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The Experience of Empathy in Everyday Life

Gregory John Depow

Zoë Francis

Michael Inzlicht

University of Toronto

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Abstract

We used experience-sampling to examine perceptions of empathy in the everyday lives of a group of 246 U.S. adults, quota-sampled to represent the population on key demographics. Participants reported an average of about 9 opportunities to empathize per day, with these experiences being positively associated with prosocial behaviour; a relationship not found with trait measures. While much of the literature focuses on the distress of strangers, in everyday life, people mostly empathize with very close others; and they empathize with positive emotions three times as frequently as with negative emotions. Though trait empathy was only negatively associated with well-being, empathy in daily life was generally associated with increased well-being. Theoretically distinct components of empathy—emotion sharing, perspective taking, and compassion—typically co-occur in everyday empathy experiences. Finally, empathy in everyday life was higher for women and the religious, but not significantly lower for conservatives or the wealthy.

Relevance Statement

Empathy allows us to connect with others by taking their perspective, sharing their emotions, and feeling compassion for them. This ability, coupled with unprecedented access to the emotional experiences of other people, should lead to increased social connectedness. Instead, self-reports of empathy are declining, and loneliness is on the rise. Here, we provide an important step to combatting these trends by understanding how individuals are perceiving and responding to the deluge of empathy cues, they are exposed in everyday life. We find that people often report empathy opportunities, and often report experiencing empathy given the opportunity. The current study provides a novel description and rich, representative dataset of empathy experiences in everyday life across a range of social and emotional contexts. It tests connections between empathy and subjective well-being as well as empathy and real-life prosocial acts, while bringing data to bear on a number of important and unresolved questions.

Main Text

Introduction

Empathy—understanding, sharing, and caring about the emotions of others—is important for individuals, fundamental to relationships (Kimmes et al., 2014), and critical for large group living (Decety et al., 2016). Unfortunately, evidence suggests empathy is on the decline (Konrath, O'Brien, & Hsing, 2011). Despite the wealth of experiments on empathy, we lack a descriptive account of how it is experienced in daily life. Experimentation is critical, but description is also necessary, and has too often been neglected in psychology (Rozin, 2001). Much of what we know about empathy has been established in laboratory settings – meaning we do not yet know whether these findings are generalizable to the real world.

The current study advances our understanding of empathy by moving it ‘into the wild’—asking people directly about their experiences of empathy in everyday life. We aim to answer important, unaddressed questions. How often do people perceive empathy opportunities, and how often do they empathize? What types of empathy do people most often report feeling? Who do people most often empathize with? In addition, we test *preregistered* (rb.gy/kfnkab) hypotheses that empathy is associated with increased subjective well-being and increased rates of prosocial behavior in daily life. We further examine relationships between empathy in daily life and individual difference measures, including gender, religiosity, income, and political orientation.

Describing Empathy in Daily Life

The inconsistency with which empathy has been defined has been rightfully criticized (Hall & Schwartz, 2019), but many researchers think empathy involves sharing someone’s emotion (an emotional process), taking someone’s perspective (a cognitive process), and feeling compassionate and wanting to help (a motivational process). There is no consensus about whether these components – emotion-sharing, perspective-taking, and compassion – are distinct or different sides of the same empathy construct (Zaki, 2017). There is evidence they can be differentiated (Winter et al., 2017). However, these components may be tightly intertwined for most people, even if they are technically dissociable (Fiske, 2009; Zaki & Ochsner, 2012). The lack of clarity around whether the components of empathy co-occur contributes to the general confusion about how to define empathy (Batson, 2009; Cuff et al., 2014). Unfortunately, few studies have actually examined empathy in daily life to test the perceived co-occurrence of emotion sharing, perspective taking, and compassion.

Our approach addresses limitations of prior research by improving ecological validity (Schreier et al., 2013), while examining multiple emotions across a range of social contexts (Morelli et al., 2014a) – Contexts studied in the lab may or may not match the contexts in which empathy occurs in daily life. For example, many studies on empathy examine how people empathize with strangers, although evidence suggests that people are biased to feel more empathy for close others (Cikara et al., 2011; Meyer et al., 2013). With the current approach, we can examine the closeness of real-life empathy targets.

Similarly, research on empathy has typically focused on observed pain. If unchecked, a non-representative focus in the research can distort our understanding of empathy. For example, a meta-analysis of the neuroscience of empathy suggested that the dorsal ACC and bilateral AI formed part of a core empathy network (Fan et al., 2011), but more recent work has shown that

this consistent activation may be due to the over-representation of empathy for pain in the fMRI literature (Morelli et al., 2014b). Without an account of how empathy is generally experienced in daily life, we cannot be certain that other conclusions drawn from the literature do not face similar issues. Increasingly, empathy for positive emotions is recognized as important (Andreychik & Migliaccio, 2015; Morelli et al., 2015; Telle & Pfister, 2012). The current study describes whether people report experiencing empathy more often in response to positive or negative emotions, and whether these lead to differential outcomes.

Correlates of Empathy in Daily Life

Feeling empathy may affect one's own subjective well-being, although evidence is mixed. Some argue that empathy leads to increased well-being, while others that it leads to burnout and social withdrawal (review in Konrath & Grynberg, 2016). Some contend empathy is neither positive or negative, but results in either compassion or personal distress, which have distinct phenomenology and consequences (Singer & Klimecki, 2014). It is not clear whether the complexity of real-life social interactions will respect the boundaries of these taxonomies. In this study, we examine real-life perceptions of empathy to determine how different empathy experiences affect subjective well-being in the daily lives of the general population.

In the lab, feeling empathy often promotes prosocial behavior (for review, see Davis et al., 2015), but there is also evidence that empathy can promote antisocial behaviors such as hyper-competition (Pierce et al., 2013) and even immorality (Batson et al., 1995). In the current study we thus examine whether—and under what circumstances—empathy is associated with prosocial behavior in the context of everyday life.

An experience sampling approach can uncover relationships that trait measures miss, due to reduced recall bias and the ability to parse within-subject variability from between-subject variability (Runyan et al., 2019; Shiffman et al., 2008). The current study allows us to compare the predictive power of trait and state measures of empathy in predicting prosocial behavior and subjective well-being.

When individuals engage in moral acts, they may feel licensed to engage in subsequent immoral acts, an effect known as moral licensing (Merritt et al., 2010). While lab-based research on this effect has been underpowered (Blanken et al., 2015) and subject to publication bias (Kuper & Bott, 2019), experience sampling research has found that performing a moral act at time 1 has a 'licensing' effect, such that a moral act time 2 is less likely to occur (Hofmann et al., 2014). Here we test whether empathy shows a similar licensing effect, or whether instead empathy at time 1 might increase the chance of experiencing empathy again at time 2—as a sort of *empathy facilitation* effect.

Who Feels Empathy in Daily Life

Empathy varies across demographic variables including geographic region (Bach et al., 2017), age (O'Brien et al., 2013), ethnicity (Chiao & Mathur, 2010), education (Ward et al., 2012), income (Stellar et al., 2012) and gender (Christov-Moore et al., 2014). Therefore, we used quota-sampling obtain a sample that was representative on these parameters. In light of prior findings, we performed *preregistered* tests of the hypothesis that women are more empathic than men. Research also suggests religiosity (Watson et al., 1984) and liberalism (Hasson et al., 2018) are

associated with increased empathy, while income is associated with reduced compassion (Stellar et al., 2012). We thus performed non-preregistered analyses of these relationships.

Materials and Methods

Study Design

Researchers have called for increased ecological validity (Schreiter et al., 2013) and demonstrated that experience sampling may uncover associations that global reports miss (Billeke et al., 2015; Runyan et al., 2019). Thus, in the current study we took a mixed methods approach, combining established trait measures of empathy with experience sampling. We add to a small list of studies that have examined empathy with experience sampling or ecological momentary assessment (Grühn et al., 2008; Nezlek et al., 2001). This allows us to explore within-person differences that have historically been neglected in empathy research (Duan & Hill, 1996), and to examine causal heterogeneity, which is an under-looked problem in psychology more generally (Bolger et al., 2018).

