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Comparing General Gratitude and Gratitude to God and Their Associations With Well-Being Over Time

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Though gratitude is a social emotion often expressed to people, it is also a moral emotion that can be experienced in the context of a higher power. Prior research has often measured different forms of gratitude as individual differences, but gratitude may vary over time. The goal of the present research was to examine how general gratitude and gratitude to God relate to well-being within individuals over time. Participants (N = 1,105) completed four questionnaires over a 2-year period. Both forms of gratitude were positively associated with concurrent meaning in life and negatively associated with concurrent anxiety and depression. Interactions supported a compensation model in which one form of gratitude was a stronger predictor of well-being at lower levels of the other. Lagged analyses indicated that both forms of gratitude predicted subsequent greater meaning in life and lower subsequent depression. Additionally, general gratitude predicted subsequent lower anxiety, whereas gratitude to God did not. This study highlights the importance of considering both forms of gratitude, which operate independently while compensating for one another.

Keywords: gratitude, religion, well-being, longitudinal

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Gratitude has been defined as an emotion and a favorable response to others when the benefactor has done something positive for the recipient (McCullough et al., 2002). Given the interactional nature of this emotion, gratitude has typically been considered a social emotion and has been studied in the context of interpersonal relationships (Algoe, 2012; Gordon et al., 2012; Park et al., 2019). Though such contexts are quite reasonable for the study of gratitude, it is also important to recognize that gratitude can be considered a moral emotion (McCullough et al., 2001) often associated with religious devotion. In fact, many religions instruct their adherents to practice gratitude to a higher power or being (Newman & Graham, 2018). Thus, in addition to feeling and expressing gratitude to friends, family members, coworkers, and strangers, people often also feel and express gratitude to God or a supernatural being.

A growing body of research has attempted to compare these two forms of gratitude and how they relate to religiosity, well-being, personality traits, and other characteristics.[1] For instance, both forms of gratitude are positively associated with religiosity, though gratitude to God is, unsurprisingly, more strongly associated with religiosity than general gratitude (Rosmarin et al., 2011). In terms of personality traits, both forms of gratitude are positively related to the more positively valenced traits, such as extraversion, agreeableness, conscientiousness, and honesty–humility. Interestingly, general gratitude is often more strongly associated with these traits than gratitude to God (Aghababaei et al., 2018; Newman et al., 2024). When comparing these two forms of gratitude to well-being, both forms are positively related to aspects of well-being, such as satisfaction with life and meaning in life (Newman et al., 2024; Rosmarin et al., 2011). Though general gratitude tends to be a stronger predictor, gratitude to God still uniquely predicts well-being above and beyond the effects of general gratitude.

Most research has focused on gratitude as an individual difference. Some people report higher levels of gratitude than others;

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Study hypotheses, variables, and analytic plan were preregistered after data were collected but before David B. Newman was given access to the data (https://osf.io/n5t7p). We report how we determined our sample size, all data exclusions, and all measures in the present study. Analytic output and data can be found on the Open Science Framework (https://osf.io/94c72).

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[1] A common measure of general gratitude, the Gratitude Questionnaire (McCullough et al., 2004), includes some items that might refer to a variety of targets. We nevertheless treat this as a measure of gratitude to other people as several items include this specific language.

similarly, some people report higher levels of gratitude to God than others. Studies that have measured gratitude as an individual difference are able to examine between-person associations. Though informative, the examination of gratitude at a between-person level of analysis fails to capture within-person variation in gratitude. Although some people may experience higher or lower levels of gratitude than others on average, people can vary in how grateful they feel at a particular time. Understanding within-person variation in gratitude is an important consideration as this represents an independent level of analysis and can pertain to distinct psychological processes (Affleck et al., 1999; Newman et al., 2018; Nezlek, 2001).

To capture within-person variation in gratitude, most studies have attempted to assess gratitude as a daily or momentary state through the use of daily diary and ecological momentary assessment (EMA) methods. These studies have indicated that people may feel more grateful on some days than others (Algoe et al., 2010; Kashdan et al., 2006; Krejtz et al., 2016; Nezlek et al., 2019). Moreover, daily states of gratitude are positively associated with a range of well-being indicators and can even lead to greater levels of well-being on the following day (Nezlek et al., 2017).

