

Wise Empathy Improves Well-Being on Instagram

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Social Media + Society
July–September 2026: 1–15
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DOI: 10.1177/20563051261487089
journals.sagepub.com/home/sms



Abstract

Two-thirds of the global population spends significant time browsing social media, making it critical to understand how to improve online experiences to support well-being. Social media use is often linked to both positive and negative psychological outcomes, but interventions to enhance well-being during social media use remain limited. Here, we test whether an intervention embedded in daily life that trains individuals to use wise empathy on Instagram can improve users' well-being. Drawing from strategic regulation of empathy and wisdom, we used an ecological momentary intervention to train half our sample ($N=260$) to wisely regulate empathy for positive and negative emotions on their own Instagram feeds. Using experience sampling ($N_{\text{obs}}=5,902$), we tracked empathy and well-being in daily life. The intervention increased wise empathy online – boosting appreciative joy, positive emotion sharing and compassion for negative emotions – while reducing negative emotion sharing, upward social comparisons and personal distress. On surveys where participants had recently browsed Instagram, those in the wise empathy condition reported higher well-being than controls, an effect mediated by changes in wise empathy. These findings position wise empathy as a scalable, trainable skill that can enhance well-being on social media by helping users engage more adaptively with emotional content. This work extends our understanding of how empathy predicts well-being and elucidates the relationship between social media use and well-being, with broad societal implications for our increasingly digital society.

Keywords

empathy, subjective well-being, wisdom, self-compassion, social comparison

Introduction

Social media has become deeply woven into modern life, with nearly two-thirds of the global population – over 5 billion people – now spending an average of more than 2 hr per day on these platforms (Kemp, 2025). A contentious debate persists about social media's impact on well-being, with some studies linking use to increased depression, anxiety and loneliness, while others find minimal or positive effects (Orben & Przybylski, 2019; Twenge et al., 2021, 2022). Moving beyond this binary question of whether social media is 'good' or 'bad' requires focusing on specific psychological experiences users have on social media, and how modifying these experiences might enhance well-being (Kross et al., 2021).

Here, we test whether training Instagram users to engage more wisely with the emotions they encounter while browsing their feed – increasing emotion sharing for positive emotions and decreasing it for negative ones – can improve subjective well-being. When people share negative emotions

of others online, it can lead to personal distress and harm their well-being. While the emotional content on social media tends to be more positive than offline interactions (Baylis et al., 2018), users often respond in unwise ways that undermine well-being – for instance, through upward social comparisons (Midgley et al., 2021). We apply the concept of wise empathy – or morally grounded excellence in socio-emotional problem solving (Depow, 2024) – as a skilful approach to regulating empathy online and test its effectiveness using an ecological momentary intervention with Instagram users in their everyday lives.

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Social Media and Subjective Well-Being

A contentious debate persists about social media's impact on well-being, with some studies linking use to reduced well-being, while others find minimal or positive effects (Orben, 2020; Orben & Przybylski, 2019; Twenge et al., 2021, 2022). Given its global reach, understanding how social media impacts subjective well-being has broad societal implications. However, effects are heterogeneous, varying across people (Beyens et al., 2020; Vaid et al., 2024) and age groups (Orben et al., 2022). While examining the overall effect of social media remains important, focusing solely on this broad issue can lead us to miss more specific and potentially larger effects (Kross et al., 2021). Advancing our understanding therefore requires moving beyond simple correlations to examine mechanisms by which social media influences well-being.

Such mechanistic approaches show that positive and negative effects of social media coexist (Ostic et al., 2021), with outcomes depending heavily on psychological experiences online (de Mello et al., 2024). For example, making upward social comparisons is often harmful (Irmer & Schmiedek, 2023), while online social support can be beneficial (Kim, 2014). Individuals often turn to social media to regulate their emotions (Tuck & Thompson, 2025), with the emotional valence of web content (Kelly & Sharot, 2025) and the emotions individuals experience online shaping well-being (Shi et al., 2019). This highlights the potential of interventions designed to actively improve well-being during social media use by changing online experiences (Harness et al., 2023).

Indeed, recent work indicates that brief interventions targeting emotional engagement online can improve well-being. For example, training Instagram users to empathize wisely with positive emotions online improved well-being after just 10 min of browsing (Depow et al., 2025). However, this work did not address wise engagement with negative emotions and employed a design that entailed possible demand effects. Nonetheless, it suggests that teaching users to strategically regulate empathy (Weisz & Cikara, 2021) for positive and negative emotions on social media is a promising avenue of research. We present wise empathy regulation as a method to achieve this goal.

Regulating Empathy

We define empathy as a dynamic, multidimensional response involving affective (emotion sharing: feeling what others feel), cognitive (perspective taking: understanding others' feeling) and motivational (compassion: caring about others' feelings) components (Murphy et al., 2022; Preckel et al., 2018). Although these components have separable neural underpinnings (Lamm et al., 2011) and distinct outcome profiles (Singer & Klimecki, 2014), they interact (Preckel et al., 2018) and co-occur in everyday experiences of empathy (Depow et al., 2021) and ecologically valid lab tasks (Schurz

et al., 2021). Appreciative joy can be considered a form of empathy involving caring about the positive emotions of others (Zeng et al., 2017). Given their differential impacts on outcomes, it is beneficial to strategically regulate components of empathy depending on the context (Weisz & Cikara, 2021). Strategic regulation of empathy implies that different components of empathy may be more or less beneficial across situations or outcomes. However, *which components* should be regulated and *when* remains to be determined.

Emotion Sharing and Valence. One reason this issue has proven so intractable is insufficient attention to context (Stellar & Duong, 2023). A critical context feature is the valence of the target of empathy's emotion (Andreychik & Migliaccio, 2015; Light et al., 2019; Morelli et al., 2015). Valence impacts both the experience of empathy (Depow & Inzlicht, 2026; Fabi et al., 2019) and its consequences for empathizer well-being (Depow et al., 2021). Emotion sharing can be differentiated into positive (sharing positive emotions) and negative (sharing negative emotions) components, which are related but distinct (Andreychik & Migliaccio, 2015; Murphy et al., 2018). Whereas emotion sharing has been associated with negative outcomes (Gleichgerricht & Decety, 2013), this association depends importantly upon valence.

Among mental health professionals, negative emotion sharing predicts increased secondary traumatic stress, but positive emotion sharing predicts reduced secondary traumatic stress, burnout and intention to leave the field, with increased compassion satisfaction (Andreychik, 2019a). For urgent care clinicians, positive emotion sharing predicts reduced burnout (Stosic et al., 2022), while for medical students, negative emotion sharing predicts greater burnout and secondary traumatic stress, and positive emotion sharing predicts lower burnout and secondary traumatic stress, with increased compassion satisfaction (Stosic et al., 2022). Similarly, among teaching assistants, positive emotion sharing predicts lower burnout and greater compassion satisfaction, whereas negative empathy predicts reduced compassion satisfaction (Stosic et al., 2022). On social media (Depow et al., 2025) and in daily life (Depow, 2024), positive emotion sharing predicts increased well-being, whereas negative emotion sharing predicts reduced well-being. These results show that positive and negative emotion sharing have importantly distinct effects for the empathizer. However, empathizers are often concerned not only for themselves, but for the target of their empathy as well, moving us from strategic regulation to wise empathy.

Wise Empathy Regulation. Wise empathy involves regulating the components of empathy (emotion sharing, perspective taking, compassion) in a way that is meant to benefit both the empathizer and the target of empathy. It thus combines the idea of strategic regulation of empathy (Weisz & Cikara, 2021) with modern conceptualizations of wisdom. Wisdom can be defined as 'morally grounded excellence in

socio-cognitive problem solving’ (Grossmann et al., 2020, p. 133, Appendix), and involves ‘phronesis’ – an ability to adapt to context (Kristjánsson et al., 2021) – as well as self-regulation and concern for others (Glück & Weststrate, 2022). We suggest that contending with the emotions of other people, especially close others – the bulk of everyday empathy opportunities (Depow et al., 2021) – is a socio-emotional problem. Wise empathy can thus be defined as ‘morally grounded excellence in socio-emotional problem solving’, where excellence means skilfully using empathy to obtain positive outcomes for both self and other. Concern for the other, a key piece of wisdom (Glück & Weststrate, 2022), differentiates wise empathy from other forms of strategic regulation of empathy (Weisz & Cikara, 2021). For example, using perspective taking to understand the emotions of another person and take advantage of them for personal gain would constitute strategic regulation, but not wise empathy.