Procedure

Sampling strategy. Given that empathy varies across demographic variables (Bach et al., 2017; Chiao & Mathur, 2010; Christov-Moore et al., 2014; O'Brien et al., 2013; Stellar et al., 2012), we used quota-sampling to obtain a sample representative of the U.S. population on key demographic parameters. To this end, 3,486 potential participants answered a demographic questionnaire, where they also provided informed consent about participating in a 'Daily Interactions' study. In cooperation with the survey company Qualtrics (Qualtrics®, 2002; www.qualtrics.com) we selected 841 individuals from this pool of respondents to invite, using quota-sampling to match our sample to U.S. census data on sex, ethnicity, education, geographic region, income, and age. In the current study, we use the term representative to mean representative on these six parameters.

Figure 1. Flow chart of procedure. *Note: While 285 participants completed at least 1 experience-sampling survey, N = 39 were excluded for having fewer than 7 surveys according to our preregistration, leaving a final sample size of N = 246 to be analyzed.

Though not a true random sample, this approach represents a significant improvement over convenience samples used in much of psychological research. A total of 376 participants responded to our email to complete the baseline survey, and 285 went on to download an app and complete experience sampling. Given logistic demands of the study, we planned for high attrition in our sampling strategy.

We ran a number of simulations (Figure S1) to determine the sample size required to accurately estimate the frequency of empathy in daily life. We also consulted previous research on the sample size required to enter the ‘corridor of stability’ for parameter (Maxwell, Kelley, & Rausch, 2008) and correlation (Schönbrodt & Perugini, 2013) estimates. We preregistered a sample of $N = 300$, but simulations and prior research suggested we would enter the corridor of stability between 200 and 300 participants. Practical considerations, mainly financial, halted collection at $N = 285$.

Sensitivity analyses further suggest this sample size has 80% power to detect between-subject effects of $d = 0.33$ or greater. At the survey level, we had 80% power to detect between and within-subject effects of $d = .18$, and $d = .08$, respectively.

We preregistered removing participants who answered less than 7 experience sampling surveys, resulting in a final sample ($N = 246$) that was representative of the population (Figure S2-S7) as well as adequately powered to make precise estimates about the frequency of empathy and its correlation with prosocial behavior and well-being. During experience sampling, participants answered a total of 7,343 surveys, providing a rich and ecologically valid dataset. We preregistered our hypotheses and design, and provide open access to materials, code, and data for transparency and the benefit of other researchers (rb.gy/twelvl).

Data collection and compensation. Once participants were recruited, they completed a baseline survey which included demographic information including socioeconomic status, religiosity, political orientation, as well as the Interpersonal Reactivity Index (Davis, 1983), the Empathy Index (Jordan, Amir, & Bloom, 2016), the Empathy Selection Task (Cameron et al., 2019), a Big-5 measure of personality (Soto & John, 2017), and other measures (Material S1).

Because the definition of empathy is not always clear among researchers (Batson, 2009; Hall & Schwartz, 2019) or laypeople (Hall et al., 2020) alike, our baseline survey provided a glossary of terms that participants would later report on. We defined what we meant by: empathy opportunity, empathy, emotion-sharing, perspective-taking, compassion, and prosocial acts (Material S2). Providing definitions ensured our participants would be answering questions about the same concepts, with the possible trade-off of introducing demand. The baseline survey also included instructions to download the experience sampling app ‘MetricWire’ (MetricWire®, 2013; www.metricwire.com).

We used the MetricWire app to prompt participants 7 times a day between 10am and 10pm for one week to complete short, signal-contingent surveys (Material S3). Survey triggers occurred semi-randomly—i.e. randomly within 90-minute windows with minimum 15-minute gaps—and expired after 20 minutes. We asked participants about their current happiness and sense of purpose as a measure of subjective well-being. We also asked whether, in the last 15 minutes, they had (a) performed a prosocial act; (b) had an opportunity to experience empathy; and (c) had an opportunity to receive empathy.

If they indicated that they had had an opportunity to experience or receive empathy, we probed for further details. For example, we asked how close they were to the other person involved. When participants had an opportunity to empathize themselves, we asked them to rate the

valence of the emotion they observed on a 1-7 scale—from extremely negative to extremely positive. We asked whether they had actually experienced empathy at the time, and if so, whether this experience involved emotion sharing, perspective taking, and compassion in turn. For each component that was reported, we asked about extent, difficulty, and confidence. Surveys involved branches that were effort-matched so that participants would see the same number of questions regardless of their responses. This prevented participants from simply saying “no” to any question as a means to complete a survey more quickly.

Instead of the typical experience sampling questions, the final experience sampling survey re-administered select trait empathy measures that had been previously completed at baseline, in order to assess stability of trait empathy (see Material S3).

Participants earned \$18 USD minimum for participating, along with a bonus of \$7 USD if they completed 80% or more of the experience sampling surveys. Answering 100% of the surveys would take about 2 hours total.

Statistical Analysis

We hypothesized that empathy would be related to subjective well-being and prosocial behavior in daily life, but there were many aspects of empathy. Thus, we preregistered an exploratory approach where we tested each component as a single predictor and adjusted the p-values of a given research question—e.g. daily empathy is associated with increased subjective well-being as a within-person effect—to control the False Discovery Rate (Benjamini & Hochberg, 1995).

We used generalized mixed-effects models (multilevel logistic regression) for binary outcome variables such as empathy opportunity, prosocial behavior, and empathy. When the outcome variable was continuous, such as extent of empathy or subjective well-being, we used mixed-effects models (multi-level linear models). All multilevel models were nested within participant nested within survey day as random intercepts. Linear models were employed for tests of between-person effects predicting outcomes measured only once, such as testing whether demographic variables predicted the number of surveys answered.

For continuous outcome variables, we used participant-centered variables as predictors to test within-person effects, and grand-mean centered variables as predictors for between-person effects. For binomial predictors, we used dummy-coded (1 for yes, 0 for no) responses for testing within-person effects, and grand-mean centered average proportion of yes responses of a participant for testing between-person effects. To illustrate, a participant who reported empathy opportunities on 40% of surveys would receive a score of 0.40, which would be grand-mean centered and entered into the multilevel model as a single predictor nested within participant and survey day to test for between-person effects of tendency to report empathy opportunities.

Data was analyzed in R (R Team, 2019). Multilevel models were constructed with lmer and glmer functions using the ‘lme4’ package (Bates et al., 2016) and linear models with the lm function in the built-in ‘stats’ package. Model statistics were calculated with the summaryh function from the ‘hausekeep’ package (Lin, 2019), including a validated effect size ‘r’ for fixed effects in multilevel models derived from R^2 (Edwards et al., 2008) that has previously been used in the literature (e.g. Francis et al., 2020). For continuous data, beta estimates indicate the model estimated

change in the DV associated with a one-unit change in the predictor. For binomial data, beta estimates indicate the log odds ratio of a yes response holding all other covariates constant. Predictors were grand-mean or participant-mean centered as appropriate (Kleiman, 2017) and p-values were corrected with the p.adjust function from the 'stats' package following the false discovery rate procedure (Benjamini & Hochberg, 2007). Given space constraints and the richness of this dataset, we do not present results of all preregistered analyses in the current manuscript.¹ Full survey materials are available, along with de-identified data, analysis code, and supplementary materials (rb.gy/twelvl).