Similarly, feelings and expressions of gratitude to God can vary from 1 day to the next or from one time to the next. Though less research has examined such possibilities, these studies have pointed to similar effects. For instance, in a sample of Muslim adolescents, momentary states of gratitude to Allah were positively associated with concurrent positive affect and negatively associated with concurrent negative affect (Newman et al., 2025). Interestingly, momentary feelings of gratitude to Allah interacted with momentary feelings of gratitude directed to people such that gratitude to Allah was a stronger predictor of well-being at lower levels of gratitude to people, suggesting that one form of gratitude can compensate for a lack in the other. In a separate study that examined fluctuating states of prayer, daily prayers of thanksgiving were positively associated with concurrent well-being but predicted lower levels of well-being on the following day (Newman et al., 2023). Importantly, these studies show that the associations between daily and momentary states of gratitude and well-being are more complex than between-person associations and provide evidence of nuances in the psychological processes involved.

In addition to the importance of understanding how gratitude may change from one time of the day to the next, it is also important to understand changes over longer periods of time. Prior research in other areas has shown that within-person associations between constructs can vary in magnitude and direction depending on the time period studied. For instance, engagement in daily religious and spiritual events is positively related to greater well-being on the following day (Kashdan & Nezlek, 2012), but religiosity tends to have much weaker effects on subsequent states of well-being when assessed over the course of several years (Joshanloo, 2023).

Given these considerations, our goal was to advance research in this area by considering the within-person associations between these distinct forms of gratitude and several indicators of well-being over a 2-year period. Though the strengths and directions of the associations between gratitude and well-being can vary over different periods of time, we relied on theoretical work and prior empirical studies in different contexts to derive our hypotheses. Consistent with experimental studies, cross-sectional findings, and EMA studies, we expected both forms of gratitude would be positively associated with well-being in concurrent and lagged analyses. Regarding which form of gratitude might be a stronger predictor of well-being, we first hypothesized that general gratitude might be a stronger predictor of well-being than gratitude to God. Because general gratitude may involve the feeling of gratitude in response to a range of different people, it might be involved in more situations that could improve well-being as opposed to a single context. In contrast, gratitude to God may foster well-being during instances that specifically involve a higher being but may not provide as many opportunities to foster well-being. Moreover, general gratitude might be more concrete and tangible compared to gratitude to God, and this could help improve well-being (Tsang et al., 2022).

We also hypothesized that gratitude to God would uniquely predict well-being above and beyond the effects of general gratitude, and we considered the alternative hypothesis that gratitude to God might even be a stronger predictor of well-being. In a recent review that asked whether religion was special, Moon et al. (2023) reported that religiosity tends to have unique effects on well-being and health above and beyond effects driven by secular counterparts or mechanisms. This suggests that although feelings of gratitude may promote well-being, feeling grateful to God may offer additional or unique benefits not accounted for by general forms of gratitude. These benefits may include enhanced meaning making (Emmons, 2005), increased positive emotions (Van Cappellen et al., 2016), and the use of religious coping (Charzyńska, 2020). Each of these mechanisms has independently been linked to well-being and may be particularly reinforced when individuals experience gratitude to God. Because the focus of the present work was to compare two forms of gratitude and given that gratitude to God is a religious construct, we did not additionally control for any other measures of religiosity.

Finally, we aimed to examine the interactive effects of each form of gratitude. Here, we tested competing predictions. On the one hand, the two forms of gratitude could interact such that each form boosts the other. In many religions, people are instructed to express gratitude to God and other people. Feeling grateful to a higher being could also make people feel more receptive to receiving from others, and these effects could bolster well-being. Similarly, feeling grateful to another person for a favor they received could remind them to express gratitude to God as a response, and this could also further improve well-being. Consistent with the upward spiral theory of sustained religious practice (Van Cappellen et al., 2021), different forms of positive emotions could accentuate their effects when expressed or felt in tandem.

On the other hand, one form of gratitude may help compensate for a lack in the other. For example, when people do not feel or express gratitude to God, they may need to rely on their feelings of gratitude more broadly or to other people. In these instances, their feelings of gratitude to God may not be quite so important. In other situations, when people do not feel especially grateful to other people, their gratitude felt or expressed to God may be the driving factor that would influence their well-being. Thus, one form of gratitude may help offset deficits in the other. This type of pattern was detected in a cross-sectional study (Newman et al., 2024) and in an experience sampling study (Newman et al., 2025).

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Method

Study hypotheses, variables, and analytic plan were preregistered after data were collected but before the lead author was given access to the data (https://osf.io/n5t7p). We report how we determined our sample size, all data exclusions, and all measures in the present study. Analytic output and data can be found on the Open Science Framework (https://osf.io/94c72; Newman, 2026).