Drawing from the literature reviewed here, we theorize that wise empathy involves flexibly regulating empathic responses based on context – specifically, *increasing emotion sharing in response to others’ positive emotions and decreasing emotion sharing in response to others’ negative emotions*. The goal states of wise empathy are other-focused experiences of compassion (rather than personal distress for negative emotions) and appreciative joy (rather than upward comparisons for positive emotions). Positive emotion sharing facilitates appreciative joy, but negative emotion sharing can lead to personal distress. Thus, we theorize that wise empathy involves positive emotion sharing, appreciative joy and compassion for negative emotions, while unwise empathy involves negative emotion sharing, which can lead to personal distress.

Self-Focused Responses and Self-Compassion. Self-focused responses to others’ emotions can impede wise empathy. Personal distress – feeling upset, anxious or overwhelmed by other people’s negative emotions (Davis, 1983) – is one such response. Personal distress predicts rumination, depression and self-criticism and can block empathic interaction rather than enhancing it (Kim & Han, 2018).

Similarly, upward social comparisons – unfavourable comparisons of the self to others – (Diener & Fujita, 1997) are self-focused responses which can serve as barriers to wise empathy, particularly for positive emotions. In response to others’ positive emotions, individuals may experience either appreciative joy or make upward social comparisons – representing competing other-focused and self-focused responses with opposing implications for well-being. Upward comparisons are more common and extreme on social media relative to other domains (Midgley et al., 2021), and these online comparisons significantly impact self-esteem (Alfasi, 2019), well-being (Wirtz et al., 2021) and depression (Aubry et al., 2024). Thus, remaining focused on the other (the target of empathy) rather than the self, can be beneficial.

Self-compassion can help maintain focus on the other rather than the self (Neff, 2003), mitigating harmful self-focused responses and facilitating wise empathy. Self-compassion involves kindness towards the self, recognition of common humanity and mindfulness (Neff, 2016). This mindset helps empathizers to avoid personal distress and upward comparisons, promoting compassion for the suffering of others (Neff & Pommier, 2013) and appreciative joy for their happiness (Zeng et al., 2017). Personal distress, upward social comparisons and self-compassion are relevant to wise empathy regulation because personal distress and upward comparisons are self-focused states that impede wise empathy, and self-compassion is a mindset that facilitates wise empathy. As self-compassion and upward comparisons reflect how people orient toward themselves while encountering others’ emotions, rather than empathic responses to those emotions per se, we treat them as related but separable from wise and unwise empathy.

Current Study

In the current study, we take an ecological momentary intervention approach to test whether training Instagram users to practice wise empathy improves well-being during everyday social media use. In doing so, we provide two important contributions. First, we clarify the long-debated relationship between empathy and subjective well-being. Second, we provide a deeper understanding of the underlying psychological mechanisms driving the effects of social media while providing a practical and scalable intervention to improve well-being.

Hypotheses

We hypothesized that participants in the wise empathy condition would show higher subjective well-being than those in the control after the intervention, and that during this time they would show higher appreciative joy, positive emotion sharing, self-compassion and compassion for negative emotions, as well as lower personal distress, negative emotion sharing and upward social comparisons. We hypothesized that the effect of the intervention on well-being would be mediated by wise empathy on Instagram.

Materials and Methods

Transparency and Openness

We describe our sampling plan, all data exclusions and all manipulations. All measures are described in the study in either the main text or supplementary material. The hypotheses and analysis were preregistered: aspredicted.org/q7dm-34q5.pdf, and open access to data, code and materials is provided: https://osf.io/yd549/?view_only=e6fc597498414151b4c585deb9d0b61b. The research received approval from the University of Toronto Research Ethics Board (Protocol # 00036941).

Participants

A total of 300 Instagram users with active accounts were recruited from Cloud Connect to an 8-day study. Participants who answered only the welcome survey, fewer than 5 surveys or had no data after the intervention, were removed prior to analysis ($n=40$), leaving us with a sample of $N=260$ ($M_{age}=35.19$, $SD=9.69$; 145 male, 109 female, 2 other or prefer not to say; 152 liberal, 74 conservative, 30 neutral). Participants were paid \$8, \$15, or \$20, or \$20 with an entry to win an additional \$250, depending on how many surveys they completed. Payment was given in the form of gift cards. Our sample size was chosen to allow us to enter the corridor of stability for parameter and correlation estimates (Lakens & Evers, 2014; Maxwell et al., 2008). Participants read the Informed Consent, confirmed their eligibility, then downloaded the Avicenna app on their smartphones (Avicenna Research, 2025). This app allowed us to prompt participants and collect data multiple times a day in the context of their everyday life. Participants were randomized to an intervention ($n=134$) or control condition ($n=126$).

Procedure

Overview. Participants completed a *welcome survey* on the Avicenna app on the first day of the study. They then answered 5 *check-in surveys* a day for the next 3 days. Following these 3 days, we performed our experimental manipulation. In a *midpoint survey*, participants were either shown the wise empathy intervention instructions or control instructions. Participants then had 3 more days of check-in surveys accompanied by 3 *reflection surveys* a day which reinforced the experimental manipulation. All surveys were completed on the Avicenna app.

Welcome Survey. The Welcome Survey contained individual differences and demographic variables. These were collected to test for robustness and for potential moderators of the intervention. For a full list of measures used and for results of robustness and moderation tests, see Supplementary Material.

Check-in Surveys. Check-in Surveys arrived at a random point between 10:00 a.m. and 11:45 a.m., 12:15 p.m. and 2:00 p.m., 2:30 p.m. and 4:15 p.m., 4:45 p.m. and 6:30 p.m. and 7:00 p.m. and 9:45 p.m. These surveys first asked whether or not participants had used Instagram in the last 30 min (Q3), and if so, how much time they spent browsing. Participants then reported the extent to which they were exposed to the emotions of other people, which can be considered empathy cues, in the last 30 min (Q6).

Based on responses to these two questions, subsequent items were tailored to participants' recent experiences. Participants who reported Instagram use reported on the valence of emotions they observed on Instagram in the last 30 min. Participants who had not used Instagram but reported

exposure to others' emotions answered a parallel question about the valence of emotions observed in other people in the last 30 min. Participants who reported no Instagram use (No on Q3) and no exposure to others' emotions (Not at all on Q6) instead reported the valence of their own emotions in the last 30 min. Valence was rated from completely negative (1) to completely positive (7), with mixed as the midpoint (4).

All participants then rated the extent to which they experienced self-compassion and upward social comparisons in the last 30 min, from not at all (1) to very much (5), followed by questions tapping current subjective well-being. Participants answered positive affect questions on a sliding scale from 0 to 100 about how joyful, positive and content they were feeling at the current moment. They then rated their current life satisfaction (Cheung & Lucas, 2014) on a 4-point scale ranging from very satisfied (1) to very dissatisfied (4). Participants next rated their sadness and stress levels (Fried et al., 2023) from not at all (1) to very much (7). Positive affect, life satisfaction and negative affect (reverse-scored) tap the major dimensions of subjective well-being (Diener et al., 2018) and were converted to 7-point scales and combined ($\alpha=.89$, $\omega_h=.76$, $\omega_t=.91$). This composite served as our dependent variable of interest.

Participants who had used Instagram in the last 30 min or had experienced empathy cues answered questions about their experience of empathy. Specifically, the extent to which they shared others' negative and positive emotions, felt appreciative joy, felt compassion for negative emotions and felt personal distress on a scale from 1 (*not at all*) to 5 (*very much*). Questions were either specific to experiences on Instagram (e.g., 'While browsing Instagram in the last 30 min . . .') or not (e.g., 'In the last 30 min . . .'), depending on prior answers to Q3. These experiences, along with self-compassion and social comparisons, tapped aspects of wise empathy regulation we expected to be manipulated by the intervention and to mediate the effect of condition on subjective well-being. Participants who had not used Instagram (No on Q3) and reported no empathy cues (Not at all on Q6) instead answered effort-matched filler questions which will not be discussed further in this work. Overall, participants answered $M=22.72$ ($SD=6.32$) Check-In surveys on average, yielding a sample of $N=5,902$ observations.

Midpoint Survey. Participants in the wise empathy condition received instructions about engaging wisely with the positive and negative emotions of others while browsing Instagram. For positive emotions, they were instructed to focus on sharing their positive emotions, feeling what they feel and to be happy that the other person is happy (appreciative joy). For negative emotions, they were instructed not to deeply share their emotions but instead to feel compassion. Participants were told to avoid comparing themselves to others and to maintain a focus on the other and an attitude of self-compassion. These instructions consisted of two short videos created for this purpose (https://youtu.be/C_9S2AKmr4U; <https://youtu.be/pC82rmozANQ>) as well as written instructions

followed by questions testing their understanding (Figure 1). Videos were developed by the authors using Canva. Participants in the control condition watched a video and answered questions about the history and current state of social media (www.youtube.com/watch?v=c0WpWA0TJ3U). To ensure participants watched the videos, they needed to correctly answer comprehension questions before proceeding. If they got these questions incorrect, they were directed to watch the videos again.