Results

Empathy in Everyday Life

Our data suggests that people commonly experience empathy in daily life. Examining the raw data, individuals reported perceiving an empathy opportunity *in the last 15 minutes* across 19% of all surveys (Figure 2; $M = 0.19$, $SD = 0.39$, 95% CI = [0.18, 0.20]), and reported perceiving an opportunity to receive empathy in the last 15 minutes across 12% of surveys ($M = 0.12$, $SD = 0.32$, 95% CI = [0.11, 0.13]). Participants had been instructed that an opportunity to empathize was defined as any exposure to others' emotions (see Material S2), such as reading a sad status from a friend on social media, or a watching a stranger laugh. Looking at the mean of participant means yields similar rates ($M = 0.21$, $SD = 0.20$, 95% CI = [0.18, 0.23]; $M = 0.13$, $SD = 0.18$, 95% CI = [0.11, 0.15]), showing these estimates are not unduly influenced by response rate bias.

Note. Pathways are weighted to the number of surveys going through each pathway (except for the no empathy/no prosocial behaviour pathway, has its width truncated as indicated by the dotted line).

¹ The richness of the dataset and diversity of preregistered questions means that some of preregistered questions are best addressed in separate papers. Importantly, other manuscripts using this data will be non-overlapping, addressing distinct preregistered questions. See Table S3.

Figure 2. Sankey network diagram describing the number of each type of event. Beginning on the left, the diagram illustrates whether or not an empathy opportunity was reported. The valence ratings of reported opportunities, and whether or not participants actually felt empathy is displayed next. Finally, the right side of the diagram displays whether a prosocial behaviour was reported or not in the same 15-minute timeframe.

Using participant means from our data, we provide a rough estimate that—over the course of a 12 hour day—an average individual may perceive 8.92 opportunities to empathize ($SD = 9.93$, $95\% CI = [7.68, 10.16]$) and perceive 5.71 opportunities to receive empathy ($SD = 8.87$, $95\% CI = [4.60, 6.82]$). These estimates may underestimate how often empathy opportunities are truly perceived, given that (i) participants were only able to report on a single empathy opportunity from the prior 15 minutes, whereas multiple opportunities may have occurred during that time period, and (ii) participants may have forgotten or failed to report an opportunity to empathize. Alternatively, these estimates may overestimate the true perceived frequency, as participants may feel demand to report empathy opportunities and empathy within the context of the study due to social desirability, or they may prefer to answer surveys when they have an opportunity to report. However, these initial estimates suggest that experiencing and receiving empathy occur frequently enough to have a significant psychological impact.

Missed Opportunities. If participants reported no opportunity to empathize, they were later asked if they had observed the emotions of another person in the same timeframe. They responded affirmatively to this question on roughly 9% of occasions ($M = 0.09$, $SD = 0.29$, $95\% CI = [0.09, 0.10]$). Based on the definition participants were taught and tested on at baseline (Material S3), these emotional exposures were, by definition, opportunities to empathize. Therefore, participants missed numerous empathy opportunities in daily life, even when the cue was salient enough to be noticed. These findings are in line with research showing that empathy opportunities are often missed, for example, in physician patient interactions (e.g. Giroldi et al., 2020; Morse et al., 2008).

When an opportunity was reported, participants reported actually feeling empathy 88% of the time ($M = 0.88$, $SD = 0.32$, $95\% CI [0.86, 0.90]$). The same was true when the participant reported an opportunity to receive empathy – they reported actually receiving empathy in 88% of these opportunities ($M = 0.88$, $SD = 0.23$, $95\% CI = [.87, 0.90]$). These data suggest that people often experience empathy after noticing an opportunity, but also miss many opportunities in daily life. These missed opportunities may help to reconcile the discrepancy between the very high rates of choosing to empathize we observed in daily life, and the tendency to avoid empathy previously observed in the lab using the empathy selection task (Cameron et al., 2019).

Components of Empathy. When engaging in empathy, which facets of empathy do people report? In the current study, the co-occurrence of the three different components was very high. All three of emotion sharing, perspective-taking, and compassion were reported to occur together 75% of the time, with a single component occurring in isolation in only 5% of cases (Figure 3). Participants nearly always reported feeling compassion (94%), while perspective-taking was the least frequently reported (85%). When participants reported a component, they were asked to rate the extent to which it occurred—for example: the extent to which they felt compassion or shared the person's emotion. Component extent ratings showed significant medium correlations from $r = 0.45$ to 0.49 . These data provide evidence that theoretically distinct components of empathy tend to co-occur and interact during the complex social interactions of daily life (Zaki & Ochsner, 2012).

Figure 3. Area of each circle reflects the relative proportion of the three components of empathy occurring individually or concurrently when empathy is reported. The large middle circle shows the 75% of occurrences where all three facets co-occurred, and the three circles in the light grey ring reflect cases where only two facets co-occurred. Not shown, on 1% of reports, participants said no to all three of the empathy components.

Contexts of Empathy. Participants rated how close they were to the other person in each empathy experience on a 1-7 scale from “total stranger” to “very close relationship”. In most cases (57%), participants reported on an opportunity to empathize with someone with whom they had a very close relationship. In only 6% of cases did participants report on an opportunity to empathize with a total stranger. Participants were not significantly more likely to empathize ($b = 0.12$, $SE = 0.07$, $z = 1.74$, $p = .082$, $r = 0.03$) as closeness increased. When empathy occurred, participants exhibited a small effect of empathizing to a greater extent as closeness increased ($b = 0.09$, $SE = 0.02$, $t(1023) = 5.11$, $p < .001$, $r = 0.16$). These results stand in contrast to the empathy literature, where the modal experience of empathy involves a stranger as the target.

In a similar vein—while “distress is the typical emotion of the object when the term empathy is used” (Preston, 2007, p. 436) in the literature—in our data participants reported perceiving an opportunity to empathize with a positive emotion (65.8%) about 3 times as often as they reported on an opportunity to empathize with negative emotions (21.3%), with the remainder (12.9%)

being mixed valence. Not only were positive emotions reported as empathy opportunities more often, participants reported empathizing to a greater extent as valence became more positive ($b = 0.11$, $SE = 0.02$, $t(991) = 6.61$, $p < .001$, $r = 0.21$), though the effect is small. Taken together, these data suggest that in daily life, empathy for positive emotions is a more common and more extensive experience than empathy for negative emotions, underscoring recent calls in the literature for more attention to this side of the empathy experience (Morelli et al., 2015).

Empathy and Efficacy. In prior work researchers have demonstrated that some individuals are more empathically accurate than others, and this accuracy has real-life consequences for relationships (Ickes, 1993; Sened et al., 2017). But not only does actual empathic accuracy matter; experimental research has demonstrated that perceptions of empathic accuracy can affect people's willingness to empathize with others, regardless of actual empathic accuracy (Cameron et al., 2019). People who believe that their empathizing is more accurate and effective are less likely to avoid empathy opportunities. Thus, in the current study, we asked participants how subjectively difficult their empathy experiences were, and how (subjectively) confident they were about the accuracy of their empathy. It is unknown the extent to which these perceptions of accuracy map onto actual accuracy.

However, participants' sense of confidence and difficulty when empathizing were important factors for their empathy and broader experience. Confidence and difficulty during empathy experiences impacted subjective well-being (Table 1). Further, participants reported empathizing to a greater extent as their confidence increased ($b = 0.54$, $SE = 0.04$, $t(998) = 14.76$, $p < .001$, $r = 0.42$), a medium effect, and to a lesser extent as difficulty increased ($b = -0.21$, $SE = 0.03$, $t(982) = -8.20$, $p < .001$, $r = 0.25$), a small effect.