Participants

The data for these analyses were drawn from a larger study that involved measures and procedures that were not relevant to the goals of the present study. Participants were college students from 14 different institutions in the United States, representing diverse geographical regions (i.e., southern, midwestern, northeastern) and academic caliber (i.e., R1 public, Ivy League, small liberal arts). In the larger study, a total of 2,791 students participated across four time points. For sampling information at each site, see https://osf.io/d7r3g. Data were excluded if participants requested withdrawal, duplicate cases were present, or data quality was suspicious (i.e., suspected bot activity). Numerous checks for careless responding and validation were included, and details of these measures are included in the Supplemental Materials.

For the purposes of the present study, we chose to include participants who completed measures of general gratitude and gratitude to God for three or four of the four measurement occasions because at least three occasions are required to model random slopes.[2] We also included just those participants who indicated that they had a concept of God or a higher power.[3] The numbers of participants who completed measures of general gratitude and gratitude to God at each wave were as follows: 1,707, 1,213, 1,036, and 1,063. Three hundred forty-five participants completed just one questionnaire, 265 participants completed two questionnaires, 276 participants completed three questionnaires, and 829 participants completed all four questionnaires. Thus, our final analytic sample consisted of 1,105 participants.

Regarding demographic information at Time Point 1, 69.39% identified as female, 29.97% as male, and 0.64% preferred not to respond; 63.82% reported a White racial identity, 13.00% Asian/Pacific Islander, 5.91% Hispanic, 3.82% African American/Black, and 12.82% multiracial; 10.65% reported upper class socioeconomic status, 40.22% upper middle class, 32.48% middle class, 12.65% lower middle class, and 4.00% lower class; and the average participant age in years was $M_{age} = 20.26$, $SD_{age} = 3.13$. In terms of religious affiliation, 64.03% reported a Protestant Christian religious affiliation and 29.43% Catholic. When asked how often they attend religious services at a church, mosque, synagogue, or other place of worship (1 = *never*, 8 = *several times a week*), the average score was 6.23 ($SD = 1.79$).

Procedure

Ethical approval was attained from the last author's Institutional Review Board (No. 1873017). Participants were recruited from both religious and nonreligious institutions in the United States at four assessment time points. In addition to more traditional recruitment through psychology subject pools, a significant portion of participants were recruited from Protestant- or Catholic-affiliated colleges and universities, as well as from among students at secular universities who were involved in centers and institutes for Christian study (i.e., secular university adjacent religious organizations that provide intellectual engagement with the Christian tradition for students; see Cockle et al., 2024; Hansen, 2021). Participants were recruited via institutional emails, emails from study centers, on-campus events, or flyers around campus. Participants provided informed consent and completed Survey 1 in the fall of 2022, Survey 2 in the spring of 2023, Survey 3 in the fall of 2023, and Survey 4 in the spring of 2024.

Surveys were digital, taken on participants' phones or computers, lasted approximately 45–60 min, and were administered via Qualtrics. Participants responded to a battery of measurements, including gratitude and well-being variables. Participants were compensated with a $20 Amazon gift card for Surveys 1–3 and a $30 Amazon gift card for Survey 4. Participants were entered into a random drawing for prizes of $50–$250 Amazon gift cards at each time point. The data from this study come from a larger longitudinal study on faith and character in college communities (https://osf.io/h2rqp); thus, participants completed additional self-report measures on virtues and religiousness in addition to those described in this study. Regarding measures order for this study, participants first engaged the meaning in life measure, followed by either trait gratitude or mental illness symptoms (order randomly presented across participants) and followed by gratitude to God.

Measures

Gratitude

The six-item Gratitude Questionnaire (McCullough et al., 2004) was used to assess trait gratitude. Participants responded to items like, "If I had to list everything that I felt grateful for, it would be a very long list," with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Internal consistency across time points was good (all ωs ≥ .80).

Gratitude to God

Participants took the six-item Gratitude to God measure (Watkins, 2018), responding to items like, "Simple pleasures like a beautiful view or a delicious meal often remind me of how good God has been to me," with answers ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Internal consistency was good across time points (ωs > .87).

Well-Being

Participants took the Patient Health Questionnaire-9 (Kroenke et al., 2001) to assess depressive symptoms from the past 2 weeks with items like, "Feeling down, depressed, or hopeless," rated 0 (*not at all*) to 3 (*nearly every day*). Internal consistency was good across time points (ωs > .87).

Participants also took the Generalized Anxiety Disorder-7 (Spitzer et al., 2006) to assess anxiety symptoms from the past 2 weeks with items like, "Feeling nervous, anxious, or on edge," rated 0 (*not at all*) to 3 (*nearly every day*). Internal consistency was good across time points (ωs > .89).