Reflection Surveys. For the final 3 days of the study, participants received 3 Reflection Surveys at 9:45 a.m., 2:15 p.m. and 4:30 p.m. alongside the Check-in Surveys described above. For the intervention condition, these surveys repeated wise empathy instructions and gave participants an opportunity to practice wise empathy, either with an example post or a post the participant had recently seen. For the control condition, the Reflection Surveys asked what social media platforms other than Instagram participants had used and asked them to reflect on their reasons for using social media. Thus, the control condition involved not only contextual information about the history of social media, but also a more active component of reflecting on why participants used social media, making them more intentional in their use. The mid-point and reflection surveys comprise an ecological momentary intervention designed to be integrated into participants' daily lives, with participants encouraged to apply wise empathy during their natural Instagram use rather than at isolated or artificial time points.

Analysis

Data were analysed using R, version 4.4.1 (R Core Team, 2024). We used a multilevel model predicting subjective well-being from condition (Intervention=1, Control=0) and time-point (After=1, Before=0), while testing for an interaction. To account for the nested nature of the data, we used a random intercept for participant, survey day and participant-by-day combinations. Similar models tested whether the wise empathy intervention changed experiences of appreciative joy, positive emotion sharing, compassion for negative emotions, negative emotion sharing, personal distress, self-compassion and upward social comparisons.

To assess whether the effect of condition on subjective well-being was specific to surveys where participants had recently used Instagram, we tested for an interaction between condition and Instagram use after the intervention. This model controlled for average participant well-being prior to the intervention. We used the lme4 and lmerTest packages to fit models and obtain *p*-values (Bates et al., 2015; Kuznetsova et al., 2017). Simple slopes analysis was conducted using the interactions package (Long, 2019).

We also ran a multilevel spline model where we interacted condition with a B-spline basis function with a knot at study hour 72, the first hour following the onset of the intervention (de Boor, 2001). Spline models can capture higher-order and

non-linear trends in the data, allowing us to examine the effect in a more temporally granular and complex way (Perperoglou et al., 2019). We used the splines package to generate B-splines (R Core Team, 2024). For the sake of space, we present these results only briefly, with full spline model results in supplementary material.

Finally, we used the lavaan package (Rosseel, 2012) to fit clustered (within-participant) Structural Equation Models to test for mediation of the condition effect through wise empathy (Gunzler et al., 2013). Guided by our theoretical framework, we compared potential candidate mediation models and selected the best-fitting model (Supplemental Table S1). In the winning model, the effect of condition was mediated by three latent variables: wise empathy (appreciative joy, positive emotion sharing, compassion for negative emotions), unwise empathy (personal distress, negative emotion sharing) and self-acceptance (self-compassion, upward social comparisons). The selected model is theoretically interpretable because wise and unwise empathy capture responses to others' emotions, whereas self-acceptance captures a distinct self-directed mindset. The model controlled for the effect of baseline well-being on latent variables and well-being after the intervention, and the effect of day on well-being. This model should be considered exploratory. The model was fit to data from surveys after the intervention where participants had used Instagram in the last 30 min.

Results

Participants had used Instagram in the last 30 min on 38% of surveys, browsing for an average of 14.03 min (*SD*=8.85). Social media use was comparable across conditions and time points (before and after the intervention). Across all surveys, participants browsed for an average of *M*=5.30 (*SD*=8.71) minutes in the last 30 min. The valence of emotions on Instagram, *M*=5.54, *SD*=1.22, was significantly more positive, *b*=0.50, *SE*=0.04, *t*(4,332)=12.53, *p*<.001, *d*=0.39, than the valence of emotions offline, *M*=5.10, *SD*=1.36. Prior to the intervention, time on Instagram had a very small but statistically significant positive effect on subjective well-being, *b*=0.005, *SE*=0.003, *t*(2,825)=2.00, *p*=.046, *r*=.04. This contrasts with the negative effects of Twitter/X (de Mello et al., 2024), underscoring the need to examine platform-specific effects (Kross et al., 2021).

Wise Empathy Intervention and Well-Being on Instagram

Although the intervention was targeted to experiences on Instagram, we also examined whether it had an effect on overall well-being across all surveys. A multilevel model predicting well-being from the wise empathy intervention condition, time (before/after) and the interaction between the two found no main effect of condition or time and no interaction. A preregistered spline model with a knot at hour 72 found a significant interaction between condition and the



Figure 1. Intervention infographic.

Note. Summarizes intervention instructions in midpoint and reflection surveys for readers. See QR codes for midpoint survey videos shown to participants, and materials for further details.

fourth spline component, suggesting that the intervention may be associated with subtle non-linear differences in overall well-being trajectories. However, because the conventional pre/post model was not significant and the spline effect was small and difficult to interpret in isolation, we treat this result cautiously (see Supplementary Material). The clearest evidence for the intervention's effect emerged when examining the context targeted by the intervention: surveys where participants had recently used Instagram.

After the intervention, but not before, Instagram use interacted significantly with condition in predicting subjective well-being, $F(1, 2510)=15.54$, $p<.001$.¹ The wise empathy intervention had no effect when participants had not used Instagram in the last 30 min, $b=-0.04$, $SE=0.07$, $t(2,511)=-0.53$, $p=.60$. However, a Johnson–Neyman analysis (Bauer & Curran, 2005; Esarey & Sumner, 2018) showed that when participants used Instagram for 11.83 min or more, those in the wise empathy condition had higher well-being than participants in the control (see Figure 2). The effect became increasingly stronger at 15 min, $b=0.21$, $SE=0.08$, $t(2,511)=2.68$, $p=.01$, 20 min, $b=0.29$, $SE=0.09$, $t(2,511)=3.23$, $p<.001$ and 30 min, $b=0.45$, $SE=0.12$, $t(2,511)=3.74$, $p<.001$, of recent use. These results suggest that the wise empathy intervention, which targeted experiences on Instagram, had a significant effect on well-being when participants used Instagram.

Intervention and Wise Empathy Experiences

We found the intervention had significantly impacted wise empathy experiences on, but not off, Instagram. Condition and time (Before/After) showed a significant interaction predicting appreciative joy, $F(1, 658)=15.10$, $p<.001$, positive emotion sharing, $F(1, 678)=16.67$, $p<.001$, and compassion, $F(1, 683)=20.72$, $p<.001$, on Instagram. As predicted, appreciative joy, $b=0.35$, $SE=0.13$, $t(658)=2.77$, $p=.010$, positive emotion sharing, $b=0.34$, $SE=0.13$, $t(678)=2.66$, $p=.010$ and compassion, $b=0.37$, $SE=0.14$, $t(683)=2.73$, $p=.010$, on Instagram were significantly higher in the wise empathy condition relative to the control condition (Figure 3). The interaction between condition and time was not significant for these variables off Instagram (all $ps>.05$), suggesting the intervention impacted experiences on Instagram specifically.

We found a similar pattern for unwise empathy (Figure 4). Condition and time showed a significant interaction when predicting negative emotion sharing, $F(1, 643)=11.08$, $p<.001$, such that negative emotion sharing was significantly lower in the wise empathy condition after the intervention, $b=-0.40$, $SE=0.13$, $t(643)=-3.00$, $p<.001$. For personal distress on Instagram, the interaction between condition and time was not significant, $F(1, 702)=2.59$, $p=.108$. However, exploratory examination showed wise empathy participants were significantly lower than controls in personal distress after the intervention, $b=-0.37$, $SE=0.13$, $t(702)=-2.83$, $p=.010$, but not before, $b=-0.24$, $SE=0.13$, $t(702)=-1.88$, $p=.060$.