Daily empathy predictor of subjective well-being	Within-Subject Effects				Between-Subject Effects			
	t or z-score	Adjusted p-value	Estimate (SE)	Effect size (r)	t or z-score	Adjusted p-value	Standard error	Effect size
Empathy opportunity	6.72	< .001 ***	0.18 (0.03)	0.08	4.39	< .001***	1.81 (0.41)	0.27
Empathy (yes/no)	3.08	.003**	0.25 (0.09)	0.09	0.96	.340	0.34 (0.36)	0.06
Emotion share (yes/no)	2.5	.015*	0.21 (0.09)	0.08	1.29	.211	0.43 (0.33)	0.09
Perspective take (yes/no)	-1.24	.214	-0.10 (0.08)	0.04	1.29	.211	0.43 (0.33)	0.09
Compassion (yes/no)	2.02	.050*	0.26 (0.13)	0.06	3.29	.002**	1.31 (0.40)	0.22
Emotion share extent	3.25	.002**	0.08 (0.03)	0.11	3.86	< .001***	0.35 (0.09)	0.26
Perspective take extent	2.96	.004**	0.06 (0.02)	0.10	4.46	< .001***	0.35 (0.08)	0.30
Compassion extent	5.61	< .001***	0.16 (0.03)	0.18	4.62	< .001***	0.50 (0.11)	0.31
Personal distress extent	-9.71	< .001***	-0.14 (0.01)	0.28	-6.83	< .001***	-0.38 (0.06)	0.42
Empathy extent (ES, PT, Comp.)	5.73	< .001***	0.17 (0.03)	0.18	5.63	< .001***	0.55 (0.10)	0.36
Empathy difficulty	-4.61	< .001***	-0.12 (0.03)	0.15	-3.19	.002**	-0.25 (0.08)	0.21
Empathy confidence	6.98	< .001***	0.26 (0.04)	0.22	4.48	< .001***	0.49 (0.11)	0.29
Extent of empathy received	5.16	< .001***	0.20 (0.04)	0.20	5.37	< .001***	0.56 (0.10)	0.37
Valence of observed emotion	10.31	< .001***	0.15 (0.01)	0.29	11.69	< .001***	0.17 (0.01)	0.31
Opportunity to receive empathy	1.28	0.213	0.04 (0.03)	0.02	2.34	.025*	1.12 (0.48)	0.15

Table 1. Daily empathy measures predicting well-being. * $p < .05$, ** $p < .01$, *** $p < .001$. Shows the within-person and between-person effects of different aspects of empathy predicting subjective well-being in daily life. Statistics derived from multilevel models nested with participant and survey day. Each predictor was run in separate model and p-values were subsequently adjusted together to control the false discovery rate.

Correlates of Empathy

Subjective Well-being. Empathy was generally associated with higher subjective well-being, but the relationship is complex (Table 1). Overall, participants reported fairly high levels of subjective well-being (on a 1-7 scale, $M = 5.02$, $SD = 1.59$, 95% $CI = [4.99, 5.06]$). They reported higher subjective well-being when they had experienced an empathy opportunity ($M = 5.48$, $SD = 1.47$, 95% $CI = [5.41, 5.56]$) compared to when they had not ($M = 4.92$, $SD = 1.60$, 95% $CI = [4.88, 4.96]$; $b = 0.18$, $SE = 0.03$, $t(6615) = 6.72$, $p < .001$, $r = 0.08$). Similarly, actually experiencing

empathy ($b = 0.25$, $SE = 0.08$, $t(1231) = 3.08$, $p = .002$, $r = 0.09$) and the extent of empathy experienced ($b = 0.17$, $SE = 0.03$, $t(992) = 5.73$, $p < .001$, $r = 0.18$) were further predictive of increased well-being.

However, the positive impact of empathy opportunities is associated with the valence of the target emotion. Unlike positive ($M = 5.85$, $SD = 1.24$, 95% CI = [5.78, 5.93]) and mixed emotions ($M = 5.10$, $SD = 1.48$, 95% CI = [4.89, 5.32]), empathy opportunities for negative emotions were associated with lower levels of well-being than average ($M = 4.63$, $SD = 1.69$, 95% CI = [4.44, 4.82]; see Figure 4).

Further, not all aspects of everyday empathy were associated with increased subjective well-being. In particular, the extent to which participants found empathy difficult was negatively correlated with subjective well-being at both the within-person ($b = -0.12$, $SE = 0.03$, $t(965) = -4.59$, $p < .001$, $r = 0.15$), and between-person level ($b = -0.24$, $SE = 0.08$, $t(212) = -3.07$, $p = .002$, $r = 0.21$). Extent of personal distress was similarly associated with decreased well-being both within ($b = -0.14$, $SE = 0.01$, $t(1152) = -9.71$, $p < .001$, $r = 0.28$) and between ($b = -0.39$, $SE = 0.06$, $t(222) = -6.89$, $p < .001$, $r = 0.42$) person, the latter being a medium-sized effect. These data suggest that, while many components of empathy are associated with increased subjective well-being in daily life, others are associated with decreased well-being, and the overall effect is importantly influenced by the valence of the target emotion.

Prosocial Behavior. Considerable research has found that empathy for negative emotions promotes helping behavior (Davis et al., 2015; Eisenberg & Miller, 1987). More recently, researchers have reported that empathy for positive emotions may do the same (Andreychik & Lewis, 2017; Morelli et al., 2014b; Telle & Pfister, 2016). We found strong correlational support for both of these effects (Figure 4), finding several aspects of everyday empathy were correlated with prosocial behavior in daily life (Table 2). Reported empathy opportunities showed a large correlation with reported prosocial behavior in the same 15-minute window; with prosocial behaviors being much more likely when participants reported an empathy opportunity compared to no empathy opportunity ($b = 4.41$, $SE = 0.15$, $z = 33.38$, $p < .001$, $r = 0.77$).² Experiencing empathy in the presence of an opportunity was further predictive of prosocial behavior ($b = 1.30$, $SE = 0.22$, $z = 5.85$, $p < .001$, $r = 0.34$), a medium effect. Interestingly, opportunities to *receive* empathy were also predictive of prosocial behavior ($b = 2.11$, $SE = 0.10$, $z(7339) = 20.70$, $p < .001$, $r = 0.50$)—a large effect and a relatively unexplored link in the literature that merits further investigation.

² This estimate implies that prosocial acts are 85 times more likely when an empathy opportunity is reported. Empathy opportunities are defined broadly as “any situation where you see/hear about an event that probably caused an emotional response for the person involved” and it is not clear whether the opportunity precedes or follows the prosociality. However, this effect size is implausibly large and may be inflated by over-fitting and demand.

Figure 4. Prosocial behavior, well-being, and empathy opportunities. Rates of reported prosocial behavior and mean subjective well-being in the 15-minute windows where participants had negative, mixed, positive, or no opportunities to empathize. Empathy opportunities were associated with high rates of prosocial behavior, and significant changes in subjective well-being. Opportunities to empathize with positive emotions were associated with the highest well-being and the highest rates of prosocial behavior. For subjective well-being, boxes show where 50% of the data lies, and notches show 95% confidence intervals for the mean.