[2] This exclusion criterion was not preregistered.

[3] This criterion was not preregistered and was included as requested by a reviewer. The results from analyses that included all participants are reported in Supplemental Materials.

Finally, participants took the Multidimensional Meaning in Life Scale (Costin & Vignoles, 2020) to assess eudaimonic well-being. A composite variable was scored using all 16 items consisting of components of meaning in life judgments (e.g., "My life as a whole has meaning"), coherence (e.g., "Looking at my life as a whole, things seem clear to me"), purpose (e.g., "I have a good sense of what I am trying to accomplish in life"), and mattering (e.g., "Even considering how big the universe is, I can say that my life matters") on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. Internal consistency across time points was good (all ωs > .90).

Analytic Plan

We examined concurrent and lagged associations involving general gratitude, gratitude to God, and well-being. In the concurrent associations, we conceptualized the data as a three-level nested structure with occasions nested within individuals and individuals nested within universities. We used multilevel modeling and the package *lme4* (Bates et al., 2015) in R to examine these associations. To provide estimates of the means and variances, we first conducted null models with all variables as outcome variables in separate models without any predictors. Next, as an initial step, we examined the concurrent association between each form of gratitude. Following this, we examined how each well-being outcome was associated with each form of gratitude as separate predictors. Finally, we entered both forms of gratitude as predictors in the same model and compared the strengths of their associations with well-being using the *ghlt* function in R (Hothorn et al., 2008). As an exploratory question, we also examined the interaction between each form of gratitude. In all models, we centered predictor variables around each individual's mean to capture the within-person component (Enders & Tofighi, 2007; Nezlek, 2012). We also included random intercepts and slopes, as indicated below, and we trimmed any error terms if the models failed to converge.

Concurrent models with separate predictors:

$$\begin{aligned}
&\text{Occasion level:} && y_{ijk}(\text{well-being}) = \pi_{0jk} + \pi_{1jk}(\text{gratitude}) + e_{ijk}.\\
&\text{Person level:} && \pi_{0jk} = \beta_{00k} + r_{0jk}\\
& && \pi_{1jk} = \beta_{10k} + r_{1jk}.\\
&\text{University level:} && \beta_{00k} = \gamma_{000} + u_{00k}\\
& && \beta_{10k} = \gamma_{100} + u_{10k}.
\end{aligned} \tag{1}$$

Concurrent models with combined predictors:

$$\begin{aligned}
&\text{Occasion level:} && y_{ijk}(\text{well-being}) = \pi_{0jk} + \pi_{1jk}(\text{general gratitude}) + \pi_{2jk}(\text{gratitude to God}) + e_{ijk}.\\
&\text{Person level:} && \pi_{0jk} = \beta_{00k} + r_{0jk}\\
& && \pi_{1jk} = \beta_{10k} + r_{1jk}\\
& && \pi_{2jk} = \beta_{20k} + r_{2jk}.\\
&\text{University level:} && \beta_{00k} = \gamma_{000} + u_{00k}\\
& && \beta_{10k} = \gamma_{100} + u_{10k}\\
& && \beta_{20k} = \gamma_{200} + u_{20k}.
\end{aligned} \tag{2}$$

Concurrent models with an interaction term:

$$\begin{aligned}
&\text{Occasion level:} && y_{ijk}(\text{well-being}) = \pi_{0jk} + \pi_{1jk}(\text{general gratitude}) + \pi_{2jk}(\text{gratitude to God}) + \pi_{3jk}(\text{interaction term}) + e_{ijk}.\\
&\text{Person level:} && \pi_{0jk} = \beta_{00k} + r_{0jk}\\
& && \pi_{1jk} = \beta_{10k} + r_{1jk}\\
& && \pi_{2jk} = \beta_{20k} + r_{2jk}\\
& && \pi_{3jk} = \beta_{30k} + r_{3jk}.\\
&\text{University level:} && \beta_{00k} = \gamma_{000} + u_{00k}\\
& && \beta_{10k} = \gamma_{100} + u_{10k}\\
& && \beta_{20k} = \gamma_{200} + u_{20k}\\
& && \beta_{30k} = \gamma_{300} + u_{30k}.
\end{aligned} \tag{3}$$

To examine lagged associations, we ran random intercept cross-lagged panel models, which appropriately partition between-person and within-person variance when examining within-person associations in such data sets (Hamaker, 2026; Hamaker et al., 2015). We used the *lavaan* (Rosseel, 2012) package in R and followed the guidance of Mulder and Hamaker (2021) by examining standardized lagged associations. To do so, we freely estimated the factor loadings and set the variances of the within-person components to 1; we calculated the correlations between each within-person component at each wave and constrained the residual variances such that the total within-person variance component equaled 1. We first created models that included each form of gratitude separately, and then we created models that included both forms of gratitude. To compare the strengths of the associations between each form of gratitude and the respective well-being measures, we created additional models that constrained these lagged associations to be equal and then tested whether the model fit better than the initial unconstrained model using a chi-square difference test.

