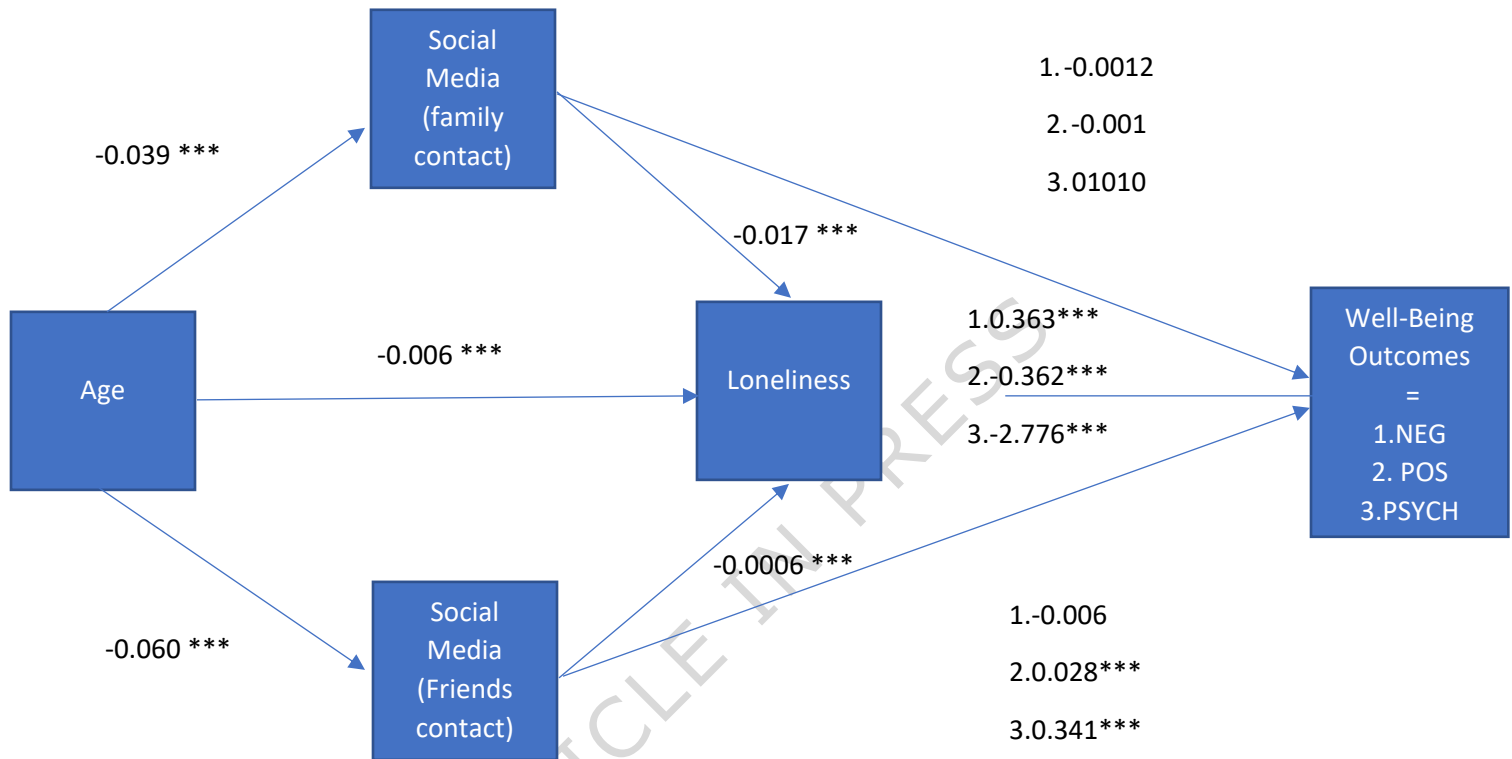


Figure 2

Path analysis of age, social media interaction with family and friends, and their effects on loneliness and other psychological outcomes



Note. Pos=Positive Affect; Neg=Negative Affect; Psych=Psychological Well-Being