Daily empathy predictor of prosocial behavior	Within-Subject Effects				Between-Subject Effects			
	t or z-score	Adjusted p-value	Estimate (SE)	Effect size (r)	t or z-score	Adjusted p-value	Estimate (SE)	Effect size (r)
Empathy opportunity	33.38	< .001***	4.41 (0.13)	0.77	24.16	< .001***	5.73 (0.24)	0.85
Empathy (yes/no)	5.85	< .001***	1.30 (0.22)	0.34	0.19	.853	0.07 (0.38)	0.02
Emotion share (yes/no)	2.98	.007**	0.73 (0.25)	0.20	2.30	.035*	0.83 (0.36)	0.22
Perspective take (yes/no)	2.19	.047*	0.51 (0.23)	0.14	2.30	.035*	0.83 (0.36)	0.22
Compassion (yes/no)	2.56	.021*	0.90 (0.35)	0.24	2.56	.035*	1.12 (0.44)	0.30
Emotion share extent	1.79	.100	0.16 (0.09)	0.05	2.79	.013*	0.27 (0.10)	0.07
Perspective take extent	-0.03	.976	-0.003 (0.08)	0.10	3.81	< .001***	0.34 (0.09)	0.09
Compassion extent	3.50	.002**	0.37 (0.11)	0.10	1.91	.070	0.23 (0.12)	0.06
Personal distress extent	-1.04	.346	-0.05 (0.05)	-0.01	-1.59	.121	-0.10 (0.06)	-0.03
Empathy extent (ES, PT, Comp.)	2.19	.047*	0.23 (0.11)	0.06	3.71	< .001***	0.41 (0.11)	0.11
Empathy difficulty	-0.38	.76	-0.04 (0.10)	-0.01	2.11	.048*	-0.18 (0.08)	-0.05
Empathy confidence	1.97	.074	0.27 (0.14)	0.08	2.28	.035*	0.28 (0.12)	0.08
Extent of empathy received	3.04	.006**	0.38 (0.13)	0.11	1.84	.076	0.21 (0.12)	0.06
Valence of observed emotion	1.53	.159	0.08 (0.05)	0.02	2.96	.009**	0.13 (0.04)	0.04
Opportunity to receive empathy	20.70	< .001***	2.11 (0.10)	0.50	15.13	< .001***	5.69 (0.38)	0.84

Table 2. Daily empathy predicting prosocial behavior. * $p < .05$, *** $p < .001$. Shows the within and between-person effects of different aspects of empathy predicting prosocial behavior in daily life. Statistics derived from multilevel models nested with participant and survey day. Each predictor run in separate model with p-values subsequently adjusted together to control the false discovery rate.

Prosocial behavior was often elicited in the presence of positive and mixed emotions (Figure 4). In fact, positive empathy opportunities were a little more predictive of prosocial behavior than negative opportunities ($b = 0.54$, $SE = 0.19$, $z = 2.79$, $p = .005$, $r = 0.15$). Further—while participant-centered valence did not predict prosocial behavior ($b = 0.08$, $SE = 0.05$, $z = 1.53$, $p = .159$, $r = 0.02$)— as a between-subject effect, participants who typically experienced more positively-valenced empathy opportunities were slightly more likely to report prosocial behaviors in a given survey ($b = 0.13$, $SE = 0.04$, $z = 2.96$, $p = .009$, $r = 0.04$). In sum, this set of results

underscore the fact that perceived empathy opportunities are associated with prosocial behavior not only in the face of suffering, but also when observing positive and mixed emotions.

Trait vs State Empathy Predicting Well-being and Prosocial Acts. Having described the association between daily empathy and well-being and prosocial behavior, we conducted *preregistered* analyses to investigate whether trait empathy predicts these outcomes. After controlling the False Discovery Rate (Benjamini & Hochberg, 2007), there were no significant associations between trait empathy and daily prosocial behavior (all p 's > .05, see Table S1). Trait empathy also did not predict increased subjective well-being in daily life (all p 's > .05, Table S2). If anything, we found evidence for the opposite: both higher personal distress (as measured via a subscale of the Interpersonal Reactivity Index; $b = -0.47$, $SE = 0.10$, $t(236) = -4.46$, $p < .001$, $r = 0.28$) and higher empathy (measured via the Empathy Index; $b = -0.33$, $SE = 0.11$, $t(236) = -2.89$, $p = .018$, $r = 0.19$) were associated with lower subjective well-being in daily life at a small effect size. Overall, higher trait empathy did not seem to be associated with more prosocial behaviors or higher well-being in momentary assessments.

However, many aspects of empathy in everyday life were positively associated with momentary assessments of prosocial behavior, holding after adjustments for multiple comparisons (Table 1). In addition, many aspects of daily empathy were associated with increased subjective well-being at both the within and between person level (Table 2). These effects highlight the importance of empathy and support prior reports that experience sampling may uncover associations with well-being not captured by more global trait measures (e.g. Runyan et al., 2019).

Empathic Facilitation. Moral licencing is the phenomenon whereby behaving morally can lead to future immoral behaviors (Merritt et al., 2010). While the robustness of the effect has been questioned (Blanken et al., 2015; Kuper & Bott, 2019), there is evidence for its existence in daily life (Hofmann et al., 2014). Whether there is a similar effect with empathy—or whether empathy tends to promote more empathy (i.e., empathy facilitation)—is unknown. To explore this, we examined whether aspects of empathy at time 1 would predict likelihood of empathy opportunities or empathy itself at time 2. These surveys occurred 90 minutes apart on average.

For the most part, after FDR correction there was little evidence of any licencing or facilitation effects. However, noticing opportunities to receive empathy at time 1 predicted noticing opportunities to *provide* empathy ($b = 0.28$, $SE = 0.10$, $z = 2.71$, $p = .043$, $r = 0.08$) and act prosocially ($b = 0.23$, $SE = 0.11$, $z = 2.09$, $p = .037$, $r = 0.06$) at time 2, though both effects were very small. That is, when participants had an emotional experience and felt someone had an opportunity to empathize with them, they were more likely to report a prosocial behavior and more likely to report an opportunity to empathize with someone else the next survey they answer.

While perceiving an opportunity to empathize at time 1 did not predict noticing another opportunity at time 2 ($b = -0.02$, $SE = 0.09$, $z = -0.23$, $p = .817$, $r = -0.01$), *missing* an opportunity at time 1 *did* predict noticing an opportunity at time 2 ($b = 0.32$, $SE = 0.12$, $z = 2.64$, $p = .008$, $r = 0.09$). In other words, when participants reported no empathy opportunity, but reported observing the emotions of another person, they were more likely to report an empathy opportunity at their next survey. No aspects of empathy at time 1 predicted whether or not participants actually engaged in empathy given the opportunity at time 2 (all p 's > 0.05). In sum, we did not find robust

support for empathic licensing, instead finding preliminary evidence that receiving empathy or missing an opportunity to empathize may facilitate future empathy opportunities.

Who Feels Empathy: Demographics of Daily Empathy

In addition to the analyses above, we tested previously-reported demographic differences in empathy. In our only *preregistered* demographic test, sex was a small but significant predictor of empathy. Women scored higher than men on trait empathic concern ($b = 0.36$, $SE = 0.09$, $t(232) = 4.17$, $p < .001$, $r = 0.26$). Congruent with this, women reported feeling compassion ($b = 0.30$, $SE = 0.11$, $t(187) = 2.75$, $p = .007$, $r = 0.20$), sharing emotions ($b = 0.30$, $SE = 0.13$, $t(166) = 2.26$, $p = .025$, $r = 0.17$) to a greater extent than men in everyday life. Women also reported higher confidence that their empathy was accurate ($b = 0.29$, $SE = 0.10$, $t(180) = 2.80$, $p = .006$, $r = 0.20$), which may in part explain their increased willingness to empathize (Cameron et al., 2019).

We next performed non-preregistered tests on three other previously-reported demographic differences. We examined whether compassion varied across income levels (Stellar et al., 2012), and found mixed results. Higher income was not associated with decreased trait empathic concern ($b = -0.04$, $SE = 0.05$, $t(232) = -0.73$, $p = .466$, $r = 0.05$), or decreased extent of compassion in daily life ($b = 0.06$, $SE = 0.06$, $t(200) = 0.88$, $p = .380$, $r = 0.06$). However, higher income was associated with a lower proportion of feeling compassion in the presence of an empathy opportunity ($b = -0.04$, $SE = 0.02$, $t(208) = -2.34$, $p = .020$, $r = 0.16$) indicating that—while higher income participants felt compassion to a similar extent—they felt it less often.