As an exploratory question, we also examined the interaction of general gratitude and gratitude to God on subsequent well-being. Following the recommendations of Speyer et al. (2023), we fixed the within-person component factor loadings to 1 and constrained the measurement error variances to .001 to allow for reasonable imputation times. We also used a Bayes estimator and used the program Mplus as these models are not possible in *lavaan*.

Results

Descriptive Statistics

For all measures, there was more between-person variance than within-person variance, though there was substantial within-person variation to examine within-person associations. There was little variance between universities, though small amounts may still be worthwhile in modeling. Mean levels for the measures of gratitude hovered toward the higher end of the scales, whereas mean levels of anxiety and depression were much lower. See Table 1 for details.

Concurrent Associations

In concurrent analyses, general gratitude and gratitude to God were positively associated, $b = .29$, 95% confidence interval [.14, .45], $t =$

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Table 1
Descriptive Statistics of Gratitude and the Outcome Variables

			Variation		
				Within-university	
Variable	*M*	Range	Between-university	Between-person	Within-person
General gratitude	6.06	1–7	.02	.39	.29
Gratitude to God	4.39	1–5	.03	.36	.15
Meaning in life	5.52	1–7	.00	.55	.22
Anxiety	0.80	0–3	.01	.30	.20
Depression	0.67	0–3	.01	.20	.15

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3.70, $p = .004$, $r_w^{(fv)} = .36$. When modeled as predictors in separate models, general gratitude and gratitude to God were positively associated with meaning in life and negatively associated with anxiety and depression (see Table 2). Though slightly attenuated, both forms of gratitude were still positively associated with meaning in life and negatively associated with anxiety and depression when considered together in the same model. General gratitude was a stronger predictor of meaning in life than gratitude to God, but they did not differ in the strengths of the associations with anxiety or depression.

We also examined exploratory concurrent interactions between each form of gratitude and found significant interactions for meaning in life ($b = -.10$, $t = -2.14$, $p = .032$) and depression ($b = .09$, $t = 2.33$, $p = .020$) but not for anxiety ($b = .04$, $t = .83$, $p = .408$). These interactions indicated that one form of gratitude helped compensate for a lack in the other form. That is, the positive association between general gratitude and meaning in life was stronger during times when gratitude to God was lower than when it was higher. Similarly, the negative association between general gratitude and depression was stronger when gratitude to God was lower than when it was higher. See Figure 1 for details.

Lagged Associations

Model fit indices were good for all models, and details are reported in Supplemental Materials. General gratitude predicted higher levels of gratitude to God at the next occasion ($B = .08$, $z = 2.81$, $p = .005$), and conversely, gratitude to God predicted higher scores of general gratitude at the next occasion ($B = .125$, $z = 3.69$, $p < .001$). When compared, the strengths of these associations did not differ significantly (χ^2 difference = 1.76, root-mean-square error of approximation difference = .025, $p = .185$). Thus, the two forms of gratitude were reciprocally related in a positive manner.

When examining lagged associations involving meaning in life, both forms of gratitude predicted higher meaning in life when considered separately (see Table 3). Meaning in life also predicted greater forms of gratitude at a later time, and these associations were not significantly different. When both forms of gratitude were considered in the same model, they each predicted greater meaning in life, and the strengths of these associations were not significantly different.

The associations involving the two forms of gratitude and anxiety and depression diverged to a degree. General gratitude predicted lower subsequent anxiety, and anxiety did not predict subsequent general gratitude. Gratitude to God did not significantly predict subsequent anxiety, and anxiety did not predict subsequent gratitude to God. When considered together, only general gratitude predicted anxiety, but these associations did not differ significantly in magnitude.

In terms of depression, general gratitude and gratitude to God predicted lower subsequent depression. Depression significantly predicted lower gratitude to God at a later time but not general gratitude (though the association was trending in that direction, $p = .070$). When considered together in the same model, only general gratitude predicted subsequent depression, but they did not differ in their magnitudes.

The interactions of general gratitude and gratitude to God predicting subsequent meaning in life ($b = .02$, $p = .282$), anxiety ($b = .01$, $p = .424$), and depression ($b = -.03$, $p = .200$) were not significant. In sum, each form of gratitude was positively associated with meaning in life in a reciprocal manner over time. General gratitude predicted lower subsequent anxiety, and both forms of gratitude predicted lower subsequent depression.