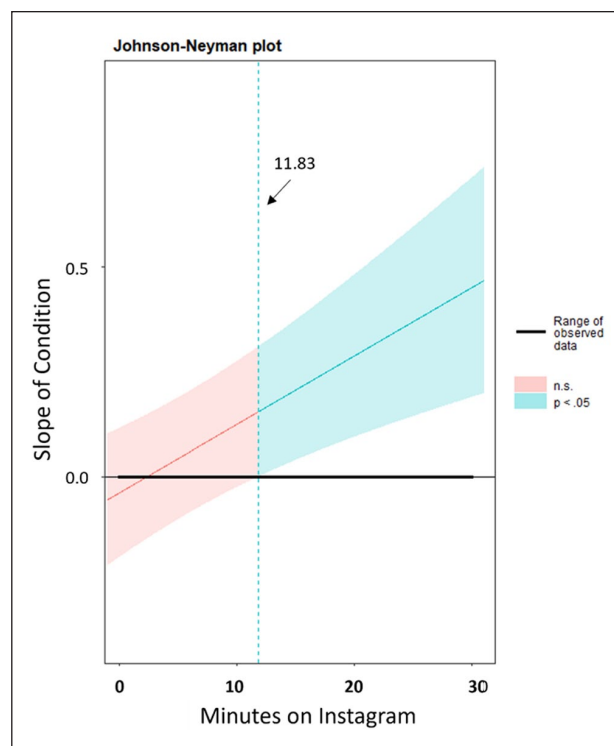


Figure 2. Johnson–Neyman plot of condition by time spent on Instagram.

Note. Plots the effect of condition over time spent on Instagram after onset of intervention. Intervention participants have significantly higher well-being after 11.83 min spent on Instagram in the last 30 min (dashed line).

Condition and time also showed significant interactions predicting self-compassion, $F(1, 1,199)=8.77$, $p=.003$, and upward social comparisons, $F(1, 1,190)=21.71$, $p<.001$. Despite the significant interaction, the simple slope of condition after the intervention was not significant for self-compassion on, $b=0.13$, $SE=0.11$, $t(656)=1.16$, $p=.24$, or off Instagram, $b=0.09$, $SE=0.11$, $t(939)=0.81$, $p=.42$. On the other hand, upward social comparisons were significantly lower in the intervention both on, $b=-0.34$, $SE=0.12$, $t(780)=-2.89$, $p<.001$ and off Instagram, $b=-0.36$, $SE=0.12$, $t(883)=-3.08$, $p<.001$, suggesting the effect on upward social comparisons generalized to offline interactions.

Aside from upward comparisons, the intervention changed wise empathy experiences specifically online, explaining why the intervention improved well-being only when participants used Instagram. However, the question remains as to whether wise empathy on Instagram mediates the effect on subjective well-being. To address this, we turn to our mediation Structural Equation Model.

Wise Empathy on Instagram as a Mediator

A mediation Structural Equation Model (SEM) to test whether the effect of the intervention on subjective well-being when participants had used Instagram was mediated

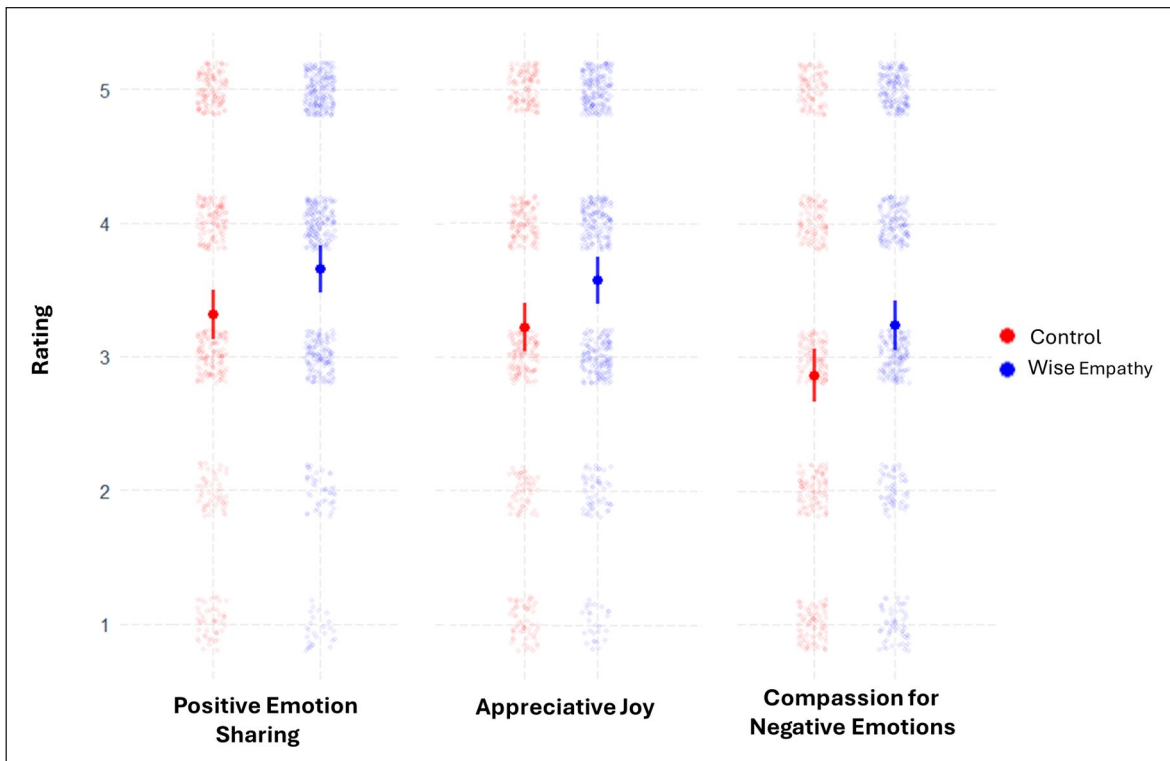


Figure 3. Wise empathy on Instagram after intervention by condition.

Note. Plots positive emotion sharing, appreciative joy and compassion for negative emotions on Instagram after the onset of the intervention in the control and intervention conditions. Dots are individual observations; circles with lines are mean and standard error.

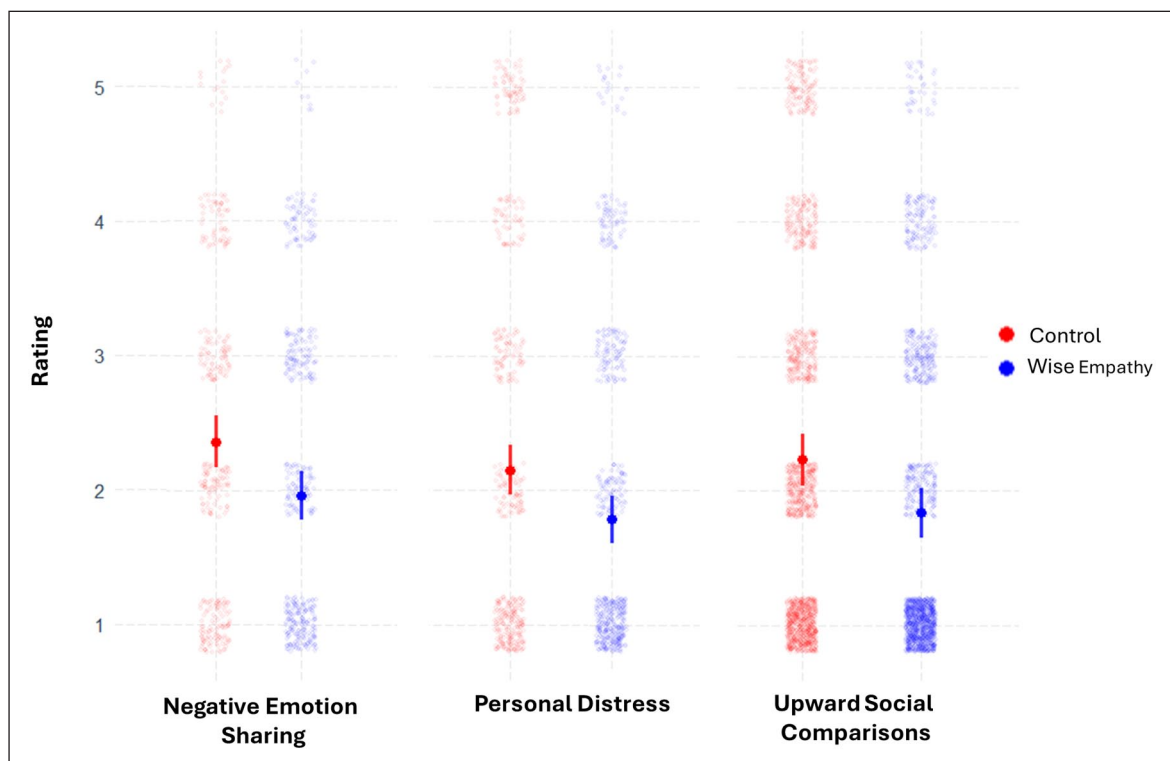


Figure 4. Unwise empathy on Instagram after intervention by condition.

Note. Plots negative emotion sharing, personal distress and upward social comparisons on Instagram after the onset of the intervention in the control and intervention conditions. Dots are individual observations; circles with lines are mean and standard error.