We replicated previous reports that religiosity is correlated with increased empathy (Watson et al., 1984). Higher religiosity weakly predicted increased likelihood of reporting an empathy opportunity ($b = 0.25$, $SE = 0.07$, $z = 3.47$, $p = .006$, $r = 0.07$), and predicted increased extent of perspective-taking ($b = 0.19$, $SE = 0.06$, $t(166) = 3.29$, $p = .007$, $r = 0.25$) in everyday life. After correction, religiosity was not associated with any other daily empathy or trait empathy measures (all p 's > 0.05), though it is possible the true effects were smaller than we were powered to detect ($d = 0.33$, $r = 0.16$).

Prior work has found that liberals experience more empathy (Hasson et al., 2018) for a wider range of targets (Waytz, et al, 2019) than conservatives in certain circumstances. However, we found that after adjustment, political orientation was only related to the fantasy subscale of the Interpersonal Reactivity Index ($b = -0.09$, $SE = 0.03$, $t(236) = -3.19$, $p = .018$, $r = 0.20$), in that more conservative participants reported empathizing less with fiction. We did not find any other associations between empathy and political orientation at the trait or state level (all p 's > 0.05). We note, however, that prior effects may be context-specific (Lucas & Kteily, 2018). Further, we were only powered to detect effects as small as $d = 0.33$ ($r = 0.16$) at the trait level, so it is possible that there are true effects that were too small for us to detect.

Discussion

The majority of research on empathy has focused on negative emotions—typically of strangers, typically in laboratory settings. However, in everyday life, empathy was more often reported in response to positive emotions, not negative emotions, and participants empathized to a greater extent as emotions became more positive. While these results may be influenced by reporting biases, they are consistent with the relative frequency of emotions experienced in daily life; positive emotions, like excitement and enthusiasm, are experienced approximately three times more frequently than negative emotions, like disgust, anger, and fear (Zelenski & Larsen, 2000).

Empathy was most often reported in response to close others. This effect may be due to mere availability, as many people likely have more social interactions within existing relationships than with strangers. However, empathy also may be biased in favour of close others (Cikara et al., 2011). Supporting this, we found that individuals empathized to a greater extent as closeness increased.

These findings have implications for our understanding of empathy as a motivated phenomenon (Zaki, 2014). The emerging work on lack of motivation to empathize might be related, in some part, to most lab studies of empathy involving the negative emotions of strangers. While some work suggests people might avoid both positive and negative empathy (Cameron et al., 2019), empathy for strangers might be especially unmotivating (Ferguson et al., in press). Future lab research on motivation to empathize should consider including a range of expressed emotions, and including empathy targets who are close to the participant, not just strangers.

In prior work, researchers have suggested that dissociable components of empathy interact in real-life interactions (Morelli et al., 2014b; Zaki & Ochsner, 2012). The current study shows emotion sharing, compassion, and perspective taking are reported together almost all of the time, and rarely reported in isolation. While these components of empathy can be theoretically differentiated, our data suggests they are typically experienced together by most people in most daily situations.

Finally, we examined various established demographic findings about empathy, to see which findings hold across people's experiences in daily life. Some established effects were replicated – for example, both women and religious participants tended to report experiencing empathy more often than men and the non-religious. However, other relationships did not replicate in the context of daily life; we found a weak relationship between compassion and income, and little to no relationship between empathy and political orientation—though the true effects of income and politics on empathy may be smaller than we were able to detect given our statistical power.

Limitations

Ground truth. Experience sampling allows us to get closer to the temporal, emotional, and social context of empathy—but it is still self-report. The number of empathy opportunities, and true ratios of positive and negative opportunities, may vary from those reported – indeed, participants appeared selective in which observed emotions were perceived as empathy opportunities, consistent with motivational accounts of empathy (Cameron et al., 2019; de Vignemont & Singer, 2006; Zaki, 2014). However, truly objective measures of empathy opportunities would be difficult

to obtain, given that empathy cues in the environment may not be attended to. Furthermore, feeling empathy may be best captured via self-report, given that it is an internal and subjective phenomenon.

Representativeness. Our sample was quota-matched to census data on six key demographics, making our results more representative than is typical. As the sample is not random, representativeness cannot be assumed on other demographics. For example, to join the study, participants were required to have a smartphone. However, 81% of U.S. adults had a smartphone as of 2019 (Pew Research Center, 2019) and the results from our lowest-income participants mirrored those from the entire sample. The generalizability of our findings to other, especially non-WEIRD populations, remains to be demonstrated.

Training and fatigue. Potentially, repeatedly responding to surveys on empathy might have trained participants to notice empathy opportunities. However, there was only one significant differences on trait empathy questionnaires at baseline compared to the final experience sampling survey (all p 's > .05), and empathy itself did not become more prevalent over the course of the week. Empathy opportunities were reported slightly less frequently as the week progressed, suggesting that individuals may have become decreasingly inclined to report empathy. However, because we nested results within survey-day, this shift should minimally affect our results.

Definitions and demand. We chose to supply a definition of empathy to our participants, to reduce noise from varying lay-theories of empathy (Hall et al., 2020). By defining empathy as a process involving three “related but distinct” experiences, however, we may have introduced demand, resulting in participants inflating reports of the co-occurrence of all three processes or otherwise influencing participants’ reports (although similar results were reported for one’s own empathy and empathy received). Future work should replicate these findings with different definitions of empathy.

Conclusion

The current study has shaped how we think about empathy. People readily empathize when they recognize the opportunity, but often notice other people’s emotions without flagging them as empathy opportunities. In daily life, empathy is often elicited by positive rather than negative emotions, and by emotional expressions of close others rather than strangers. These caveats are critical to consider in future experiments because they alter the experience of empathy itself and likely moderate the effects of empathy on subjective well-being and prosocial behavior. If our experiments are to inform us about the causal role of empathy outside of the lab, they must in turn be informed by how empathy is actually experienced in everyday life.

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Data and materials availability: <https://osf.io/y3ud7/>

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Supplementary Information for:

The Experience of Empathy in Everyday Life

Material S1. List of Baseline Measures. An * indicates measures repeated in the final experience sampling survey.

1. Demographics for quota-sampling (Sex, Education, Ethnicity, Region, Income, Age)
2. Political orientation: Please indicate your political orientation.
 - 1) Extremely liberal
 - 2) Liberal
 - 3) Moderately liberal
 - 4) Neutral
 - 5) Moderately conservative
 - 6) Conservative
 - 7) Extremely conservative
3. Religiosity item: Please indicate your religiosity.
 - 1) Not at all religious
 - 2) Slightly religious
 - 3) Religious
 - 4) Strongly religious
 - 5) Extremely religious
4. The Single Item Trait Empathy Scale (Konrath, Meier, & Bushman, 2018)*
5. The Big Five Inventory 2 (Soto & John, 2017)
6. The Interpersonal Reactivity Index (Mark Davis, 1980)
 - a. Empathic concern*
 - b. Perspective taking*
 - c. Personal distress
 - d. Fantasy*
7. Empathy Index (Jordan et al., 2016)
 - a. Empathy*
 - b. Behavioral contagion
8. Shipley-Hartford vocabulary test (Shipley, 1940)
9. Beliefs about Malleability of Empathy Scale (Schumann, Zaki, & Dweck, 2014)
10. Implicit Theories of Willpower (Job, Dweck, & Walton, 2010)
11. Empathy Selection Task (Cameron et al., 2019)
12. Reduced Morningness-Eveningness Questionnaire (Adan & Almirall, 1991)

Material S2. Empathy glossary supplied at baseline.

Empathy		
Perspective-Taking	Emotion Sharing	Compassion
seeing the world from another person's point of view knowing what they are feeling	you see someone expressing an emotion and you begin to feel a similar emotion feeling what they are feeling	a warm or caring feeling towards others feeling warmth/caring, regardless of what they are feeling

Empathy		
Perspective-Taking	Emotion Sharing	Compassion
seeing the world from another person's point of view knowing what they are feeling and why	you see someone expressing an emotion and you begin to feel a similar emotion feeling what they are feeling	a warm or caring feeling towards others feeling warmth/caring, regardless of what they are feeling
Examples: <ul style="list-style-type: none">• You hear about a friend's promotion, and you know they are excited.• You see someone crying, and you understand why they are crying.	Examples: <ul style="list-style-type: none">• You hear about a friend's promotion, and you feel excited with them.• You see someone crying, and you feel sad with them.	Examples: <ul style="list-style-type: none">• You hear about a friend's promotion, and you feel warmth and are proud of them.• You see someone crying, and you care and want to help them.