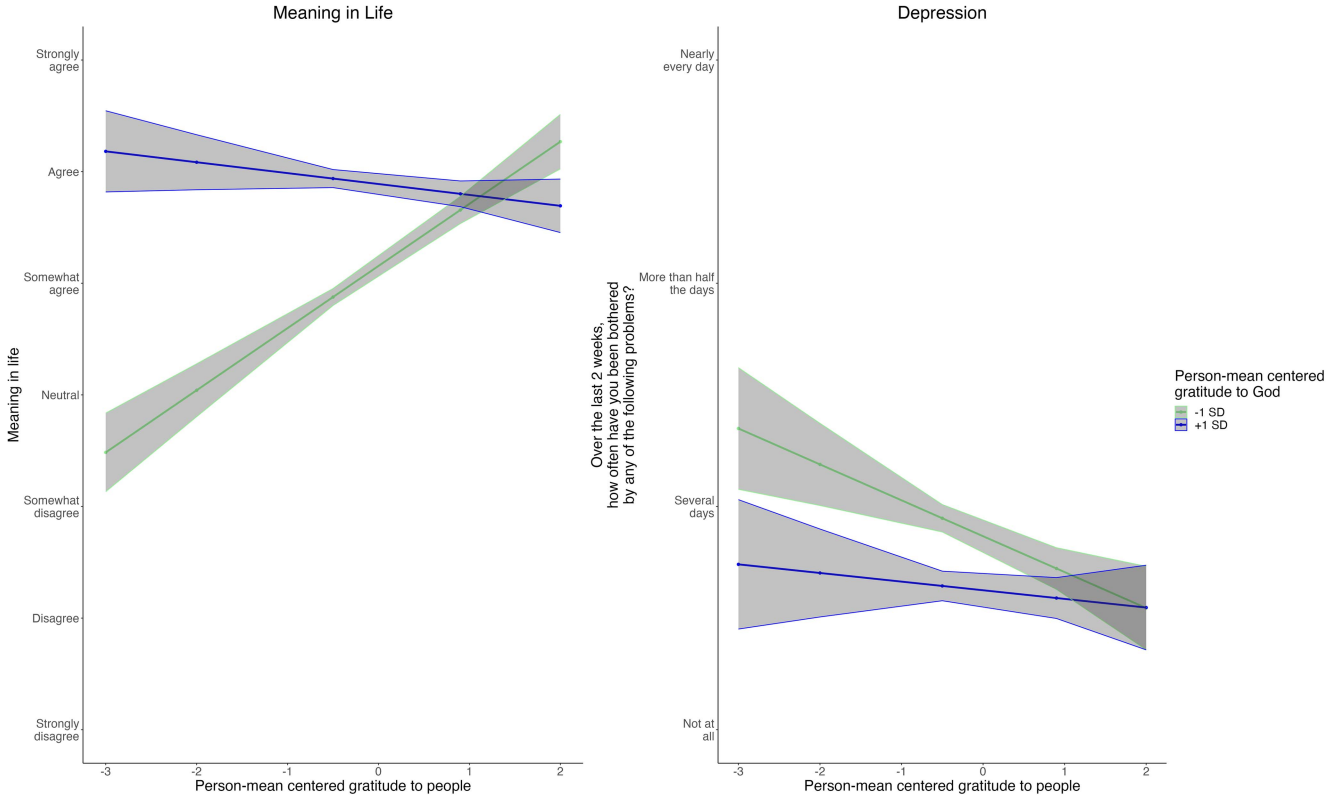
Table 2
Concurrent Within-Person Associations Between Gratitude and Well-Being

	Separate predictor								Simultaneous predictor							
	General gratitude				Gratitude to God				General gratitude			Gratitude to God			Comparison	
Outcome variable	*b*	*t*	*p*	$r_w^{(fv)}$	*b*	*t*	*p*	$r_w^{(fv)}$	*b*	*t*	*p*	*b*	*t*	*p*	*z*	*p*
Meaning in life	.27	11.47	.001	.45	.25	5.07	.015	.37	.24	12.26	<.001	.16	5.91	.004	1.99	.046
Anxiety	−.08	−3.89	.018	.20	−.11	−4.58	<.001	.18	−.07	−3.66	.041	−.08	−3.27	.001	0.29	.770
Depression	−.12	−7.60	<.001	.31	−.13	−4.01	.006	.22	−.10	−5.86	<.001	−.09	−3.21	.016	−0.13	.900

Note. Ninety-five percent confidence intervals are presented in Supplemental Materials. The $r_w^{(fv)}$ statistic is defined as the square root of the proportion of variance explained by within-person predictors via fixed slopes and random slope variation/covariation (Rights & Sterba, 2019). This statistic is analogous to a measure of the square root of the proportion reduction in variance, akin to a correlation (Hox, 2002; Kreft & de Leeuw, 1998; Raudenbush & Bryk, 2002).