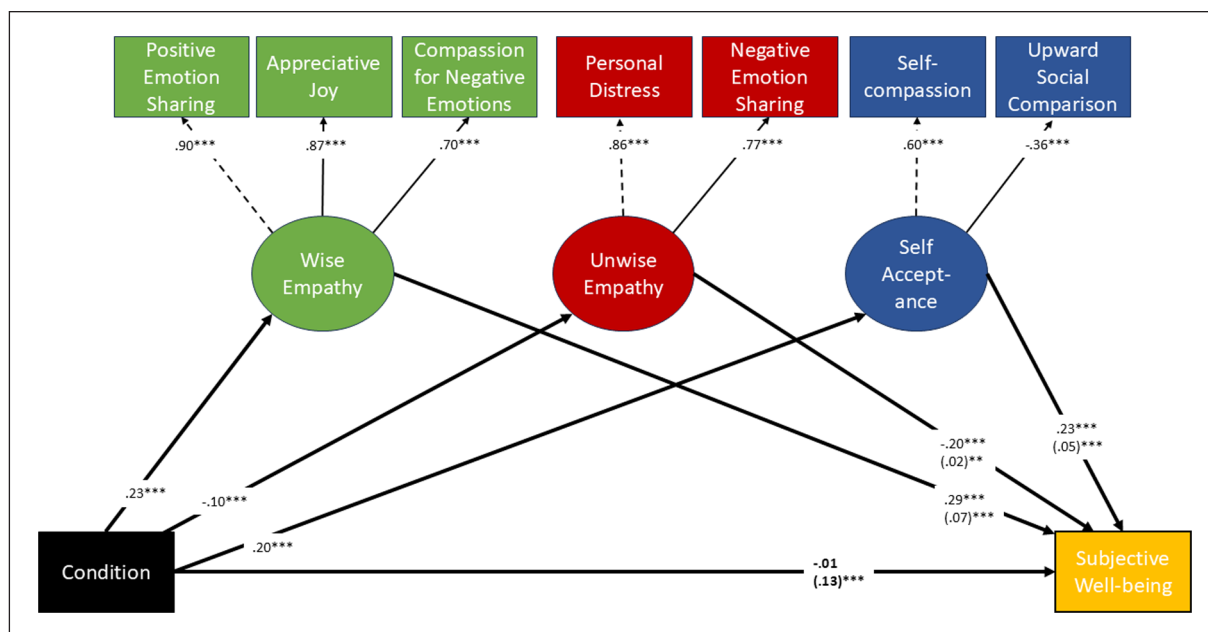


Figure 5. Mediation SEM of condition effect on well-being through wise empathy, unwise empathy and self-acceptance.

Note. A mediation SEM revealed that participants in the Intervention changed their empathic experience on Instagram, improving their well-being. Participants in the Wise Empathy Intervention experienced increased wise empathy, decreased unwise empathy and increased self-acceptance. These changes explained why the Intervention improved well-being on Instagram. Plot shows standardized path estimates for each path and unexplained variance of each variable. Not shown are (1) modelled covariances or (2) day predicting subjective well-being, which had a negligible effect. Model controlled for effect of baseline well-being on latent variables and well-being. For full details and model statistics, see supplementary material.

by wise empathy online, controlling for the effect of baseline subjective well-being on well-being after the intervention, $\beta = .506$, $z = 8.02$, $p < .001$, and for the negligible effect of survey day on well-being, $\beta = .005$, $z = 0.18$, $p = .856$, explained 72.3% of the variance in subjective well-being. The underlying measurement model, $\chi^2(7) = 33.36$, $p < .001$, RMSEA = .069, 90% CI [0.047, 0.094], SRMR = .030, CFI = .99, showed good fit,² and the full mediation model, $\chi^2(28) = 45.93$, $p = .018$, RMSEA = .037, 90% CI [.015, .055], SRMR = .029, CFI = .99, showed excellent fit. The total effect of the experimental condition on well-being was significant, $\beta = .123$, $z = 5.24$, $p < .001$, primarily driven by a significant indirect effect, $\beta = .133$, $z = 4.95$, $p < .001$, through our three mediators. Specifically, the intervention:

1. Increased wise empathy, $\beta = .231$, $z = 6.94$, $p < .001$, which positively predicted subjective well-being, $\beta = .289$, $z = 10.54$, $p < .001$, resulting in a significant indirect effect, $\beta = .067$, $z = 5.43$, $p < .001$.
2. Reduced unwise empathy, $\beta = -.103$, $z = -3.16$, $p = .002$, which negatively predicted subjective well-being, $\beta = -.206$, $z = -8.37$, $p < .001$, resulting in a significant positive indirect effect, $\beta = .021$, $z = 2.89$, $p = .004$.
3. Increased self-acceptance, $\beta = .199$, $z = 4.10$, $p < .001$, which positively predicted subjective well-being, $\beta = .226$, $z = 2.60$, $p = .009$, yielding a significant indirect effect, $\beta = .045$, $z = 2.25$, $p = .024$.

After accounting for the indirect effect, the remaining direct effect was non-significant, $\beta = -.009$, $z = -0.32$, $p = .753$, suggesting the effect was fully mediated by wise empathy, unwise empathy and self-acceptance, with wise empathy showing the strongest effect (Figure 5).

Discussion

As social media increasingly becomes a central part of daily life for billions, concerns about its impact on well-being have grown – alongside recognition that these effects vary. The key question is how to make its use better. Here, we show that a brief, scalable wise empathy intervention can improve well-being during real-world Instagram use. Our findings are ecologically valid because they are based on real experiences of participants' own feeds in everyday life (Balaskas et al., 2021; Shiffman et al., 2008). Our rich dataset of nearly 6,000 observations allows examination of both between and within-person effects.

The intervention increased digital 'wise' empathy experiences (appreciative joy, positive emotion sharing and compassion) and decreased 'unwise' empathy experiences (upward social comparisons, negative emotion sharing and personal distress). This shows empathy can be intentionally regulated online, supporting motivational perspectives (Weisz & Zaki, 2018; Zaki, 2014). These changes mediated the effect of the intervention on well-being, strengthening

causal conclusions with a manipulate-the-mediator approach (Pirlott & MacKinnon, 2016).

Notably, the intervention did not increase well-being across all contexts, but rather improved well-being specifically when participants had used Instagram, consistent with our context-dependent intervention. This study advances understanding of social media by moving beyond examining how social media impacts well-being to probe the mechanism. Specifically, we investigated the role of empathy experiences online and changed them through intervention. Our findings suggest that, rather than focusing solely on the overall effect of social media (Orben & Przybylski, 2019; Twenge & Campbell, 2019; Twenge et al., 2020, 2022), we should expand our focus to developing interventions that target specific psychological experiences online to improve well-being (Kross et al., 2021). In line with prior work (Midgley et al., 2021; Wirtz et al., 2021), upward social comparisons were higher online than offline, highlighting the need for wise empathy.

Our study advances understanding of empathy by showing how empathy can be regulated wisely online. The wise empathy framework explains positive and negative relationships between empathy and subjective well-being (Konrath & Grynberg, 2016) and sheds light on a long-standing debate about the utility of empathy (Bloom, 2017; Zaki, 2017). Our results encourage self-compassion (Neff, 2003), appreciative joy (Zeng et al., 2019) and compassion for negative emotions (Bloom, 2016), and discourage personal distress and upward social comparison (Aubry et al., 2024; Klimecki & Singer, 2011). We show emotion sharing should be up-regulated for positive emotions and down-regulated for negative emotions (Andreychik, 2019a; Morelli et al., 2015).

This paper extends earlier work on empathy regulation interventions (Depow et al., 2025), which used a laboratory-based design where participants browsed their own Instagram feed for 10min and were trained to regulate responses to positive emotions only. In contrast, the current study employs a more complex and ecologically valid design by using an ecological momentary intervention (EMI), where participants engage with their Instagram feeds in real time over several days. This design reduces demand effects by increasing the temporal distance between the intervention and the dependent variable assessment. Moreover, this study expands the intervention's scope by addressing both positive and negative emotions, teaching users to regulate their responses to both types of emotional experiences on social media. This approach provides a more nuanced understanding of how empathy regulation influences well-being, making it more applicable to the dynamic, multifaceted nature of real-world social media use.

Future work should address how wise empathy interventions impact digital behaviours of empathizers, particularly whether they increase the provision of social support. Given that receiving social support and empathy online leads the target to be more empathic and socially supportive

themselves (Chen & Xu, 2021), wise empathy may have positive ramifications for well-being beyond the sample targeted by the intervention. While this study advances the literature and has important strengths, it also has limitations worth noting.