Sometimes, feeling empathy for others might be uncomfortable.

Personal distress is an uncomfortable reaction (worry, anxiety, discomfort) to the sharing or understanding of someone else's emotions

In life, we have many opportunities to feel empathy. These are **empathy opportunities**.

These are any situation where you see/hear about an event (positive or negative) that probably caused an emotional response for the people involved. You may have an empathy opportunity first-hand, hear about it from a friend, read about it online, experience it in a documentary or film, etc.

Sometimes people also have the opportunity to empathize with you! These are **opportunities to receive empathy**.

903 **Material S3.** Index of Experience Sampling Questions. Branching determined questions asked,
 904 but participants answered the same amount of questions regardless of choices. Descriptive
 905 questions were included in only one of the seven surveys each day to reduce demand. In dataset,
 906 variables tagged 'PC' are participant-centered and those tagged '_C' are grand-mean-centered.
 907 Final experience sampling survey (49th of 49 surveys) re-administered Interpersonal Reactivity
 908 Index (Empathic Concern, Fantasy, Perspective Taking subscales) and Empathy Index (Empathy
 909 subscale) to assess trait empathy stability.

Question	Answer choices	R Variable
1. At the moment, how happy do you feel?	Extremely unhappy (1) Unhappy (2) Slightly unhappy (3) Neutral (4) Slightly happy (5) Happy (6) Extremely happy (7)	happy
2. At the moment, do you feel that your life has a clear sense of purpose?	Not at all (1) (2) (3) (4) (5) (6) Very much (7)	purpose
3. In the last 15 minutes, did you do anything to directly or indirectly help, or make another person feel better? (e.g. by offering comfort, financial support, advice or assistance)	Yes No	Gen_Prosocial
4. In the last 15 minutes, did you have an opportunity to empathize with another person? (eg. an option to share another person's emotion, see things from their perspective, or feel warmth or kindness)	Yes No	E_Opp
5. *Explain the situation in one sentence.	Descriptive	explain
6. *Describe your current situation in one sentence.	Descriptive	describe
7. How long ago would you estimate this empathy opportunity occurred?	Less than a minute ago 1 minute ago 2 minutes ago 3 minutes ago 4 minutes ago 5 minutes ago 6 minutes ago 7 minutes ago 8 minutes ago 9 minutes ago 10 minutes ago 11 minutes ago 12 minutes ago 13 minutes ago 14 minutes ago 15 minutes ago	how_long

8. In relation to this empathy opportunity, what emotion did you observe? (Select)	Happiness Anger Anxiety/Stress Embarrassment Humour Fear Disgust Sadness Contempt Surprise Pain Other	what_emo
9. Please specify the other emotion you observed.	Descriptive	other_emo
10. In relation to this empathy opportunity, was the emotional experience you observed positive or negative?	Extremely negative (1) Negative (2) More negative than positive (3) Mixed (4) More positive than negative (5) Positive (6) Extremely positive (7)	valence
11. How close are you with the person involved in this empathy opportunity?	Total stranger (1) (2) (3) (4) (5) (6) Very close relationship (7)	E_how_close
12. In relation to this empathy opportunity, to what extent did you feel personal distress?	Not at all distressed (1) (2) (3) (4) (5) (6) Extremely distressed (7)	PD
13. In relation to this empathy opportunity, did you actually experience some form of empathy for the person or people involved at the time?	Yes No	E
14. To what extent was empathizing voluntary: something that you decided?	Not at all voluntary (1) 2 3 4 5 6 Completely voluntary (7)	E_Vol
15. To what extent was not empathizing voluntary: something that you decided?	Not at all voluntary (1) 2 3 4 5 6 Completely voluntary (7)	No_E_vol
16. Why didn't you empathize? (choose all that apply)	I was busy doing something else. I didn't want to feel pressure to act a certain way (eg. give money) I didn't care about the person. It was too hard. It was emotionally painful. I didn't have time. Other	why_no_E
17. For what other reason didn't you empathize? (please specify)	Descriptive	other_no_E

18. In relation to this empathy opportunity, did you share or feel a similar emotion to one that you observed? (e.g. happiness, sadness, anger, surprise)	Yes No	ES
19. How confident are you that this is the emotion they felt?	Not at all confident (1) 2 3 4 5 6 Extremely confident (7)	ES_conf
20. At the time, to what extent did you feel a similar emotion?	Very little (1) 2 3 4 5 6 Very much (7)	ES_extent
21. How difficult was it to share their emotion?	Not at all difficult (1) 2 3 4 5 6 Extremely difficult (7)	ES_diff
22. In relation to this empathy opportunity, did you put yourself in someone else's shoes or try to see things from their perspective?	Yes No	PT
23. How confident are you that you correctly understood their point of view?	Not at all confident (1) 2 3 4 5 6 Extremely confident (7)	PT_conf
24. At the time, to what extent did you share a similar perspective?	Very little (1) 2 3 4 5 6 Very much (7)	PT_extent
25. How difficult was it to take their perspective?	Not at all difficult (1) 2 3 4 5 6 Extremely difficult (7)	PT_diff
26. In relation to this empathy opportunity, did you feel compassion, warmth, or concern for this person? (e.g. have feelings of kindness or caring)	Yes No	comp
27. How confident are you that your compassion was appropriate to the situation?	Not at all confident (1) 2 3 4 5 6 Extremely confident (7)	comp_conf
28. At the time, to what extent did you feel warmth, compassion, or concern?	Very little (1) 2 3 4 5 6 Very much (7)	comp_extent
29. How difficult was it to generate feelings of compassion?	Not at all difficult (1) 2 3 4 5 6 Extremely difficult (7)	comp_diff

30. In the last 15 minutes, did anyone have an opportunity to empathize with you? (e.g. an option to share your emotions, see things from your perspective, or feel warmth or caring towards you)	Yes No	T_opp
31. In relation to this opportunity to receive empathy, how close are you with the person or people involved?	Total stranger (1) 2 3 4 5 6 Very close relationship (7)	T_how_close
32. In relation to this opportunity to receive empathy, did the person share or feel a similar emotion to the one you were feeling?	Yes No	T_ES
33. In relation to this opportunity to receive empathy, to what extent do you think they felt a similar emotion?	Very little (1) 2 3 4 5 6 Very much (7)	T_ES_extent
34. In relation to this opportunity to receive empathy, did the person put themselves in your shoes or take your perspective?	Yes No	T_PT
35. In relation to this opportunity to receive empathy, to what extent do you feel like they saw things from your perspective?	Very little (1) 2 3 4 5 6 Very much (7)	T_PT_extent
36. In relation to this opportunity to receive empathy, did this person feel compassion, warmth, or concern for you?	Yes No	T_comp
37. In relation to this opportunity to receive empathy, to what extent do you feel like they were compassionate?	Very little (1) 2 3 4 5 6 Very much (7)	T_comp_exten t
38. At the moment, how connected to other people do you feel?	Very disconnected (1) Disconnected (2) Slightly disconnected (3) Neutral (4) Slightly connected (5) Connected (6) Very connected (7)	connected