Figure 1

Concurrent Interactions Between General Gratitude and Gratitude to God



Note. See the online article for the color version of this figure.

Discussion

In a sample of undergraduate students in the United States, we found that though most of the variation in general gratitude and gratitude to God varied between individuals, a substantial portion of variance occurred within individuals as well over a span of 2 years. That is, levels of gratitude changed over time within individuals, and these changes covaried with changes in well-being. The more gratitude people reported at a particular wave, relative to their typical or average levels, the more meaningful they found their lives and the less anxiety and depression they reported. Each form of gratitude was significantly associated with each of the well-being measures in models that included each of them as predictors, which means that each form of gratitude has a unique association with well-being that is not accounted for by the other. Moreover, one form of gratitude was not more strongly associated with well-being than the other form of gratitude, with the exception of meaning in life, for which general gratitude was a stronger predictor.

These findings differ to a certain degree from prior research that has shown that general gratitude is a stronger predictor of well-being than gratitude to God (Newman et al., 2024; Rosmarin et al., 2011). Though we are cautious in overinterpreting a nonsignificant difference between coefficients, we note that both forms of gratitude were significantly associated with well-being after controlling for the other. This might be taken as evidence to bolster the claim by Moon et al. (2023) that religion does play a unique role in explaining well-being, but other mechanisms might also be at play. For example, rather than religious or spiritual aspects driving effects, it may be that gratitude to God explains unique variance because it is processed at a different construal level than general gratitude to other people (Nelson et al., 2022). In future studies, it would be worthwhile to isolate potential mechanisms for gratitude to God's unique effects by comparing and contrasting effects when other specific human (e.g., one's parents) and nonhuman givers (e.g., one's country; see Tsang et al., 2023) are tested alongside gratitude to God. We hypothesize that the single significant result for general gratitude having a stronger effect on meaning in life than gratitude to God may reflect the fact that the plethora of givers that can be activated by general gratitude provides more potential sources of meaning than God as a single giver. Future research with single giver comparisons to God can test whether this is the case.

In concurrent analyses, we also found interesting interactions between each form of gratitude in support of a compensation model. The associations between each form of gratitude and meaning in life and depression were stronger at lower levels of the other form of gratitude. For instance, gratitude to God was more strongly positively associated with meaning in life at lower levels of general gratitude. This suggests that one form of gratitude might be sufficient to improve well-being. Reporting both types of gratitude may not be necessary to boost one's well-being. These findings corroborate prior research that has found similar types of interactions in cross-sectional data examining between-person associations (Newman et al., 2024)

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Table 3
Lagged Associations Between Gratitude and Well-Being

	Separate predictor											
	General gratitude						Gratitude to God					
	General gratitude → Well-being			Well-being → General gratitude			Gratitude to God → Well-being			Well-being → Gratitude to God		
Well-being	*B*	*z*	*p*	*B*	*z*	*p*	*B*	*z*	*p*	*B*	*z*	*p*
Meaning in life	.14	4.97	<.001	.13	3.69	<.001	.10	2.97	.003	.08	2.18	.029
Anxiety	−.08	−2.66	.008	−.02	−0.56	.574	−.02	−0.55	.579	−.03	−0.94	.346
Depression	−.07	−2.55	.011	−.06	−1.81	.070	−.08	−2.33	.020	−.07	−2.32	.021

	Simultaneous predictor							
	General gratitude → Well-being			Gratitude to God → Well-being			Comparison	
Well-being	*B*	*z*	*p*	*B*	*z*	*p*	χ^2 *diff*	*p*
Meaning in life	.13	4.41	<.001	.07	2.27	.023	1.45	.228
Anxiety	−.08	−2.68	.007	.01	0.17	.869	3.10	.078
Depression	−.06	−2.05	.041	−.06	−1.89	.059	0.00	.952

Note. Ninety-five percent confidence intervals are presented in Supplemental Materials.

and in EMA data examining within-person associations (Newman et al., 2025). Thus, these processes might operate in functionally similar ways at unique levels of analysis.