Limitations and Future Directions

The current study has strengths such as ecological validity, a scalable intervention and an experimental design. Participants engaged with their own Instagram feeds in daily life and were encouraged to apply wise empathy during natural Instagram use, rather than being required to browse or practice at specific times. However, it also has important boundaries. The intervention was delivered through Avicenna rather than within Instagram. Future work should test whether wise empathy can be trained effectively through prompts or design features embedded within social media platforms. In addition, the post-intervention period was brief, necessitating future longitudinal studies to examine the durability of the effect. Finally, although the mediation model we present is consistent with the data, the current design cannot establish the causal ordering among wise empathy, unwise empathy and self-acceptance. More temporally refined laboratory studies could help tease apart the precise causal process.

Participants in the current sample were drawn mostly from the United States (92%), with smaller proportions from Canada (5%), the United Kingdom (2%) and New Zealand (<1%). As the sample is comprised of participants from Western, Educated, Industrialized, Rich and Democratic societies, generalizability to other, especially non-WEIRD cultures which make up the bulk of the global population, is unknown (Henrich et al., 2010). Furthermore, our intervention targeted Instagram, a platform that is commonly used by young adults and adolescents who are most at-risk for negative effects of social media (Orben et al., 2022). The features and affordances of Instagram may influence our results, and our findings may not generalize to other social media platforms. Future work is also needed to test whether wise empathy interventions generalize to populations for whom social media risk may be especially consequential, such as adolescents, and to offline contexts in which empathic engagement with suffering is frequent, such as medical practice.

This study relies on self-report, and we lack objective data to verify these reports. For example, we do not know how accurate individuals were in reporting time spent on social media, nor do we know how many empathy cues were present in their environment. Nevertheless, self-report is appropriate here, as it gives us information about these variables that is salient and memorable for each participant. Furthermore, intrapersonal empathy experiences may be best captured by self-report as it is an inherently subjective psychological phenomenon.

Our conception of wise empathy entails care for the target. However, in the current study we looked only at the subjective well-being of the empathizer. As empathy has important interpersonal functions (Main et al., 2017), future research is needed to examine how practising wise empathy impacts the target of empathy. Preliminary evidence suggests wise empathy regulation is likely to benefit targets as well as empathizers. Compassion is a powerful driver of prosocial motivation (Decety et al., 2016), and quality of care is rated higher when physicians experience compassion, but not when they share negative patient emotions (Gerger et al., 2024). While compassion predicts approach and prosocial motivation, personal distress predicts withdrawal and non-social behaviour (Singer & Klimecki, 2014).

On the positive emotion side, positive emotion sharing is a strong predictor of relationship satisfaction (Andreychik, 2019b), and appreciative joy predicts prosocial behaviour (Chong et al., 2022). Feeling positive with someone who is sharing good news (capitalization) is likely to facilitate a response that is perceived as ‘active-constructive’ because positive emotions boost enthusiastic responses (Kaczmarek et al., 2022). On the other hand, upward social comparisons have been associated with reduced prosocial behaviour (Yip & Kelly, 2013), and decreased relationship satisfaction (Thai et al., 2022). In addition, being the target of upward comparisons can lead to concerns about the other person’s response which predict lower positive and higher negative affect (Koch & Metcalfe, 2011). Overall, these results suggest that when empathizers feel compassion rather than personal distress, and appreciative joy rather than upward comparisons, targets will benefit. However, future research is needed to elucidate how practising wise empathy impacts the target of empathy.

Conclusion

Social media has fundamentally transformed how people connect and communicate. With billions of users worldwide, it is critical to understand how to browse wisely. Our findings demonstrate that a brief wise empathy intervention can improve how people engage with social media content, leading to enhanced well-being. By teaching wise empathy – regulating emotion sharing based on valence while maintaining compassion for self and others – we show that the impact of social media use can be actively shaped for the better. Beyond advancing theoretical understanding of social media and empathy, this work offers a practical, scalable approach to promoting well-being in an increasingly digital world. As social media becomes ever more central to modern life, the ability to engage wisely with emotions online may prove crucial not just for individual well-being, but for the health of our deeply connected global society.

Acknowledgements

The authors wish to acknowledge Amit Goldenberg for his assistance and insights and the Harvard Graduate School of Education Center for Digital Thriving.

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Ethical Considerations

This work received IRB approval, and all subjects gave informed consent.

Author Contributions

GJD: Conceptualization, Methodology, Investigation, Formal analysis, Visualization, Writing – original draft, Writing – review & editing. MI: Conceptualization, Supervision, Funding Acquisition, Writing – review & editing. EZ: Methodology, Visualization, Writing – review & editing. CO: Formal analysis, Supervision, Writing – review & editing.

Funding

The authors disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This work was funded by the Social Science and Humanities Research Council of Canada and the T. Deny Sanford Institute for Empathy and Compassion.

Declaration of Conflicting Interests

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

Data Availability Statement

Open access to data and code can be found at: <https://osf.io/yd549/>.

Supplemental Material

Supplemental material for this article is available online.

Notes

1. The intervention did not significantly change how participants used Instagram or how long they browsed.
2. Though the model showed good fit, 3/1,000 bootstrapped solutions were inadmissible, perhaps due to two of the latent factors having only two indicators. With the additional structure in the full model, this instability was no longer observed.

References

- Alfasi, Y. (2019). The grass is always greener on my friends’ profiles: The effect of Facebook social comparison on state self-esteem and depression. *Personality and Individual Differences*, 147, 111–117. <https://doi.org/10.1016/j.paid.2019.04.032>
- Andreychik, M. R. (2019a). Feeling your joy helps me to bear feeling your pain: Examining associations between empathy for others’ positive versus negative emotions and burnout. *Personality and Individual Differences*, 137, 147–156. <https://doi.org/10.1016/j.paid.2018.08.028>
- Andreychik, M. R. (2019b). I like that you feel my pain, but I love that you feel my joy: Empathy for a partner’s negative versus positive emotions independently affect relationship quality.