39. At the moment, how anxious do you feel?	Not at all anxious (1) 2 3 4 5 6 Extremely anxious (7)	anxious
40. At the moment, how content do you feel?	Very discontent (1) Discontent (2) Slightly discontent (3) Neutral (4) Slightly content (5) Content (6) Very content (7)	content
41. At the moment, to what extent do you feel loved?	Very unloved (1) Unloved (2) Slightly unloved (3) Neutral (4) Slightly loved (5) Loved (6) Very loved (7)	loved
42. In the last 15 minutes, have you used the bathroom?	Yes No	bathroom
43. At the moment, aside from this survey, what are you doing? (Select)	resting work or study household hygiene leisure other nothing	what_doing
44. Would you rather be doing something else?	Not at all (1) 2 3 4 5 6 Very much (7)	would_you_rather
45. At the moment, how lonely do you feel?	Not at all lonely (1) 2 3 4 5 6 Very lonely (7)	lonely
46. Where are you at the moment? (Select)	at home at family or friend's place at work or school public place transport somewhere else	where
47. Who are you with at the moment? (Select)	partner family (you live with) family (don't live with) friend(s) colleague(s) acquaintance(s) stranger(s) no one	who
48. In the last 15 minutes, did you interact with anyone by speaking on the phone?	Yes No	phone
49. In the last 15 minutes, which of the following emotions have you experienced? Select ALL that apply.	Surprise Anxiety Anger Gratitude Fear Disgust Humour Sadness Happiness Other None	emo_exp

50. Please specify the other emotion you felt.	Descriptive	other_emo_self
51. In the last 15 minutes, which of the following platforms have you used? Select ALL that apply.	Facebook Instagram Twitter Snapchat LinkedIn WeChat Skype WhatsApp Other None	platforms
52. In the last 15 minutes, did you interact with anyone in person?	Yes No	person
53. In the last 15 minutes, did you interact with anyone through text messaging or social media?	Yes No	text
54. In the last 15 minutes, did you hear about, read about, or otherwise observe the emotional experiences of another person or people?	Yes No	missed_E_opp
55. How many people would you estimate you have spoken to today?	0 1 2-3 4-5 More than 5 More than 10	how_many
56. At the moment, to what extent do you feel like you are in control of your life?	No control at all (1) 2 3 4 5 6 Complete control (7)	control
57. At the moment, to what extent do you feel isolated?	Not at all isolated (1) 2 3 4 5 6 Extremely isolated (7)	isolated
58. At the moment, do you feel hungry?	Not at all hungry (1) 2 3 4 5 6 Extremely hungry (7)	hungry
59. At the moment, do you feel pain?	No pain at all (1) 2 3 4 5 6 Extremely intense pain (7)	pain

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Table S1. Trait empathy predicting prosocial behavior. * $p < .05$, *** $p < .001$

Trait empathy predictor of prosocial behavior	t or z-score	Adjusted p-value	Estimate (SE)	Effect size (r)
Empathic Concern (IRI)	0.13	.900	0.02 (0.13)	0.00
Perspective Taking (IRI)	1.72	.255	0.23 (0.13)	0.06
Personal Distress (IRI)	-0.99	.472	-0.10 (0.12)	-0.03
Fantasy (IRI)	2.65	.072	0.29 (0.11)	0.08
Behavioral Contagion (EI)	-0.78	.492	-0.10 (0.12)	-0.03
Empathy (EI)	-1.08	.422	-0.13 (0.12)	-0.04
Single Item Trait Empathy Scale	1.38	.338	0.14 (0.10)	0.04
Empathy Selection Task	2.11	.158	0.03 (0.01)	0.01
Malleability of Empathy Scale	1.32	.338	0.08 (0.06)	0.02

Table S2. Trait empathy predicting subjective well-being. * $p < .05$, *** $p < .001$

Trait empathy predictor of subjective well-being	t or z-score	Adjusted p-value	Estimate (SE)	Effect size (r)
Empathic Concern (IRI)	0.4	.889	0.05 (0.13)	0.03
Perspective Taking (IRI)	2.03	.079	0.25 (0.13)	0.13
Personal Distress (IRI)	-4.46	< .001***	-0.47 (0.10)	0.28
Fantasy (IRI)	-0.14	.890	-0.01 (0.10)	0.01
Behavioral Contagion (EI)	-2.36	.057	-0.33 (0.11)	0.19
Empathy (EI)	-2.89	.018*	-0.27 (0.12)	0.15
Single Item Trait Empathy Scale	1.02	.464	0.10 (0.09)	0.07
Empathy Selection Task	-0.22	.890	-0.003 (0.01)	0.01
Malleability of Empathy Scale	2.13	.079	0.13 (0.06)	0.14

929 **Table S3.** Preregistered Hypotheses and Status.

Hypothesis	Status/Result
It is expected that trait empathy measures (Interpersonal Reactivity Index, Empathy Index) at baseline will be predictive of empathy in the experience sampling surveys.	Hope to address in a future manuscript.
It is predicted that scores on the empathy selection task will be associated with greater reported opportunities to empathize.	Sig. but very small effect, $b = 0.03$, $SE = 0.01$, $z(7086) = 2.32$, $p = .020$, $r = 0.01$
We will test if empathy is be associated with higher subjective well-being.	Addressed in manuscript.
We will test if empathy is associated with increased prosocial behaviour.	Addressed in manuscript.
It is predicted that the proposed components of empathy: emotion sharing, perspective taking, and compassion — will be highly correlated in experience sampling surveys.	Addressed in manuscript.
It is predicted that higher empathy confidence ratings will be associated with more empathy.	Addressed in manuscript.
It is predicted that higher empathy difficulty ratings will be associated with less empathy.	Addressed in manuscript.
It is predicted that agreeableness, openness, and extroversion will be predictive of increased empathy. For brevity, showing extent of empathy in daily life. P-values for Big-5 adjusted together.	<p>O: $b = 0.06$, $SE = 0.09$, $t(196) = 0.72$, $p = .475$, $r = 0.05$</p> <p>C: $b = 0.29$, $SE = 0.08$, $t(201) = 3.76$, $p = .0002$, $r = 0.26^*$ not pre-reg'd</p> <p>E: $b = 0.26$, $SE = 0.07$, $t(190) = 3.57$, $p = .00045$ (.001), $r = 0.25$</p> <p>A: $b = 0.35$, $SE = 0.09$, $t(180) = 3.68$, $p = .0003$ (.001), $r = 0.26$</p>
It is predicted that neuroticism will be negatively associated with empathy.	N: $b = -0.13$, $SE = 0.06$, $t(188) = -2.34$, $p = .020$ (.04), $r = 0.17$
It is predicted that scores on the Hartford Shipley Index will be negatively associated with empathy.	Unrelated to extent of empathy: $b = -0.009$, $SE = 0.01$, $t(168) = -0.89$, $p = .375$, $r = 0.07$

It is predicted that participants will select the empathy option in the empathy selection task around 35% of the time.	In this sample, the feel deck was selected 41.8% of the time. $z = (102.828 - 123) / \sqrt{61.5} = -2.572239$.
We will attempt to replicate previous findings in the literature, such as: women empathize more often than men.	Addressed in manuscript.
The malleability of empathy scale will be positively associated with increasing empathy across the course of the study.	Empathy did not increase across the course of the study so this hypothesis could not be tested.
It is predicted that higher scores on the single item trait empathy scale will be predictive of higher subjective well-being.	Addressed in manuscript.

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Figure S1. Shows a frequency estimate where the true number of events is 8 enters the corridor of stability soon after N passes 200. Similar results were obtained for 1.4, 3, and 7 true number of events prior to data collection. Simulations suggest we had adequate power to estimate frequency of perceived empathy experiences.

937 **Figure S2.** Annual personal income of sample and population

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939 **Figure S3.** Gender of sample and population

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941 **Figure S4.** Ethnicity of sample and population

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944 **Figure S5.** Regional distribution of sample and population

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946 **Figure S6.** Age of sample and population.

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948 **Figure S7.** Sample and population education.

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Figure S8. Shows the distribution of religiosity and political orientation in the current sample. These demographic variables were not used in quota-sampling process