In lagged analyses, we found fewer significant associations, as is often the case when examining lagged associations, particularly of longer durations. The most robust associations involved meaning in life, as each form of gratitude predicted greater meaning in life in models that included each form of gratitude separately and simultaneously. One form of gratitude was not significantly stronger than the other. Moreover, meaning in life also predicted greater general gratitude and gratitude to God, indicating bidirectional effects. Future research should explore mechanisms by which both forms of gratitude and meaning in life might produce these reciprocal positive effects. For example, the find–remind–bind theory of gratitude emphasizes the ways gratitude facilitates relationship formation and maintenance (Algoe, 2012), and previous research has found that social connectedness is bidirectionally associated with meaning in life (Stavrova & Luhmann, 2016). Researchers should test whether relationship connectedness with other humans and the divine might mediate the gratitude–meaning association across time.

Differences between the two forms of gratitude emerged, however, as general gratitude predicted lower anxiety and depression, whereas gratitude to God predicted lower depression but not anxiety. At first glance, this seems to be at odds with a construal-level account (Trope & Liberman, 2010). Research has shown that anxiety is often elicited by high-level construal when people focus on abstract entities, whereas sadness is often elicited by low-level construal, such as concrete objects (Doré et al., 2015; Moran & Eyal, 2022). Because gratitude to God is presumably more abstract than general gratitude, one would expect findings in the opposite direction. However, these feelings may be elicited by different construals in the moment, but the lingering effects over time may differ. Additionally, research indicates that the association between anxiety and religiosity is more generally complex—such that moderators like extrinsic religiosity (Hardy et al., 2022), negative religious coping (Wilt et al., 2017), and doubt (Haney & Rollock, 2020) are associated with increased anxiety. These unaccounted-for variables unique to religiosity may partially explain why general gratitude but not gratitude to God was associated with lower anxiety. Future research is needed to test these possibilities. Moreover, the lagged associations predicting anxiety and depression were not particularly strong, and one form of gratitude was not significantly stronger than the other.

Limitations and Future Directions

We note a few limitations and avenues for future research. First, because our sample consisted of undergraduate students in the United States who were primarily Christian in their religious affiliation, our ability to generalize these findings more broadly is limited. In particular, it is likely that results would differ for atheists who do not believe in God or a supernatural power or for polytheists who believe in numerous gods and spiritual entities; studies should examine how other forms of spiritual gratitude, as well as gratitude to gods, relate to well-being within individuals across time. In future research, it would be beneficial to examine how these processes unfold among people of varying ages, cultures, religious backgrounds, levels of socioeconomic status, and other demographic characteristics. Similarly, we followed students during a 2-year period in college, and the lagged associations we detected may be specific to this particular time in people's lives. How these processes unfold in other developmental periods remains to be seen. Finally, we included measures of meaning in life, anxiety, and depression as indicators of well-being, but there are additional measures of well-being that were not included, such as life satisfaction and positive affect. Though well-being indicators are often correlated, they can sometimes have distinct associations with other variables (Newman et al., 2019; Tov & Lee, 2016). Relatedly, our measure of general gratitude may have captured feelings of gratitude to multiple targets, including gratitude to God. Our measure of general gratitude may have confounded various targets, thus limiting our ability to make clean comparisons between gratitude to God and gratitude toward

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other targets. In future research, it may be helpful to adopt an approach like Tsang et al. (2023) comparing gratitude to God against gratitude directed toward one specific person or agent (e.g., parent) or powerful entity (e.g., one's country).

In future research, it could be beneficial to examine how within-person associations over time predict long-term health and well-being outcomes. For instance, do individuals who exhibit particularly strong within-person associations between gratitude to God and meaning in life have better health and well-being as they age compared to those with weaker associations? It could also be beneficial to combine the present method of longitudinal associations with EMA studies, sometimes known as a burst design. Participants could complete EMA studies by answering questions about their emotions and well-being over a 2- or 3-week period, and they could repeat this process every 6 months or once a year. This design would allow participants to report both types of gratitude as they naturally occur, eliminating the need to rely on extensive recall. It would also enable researchers to examine how within-person associations in daily life might predict long-term outcomes.

Conclusions

People can feel grateful to other humans and supernatural beings. This variation is not only observed between individuals but also within individuals over time and covaries with their well-being. General gratitude and gratitude to God were positively associated with concurrent well-being, and each form of gratitude helped compensate for a lack in the other. Both forms of gratitude predicted greater meaning in life and lower depression but differed in their associations with anxiety at a later time. Overall, these findings support the importance of studying both forms of gratitude, demonstrating their independent yet compensatory effects within people.

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