- Journal of Social and Personal Relationships*, 36(3), 834–854. <https://doi.org/10.1177/0265407517746518>
- Andreychik, M. R., & Migliaccio, N. (2015). Empathizing with others' pain versus empathizing with others' joy: Examining the separability of positive and negative empathy and their relation to different types of social behaviors and social emotions. *Basic and Applied Social Psychology*, 37(5), 274–291. <https://doi.org/10.1080/01973533.2015.1071256>
- Aubry, R., Quiamzade, A., & Meier, L. L. (2024). Depressive symptoms and upward social comparisons during Instagram use: A vicious circle. *Personality and Individual Differences*, 217, 112458. <https://doi.org/10.1016/j.paid.2023.112458>
- Avicenna Research. (2025). *Avicenna Research platform* [Computer software]. <https://avicennaresearch.com>
- Balaskas, A., Schueller, S. M., Cox, A. L., & Doherty, G. (2021). Ecological momentary interventions for mental health: A scoping review. *PLOS ONE*, 16(3), Article e0248152. <https://doi.org/10.1371/journal.pone.0248152>
- Bates, D., Mächler, M., Bolker, B. M., & Walker, S. C. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research*, 40(3), 373–400. https://doi.org/10.1207/s15327906mbr4003_5
- Baylis, P., Obradovich, N., Kryvasheyev, Y., Chen, H., Coviello, L., Moro, E., Cebrian, M., & Fowler, J. H. (2018). Weather impacts expressed sentiment. *PLOS ONE*, 13(4), Article e0195750. <https://doi.org/10.1371/journal.pone.0195750>
- Beyens, I., Pouwels, J. L., van Driel, I. I., Keijsers, L., & Valkenburg, P. M. (2020). The effect of social media on well-being differs from adolescent to adolescent. *Scientific Reports*, 10(1), 10763. <https://doi.org/10.1038/s41598-020-67727-7>
- Bloom, P. (2016). *Against empathy: The case for rational compassion* (First). HarperCollins. <https://www.harpercollins.com/products/against-empathy-paul-bloom>
- Bloom, P. (2017). Empathy and its discontents. *Trends in Cognitive Sciences*, 21(1), 24–31. <https://doi.org/10.1016/J.TICS.2016.11.004>
- Chen, Y., & Xu, Y. (2021). Exploring the effect of social support and empathy on user engagement in online mental health communities. *International Journal of Environmental Research and Public Health*, 18(13), 6855. <https://doi.org/10.3390/ijerph18136855>
- Cheung, F., & Lucas, R. E. (2014). Assessing the validity of single-item life satisfaction measures: Results from three large samples. *Quality of Life Research*, 23(10), 2809–2818. <https://doi.org/10.1007/s11136-014-0726-4>
- Chong, J. C., Prihadi, K. D., Hong, S. P. L., & Purwaningrum, E. K. (2022). Appreciative joy, nostalgia and prosocial behavior: A different approach on mental wellbeing maintenance. *International Journal of Public Health Science (IJPHS)*, 11(3), 823. <https://doi.org/10.11591/ijphs.v11i3.21722>
- Davis, M. (1983). Measuring individual differences in empathy: A multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113–126.
- de Boor, C. (2001). *A practical guide to splines*. Springer.
- Decety, J., Bartal, I. B.-A., Uzevsky, F., & Knafo-Noam, A. (2016). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical Transactions of the Royal Society B, Biological Sciences*, 371(1686), 20150077. <https://doi.org/10.1098/rstb.2015.0077>
- de Mello, V. O., Cheung, F., & Inzlicht, M. (2024). Twitter (X) use predicts substantial changes in well-being, polarization, sense of belonging, and outrage. *Communications Psychology*, 2(1), 1–11. <https://doi.org/10.1038/s44271-024-00062-z>
- Depow, G. J. (2024). *Wise empathy and well-being*. <http://hdl.handle.net/1807/140868>
- Depow, G. J., de Mello, V. O., & Inzlicht, M. (2025). A positive empathy intervention to improve well-being on Instagram. *Emotion*, 25(5), 1207–1224. <https://doi.org/10.1037/emo0001489>
- Depow, G. J., Francis, Z., & Inzlicht, M. (2021). The experience of empathy in everyday life. *Psychological Science*, 32(8), 1198–1213. <https://doi.org/10.1177/0956797621995202>
- Depow, G. J., & Inzlicht, M. (2026). How individual differences in empathy predict moments of empathy in everyday life. *Personality and Social Psychology Bulletin*, 52(8), 2529–2544. <https://doi.org/10.1177/01461672251333823>
- Diener, E., & Fujita, F. (1997). Social comparisons and subjective well-being. In B. P. Buunk & F. X. Gibbons (Eds.), *Health, coping, and well-being: Perspectives from social comparison theory* (pp. 329–357). Lawrence Erlbaum Associates Publishers.
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, 2(4), 253–260. <https://doi.org/10.1038/s41562-018-0307-6>
- Esarey, J., & Sumner, J. L. (2018). Marginal effects in interaction models: Determining and controlling the false positive rate. *Comparative Political Studies*, 51(9), 1144–1176. <https://doi.org/10.1177/0010414017730080>
- Fabi, S., Weber, L. A., & Leuthold, H. (2019). Empathic concern and personal distress depend on situational but not dispositional factors. *PLOS ONE*, 14(11), Article e0225102. <https://doi.org/10.1371/journal.pone.0225102>
- Fried, E. I., Proppert, R. K. K., & Rieble, C. L. (2023). Building an early warning system for depression: Rationale, objectives, and methods of the WARN-D study. *Clinical Psychology in Europe*, 5(3), Article e10075. <https://doi.org/10.32872/cpe.10075>
- Gerger, H., Munder, T., Kreuzer, N., Locher, C., & Blease, C. (2024). Lay perspectives on empathy in patient-physician communication: An online experimental study. *Health Communication*, 39(6), 1246–1255. <https://doi.org/10.1080/10410236.2023.2210380>
- Gleichgerrecht, E., & Decety, J. (2013). Empathy in clinical practice: How individual dispositions, gender, and experience moderate empathic concern, burnout, and emotional distress in physicians. *PLOS ONE*, 8(4), Article e61526. <https://doi.org/10.1371/journal.pone.0061526>
- Glück, J., & Weststrate, N. M. (2022). The wisdom researchers and the elephant: An integrative model of wise behavior. *Personality and Social Psychology Review*, 26(4), 342–374. <https://doi.org/10.1177/10888683221094650>
- Grossmann, I., Weststrate, N. M., Ferrari, M., & Brienza, J. P. (2020). A common model is essential for a cumulative science of wisdom. *Psychological Inquiry*, 31(2), 185–194. <https://doi.org/10.1080/1047840X.2020.1750920>
- Gunzler, D., Chen, T., Wu, P., & Zhang, H. (2013). Introduction to mediation analysis with structural equation modeling.

- Shanghai Archives of Psychiatry*, 25(6), 390–394. <https://doi.org/10.3969/j.issn.1002-0829.2013.06.009>
- Harness, J., Domoff, S. E., & Rollings, H. (2023). Social media use and youth mental health: Intervention-focused future directions. *Current Psychiatry Reports*, 25(12), 865–871. <https://doi.org/10.1007/s11920-023-01476-y>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, 466(7302), 29. <https://doi.org/10.1038/466029a>
- Irmer, A., & Schmiedek, F. (2023). Associations between youth's daily social media use and well-being are mediated by upward comparisons. *Communications Psychology*, 1(1), 1–13. <https://doi.org/10.1038/s44271-023-00013-0>
- Kaczmarek, L. D., Kashdan, T. B., Behnke, M., Dziekan, M., Matuła, E., Kosakowski, M., Enko, J., & Guzik, P. (2022). Positive emotions boost enthusiastic responsiveness to capitalization attempts. Dissecting self-report, physiology, and behavior. *Journal of Happiness Studies*, 23(1), 81–99. <https://doi.org/10.1007/s10902-021-00389-y>
- Kelly, C. A., & Sharot, T. (2025). Web-browsing patterns reflect and shape mood and mental health. *Nature Human Behaviour*, 9(1), 133–146. <https://doi.org/10.1038/s41562-024-02065-6>
- Kemp, S. (2025). *Digital 2025 April global statshot report* (Global Digital Reports). DataReportal. <https://datareportal.com/reports/digital-2025-april-global-statshot>
- Kim, H. (2014). Enacted social support on social media and subjective well-being. *International Journal of Communication*, 8, 2340–2342.
- Kim, H., & Han, S. (2018). Does personal distress enhance empathic interaction or block it? *Personality and Individual Differences*, 124, 77–83. <https://doi.org/10.1016/j.paid.2017.12.005>
- Klimecki, O., & Singer, T. (2011). Empathic distress fatigue rather than compassion fatigue? Integrating findings from empathy research in psychology and social neuroscience. In B. Oakley, A. Knafo, G. Madhavan, & D. S. Wilson (Eds.), *Pathological altruism* (pp. 368–383). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199738571.001.0001>
- Koch, E. J., & Metcalfe, K. P. (2011). The bittersweet taste of success: Daily and recalled experiences of being an upward social comparison target. *Basic and Applied Social Psychology*, 33(1), 47–58. <https://doi.org/10.1080/01973533.2010.539960>
- Konrath, S., & Grynberg, D. (2016). The positive (and negative) psychology of empathy. In D. Watt & J. Panksepp (Eds.), *Psychology and neurobiology of empathy* (pp. 63–107). Nova Science Publishers. <https://hdl.handle.net/1805/10596>
- Kristjánsson, K., Fowers, B., Darnell, C., & Pollard, D. (2021). Phronesis (practical wisdom) as a type of contextual integrative thinking. *Review of General Psychology*, 25(3), 239–257. <https://doi.org/10.1177/10892680211023063>
- Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in Cognitive Sciences*, 25(1), 55–66. <https://doi.org/10.1016/j.tics.2020.10.005>
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). lmerTest package: Tests in linear mixed effects models. *Journal of Statistical Software*, 82(13), 1–26. <https://doi.org/10.18637/jss.v082.i13>
- Lakens, D., & Evers, E. R. K. (2014). Sailing from the seas of chaos into the corridor of stability: Practical recommendations to increase the informational value of studies. *Perspectives on Psychological Science*, 9(3), 278–292. <https://doi.org/10.1177/1745691614528520>
- Lamm, C., Decety, J., & Singer, T. (2011). Meta-analytic evidence for common and distinct neural networks associated with directly experienced pain and empathy for pain. *NeuroImage*, 54(3), 2492–2502. <https://doi.org/10.1016/j.neuroimage.2010.10.014>
- Light, S. N., Moran, Z. D., Zahn-Waxler, C., & Davidson, R. J. (2019). The measurement of positive valence forms of empathy and their relation to anhedonia and other depressive symptomatology. *Frontiers in Psychology*, 10, Article 815. <https://doi.org/10.3389/fpsyg.2019.00815>
- Long, J. A. (2019). *Interactions: Comprehensive, user-friendly toolkit for probing interactions*. <https://cran.r-project.org/package=interactions>
- Main, A., Walle, E. A., Kho, C., & Halpern, J. (2017). The interpersonal functions of empathy: A relational perspective. *Emotion Review*, 9(4), 358–366. <https://doi.org/10.1177/1754073916669440>
- Maxwell, S. E., Kelley, K., & Rausch, J. R. (2008). Sample size planning for statistical power and accuracy in parameter estimation. *Annual Review of Psychology*, 59(1), 537–563. <https://doi.org/10.1146/annurev.psych.59.103006.093735>
- Midgley, C., Thai, S., Lockwood, P., Kovacheff, C., & Page-Gould, E. (2021). When every day is a high school reunion: Social media comparisons and self-esteem. *Journal of Personality and Social Psychology*, 121(2), 285–307. <https://doi.org/10.1037/pspi0000336>
- Morelli, S. A., Lieberman, M. D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass*, 9(2), 57–68. <https://doi.org/10.1111/spc3.12157>
- Murphy, B. A., Costello, T. H., & Lilienfeld, S. O. (2018). Is empathic contagion helpful or harmful? Overlooked heterogeneity in the empathy index. *Psychological Assessment*, 30(12), 1703–1708. <https://doi.org/10.1037/pas0000641>
- Murphy, B. A., Lilienfeld, S. O., & Algoe, S. B. (2022). Why we should reject the restrictive isomorphic matching definition of empathy. *Emotion Review*, 14(3), 167–181. <https://doi.org/10.1177/17540739221082215>
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. <https://doi.org/10.1080/15298860309027>
- Neff, K. D. (2016). Does self-compassion entail reduced self-judgment, isolation, and over-identification? A response to Muris, Otgaar, and Petrocchi (2016). *Mindfulness*, 7(3), 791–797. <https://doi.org/10.1007/s12671-016-0531-y>
- Neff, K. D., & Pommier, E. (2013). The relationship between self-compassion and other-focused concern among college undergraduates, community adults, and practicing meditators. *Self and Identity*, 12(2), 160–176. <https://doi.org/10.1080/1529886.8.2011.649546>
- 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., & Przybylski, A. K. (2019). Screens, teens, and psychological well-being: Evidence from three time-use-diary studies. *Psychological Science*, 30(5), 682–696. <https://doi.org/10.1177/0956797619830329>

- Orben, A., Przybylski, A. K., Blakemore, S.-J., & Kievit, R. A. (2022). Windows of developmental sensitivity to social media. *Nature Communications*, 13(1), Article 1649. <https://doi.org/10.1038/s41467-022-29296-3>
- Ostic, D., Qalati, S. A., Barbosa, B., Shah, S. M. M., Galvan Vela, E., Herzallah, A. M., & Liu, F. (2021). Effects of social media use on psychological well-being: A mediated model. *Frontiers in Psychology*, 12, Article 678766. <https://doi.org/10.3389/fpsyg.2021.678766>
- Perperoglou, A., Sauerbrei, W., Abrahamowicz, M., & Schmid, M. (2019). A review of spline function procedures in R. *BMC Medical Research Methodology*, 19(1), 46. <https://doi.org/10.1186/s12874-019-0666-3>
- Pirlott, A. G., & MacKinnon, D. P. (2016). Design approaches to experimental mediation. *Journal of Experimental Social Psychology*, 66, 29–38. <https://doi.org/10.1016/j.jesp.2015.09.012>
- Preckel, K., Kanske, P., & Singer, T. (2018). On the interaction of social affect and cognition: Empathy, compassion and theory of mind. *Current Opinion in Behavioral Sciences*, 19, 1–6. <https://doi.org/10.1016/J.COBEHA.2017.07.010>
- R Core Team. (2024). R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>
- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(1), 1–36. <https://doi.org/10.18637/jss.v048.i02>
- Schurz, M., Radua, J., Tholen, M. G., Maliske, L., Margulies, D. S., Mars, R. B., Sallet, J., & Kanske, P. (2021). Toward a hierarchical model of social cognition: A neuroimaging meta-analysis and integrative review of empathy and theory of mind. *Psychological Bulletin*, 147(3), 293–327. <https://doi.org/10.1037/bul0000303>
- Shi, Y., Luo, Y. L. L., Liu, Y., & Yang, Z. (2019). Affective experience on social networking sites predicts psychological well-being off-line. *Psychological Reports*, 122(5), 1666–1677. <https://doi.org/10.1177/0033294118789039>
- Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. *Annual Review of Clinical Psychology*, 4(1), 1–32. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091415>
- Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology*, 24(18), R875–R878. <https://doi.org/10.1016/j.cub.2014.06.054>
- Stellar, J. E., & Duong, F. (2023). The little black box: Contextualizing empathy. *Current Directions in Psychological Science*, 32(2), 111–117. <https://doi.org/10.1177/09637214221131275>
- Stosic, M. D., Blanch-Hartigan, D., Aleksanyan, T., Duenas, J., & Ruben, M. A. (2022). Empathy, friend or foe? Untangling the relationship between empathy and burnout in helping professions. *The Journal of Social Psychology*, 162(1), 89–108.
- Thai, S., Lockwood, P., & Page-Gould, E. (2022). The ups and downs of being us: Cross-relationship comparisons in daily life. *Personality and Social Psychology Bulletin*, 48(12), 1717–1736. <https://doi.org/10.1177/01461672211056774>
- Tuck, A. B., & Thompson, R. J. (2025). United States adults' social media use and digital emotion regulation in everyday life: The potential of social media to be harnessed for mental health. *Personality and Individual Differences*, 240, 113139. <https://doi.org/10.1016/j.paid.2025.113139>
- Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly*, 90(2), 311–331. <https://doi.org/10.1007/s11126-019-09630-7>
- Twenge, J. M., Haidt, J., Blake, A. B., McAllister, C., Lemon, H., & Le Roy, A. (2021). Worldwide increases in adolescent loneliness. *Journal of Adolescence*, 93, 257–269. <https://doi.org/10.1016/j.adolescence.2021.06.006>
- Twenge, J. M., Haidt, J., Joiner, T. E., & Campbell, W. K. (2020). Underestimating digital media harm. *Nature Human Behaviour*, 4, 346–348. <https://doi.org/10.1038/s41562-020-0839-4>
- Twenge, J. M., Haidt, J., Lozano, J., & Cummins, K. M. (2022). Specification curve analysis shows that social media use is linked to poor mental health, especially among girls. *Acta Psychologica*, 224, 103512. <https://doi.org/10.1016/j.actpsy.2022.103512>
- Vaid, S. S., Kroencke, L., Roshanaei, M., Talaifar, S., Hancock, J. T., Back, M. D., Gosling, S. D., Ram, N., & Harari, G. M. (2024). Variation in social media sensitivity across people and contexts. *Scientific Reports*, 14(1), 6571. <https://doi.org/10.1038/s41598-024-55064-y>
- Weisz, E., & Cikara, M. (2021). Strategic regulation of empathy. *Trends in Cognitive Sciences*, 25(3), 213–227. <https://doi.org/10.1016/j.tics.2020.12.002>
- Weisz, E., & Zaki, J. (2018). Motivated empathy: A social neuroscience perspective. *Current Opinion in Psychology*, 24, 67–71. <https://doi.org/10.1016/j.copsyc.2018.05.005>
- Wirtz, D., Tucker, A., Briggs, C., & Schoemann, A. M. (2021). How and why social media affect subjective well-being: Multi-site use and social comparison as predictors of change across time. *Journal of Happiness Studies*, 22(4), 1673–1691. <https://doi.org/10.1007/s10902-020-00291-z>
- Yip, J. J., & Kelly, A. E. (2013). Upward and downward social comparisons can decrease prosocial behavior. *Journal of Applied Social Psychology*, 43(3), 591–602. <https://doi.org/10.1111/j.1559-1816.2013.01039.x>
- Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin*, 140(6), 1608–1647. <https://doi.org/10.1037/a0037679>
- Zaki, J. (2017). Moving beyond stereotypes of empathy. *Trends in Cognitive Sciences*, 21(2), 59–60. <https://doi.org/10.1016/J.TICS.2016.12.004>
- Zeng, X., Chan, V. Y. L., Oei, T. P. S., Leung, F. Y. K., & Liu, X. (2017). Appreciative joy in Buddhism and positive empathy in psychology: How do they differ? *Mindfulness*, 8(5), 1184–1194. <https://doi.org/10.1007/s12671-017-0690-5>
- Zeng, X., Wang, R., Oei, T. P. S., & Leung, F. Y. K. (2019). Heart of joy: A randomized controlled trial evaluating the effect of an appreciative joy meditation training on subjective well-being and attitudes. *Mindfulness*, 10(3), 506–515. <https://doi.org/10.1007/s12671-018-0992-2>

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