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Still logged in? Self-forgiveness is linked to lower fear of missing out (FoMO) only at lower levels

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ABSTRACT

Objective: Fear of missing out (FoMO) is a growing phenomenon that can occur across various life domains, including but not limited to online environments. It has been associated with reduced well-being, which makes it important to identify potential protective factors. The present study examined whether dispositional forgiveness, specifically forgiveness of others, perceived forgiveness by God, and self-forgiveness, is modestly associated with FoMO in a sample of Polish adults active on social networking platforms, where the experience is most common.

Method: A cross-sectional survey was conducted with 290 participants aged 18–65 who completed the Toussaint Forgiveness Scale and the Fear of Missing Out Scale.

Results: Multiple regression analyses confirmed that only self-forgiveness was significantly associated with FoMO when sociodemographic variables were controlled, with a small effect size. Quantile regression showed significant associations at the 25th and 50th percentiles, but not at the 75th percentile.

Conclusion: These findings suggest that self-forgiveness may represent a modest psychological resource associated with lower FoMO, particularly in preventive and educational contexts, while underscoring the need for broader resources to address more severe experiences of FoMO.

KEY POINTS

What is already known about this topic:

(1) FoMO is linked to lower well-being, including anxiety, depression, and problematic social media use.
(2) FoMO is associated with self-related vulnerabilities, including low self-esteem and ideal – real self discrepancies.
(3) Forgiveness is a psychological resource supporting emotion regulation and mental health.

What this study adds:

(1) Self-forgiveness shows a modest association with lower FoMO at low and moderate levels.
(2) Forgiveness of others and perceived forgiveness by God were not significantly associated with FoMO.
(3) Self-forgiveness may be more relevant for early-stage or preventive interventions.

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Self-forgiveness; forgiveness; fear of missing out; FoMO; social media

Introduction

Fear of missing out (FoMO) is commonly defined as the pervasive apprehension that others may be having rewarding experiences from which one is absent, accompanied by the desire to remain continually connected with others (ÇetiNkaya et al., 2021; Przybylski et al., 2013). From the perspective of Self-Determination Theory (Deci & Ryan, 2008), FoMO arises from the frustration of basic psychological needs for autonomy, competence, and relatedness (Butt & Arshad, 2021; Gupta & Sharma, 2021). Alternative approaches emphasise that FoMO extends beyond the social domain and is also tightly linked to the self-concept (Dogan, 2019; Wijaya & Subroto, 2025). Zhang et al. (2020) demonstrated that FoMO can be conceptualised as the

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discrepancy between one's ideal self and real self in the domain of social life. This perspective highlights FoMO as a multifaceted construct shaped both by intrapsychic mechanisms (e.g., self-esteem, identity, self-coherence) and environmental factors (e.g., social media as a context for continuous social monitoring and evaluation).

Empirical research supports these complementary perspectives. Individuals with lower subjective life satisfaction, heightened loneliness, and diminished self-esteem consistently report higher levels of FoMO (Uram & Skalski, 2022). These vulnerabilities not only increase the risk of social comparison and negative affect (Reer et al., 2019; Roberts & David, 2020) but also contribute to problematic engagement with social networking platforms such as Facebook, often culminating in addictive patterns of use (Beyens et al., 2016; Elhai et al., 2016; Rozgonjuk et al., 2020). Moreover, FoMO has been associated with greater stress, anxiety, depressive symptoms, and diminished psychological well-being (Baker et al., 2016; Groenestein et al., 2024; Sultan Ibrahim et al., 2022; Wibowo & Safaria, 2025).

From a developmental perspective, FoMO appears to vary across the lifespan and individual dispositions, with higher levels typically observed among younger individuals and those characterised by greater neuroticism, pointing to its developmental and socio-emotional regulatory underpinnings (Rozgonjuk et al., 2021). Emerging research further suggests that FoMO may play a role in identity formation and negotiation processes, particularly in digital and intercultural contexts, where peer influence and self-presentational pressures shape self-concept development (Gündüz & Pembecioğlu, 2019; Wuysang et al., 2025).

Within the stress and coping framework (Lazarus & Folkman, 1984), the harmful consequences of FoMO highlight the need for resilience mechanisms that can buffer their effects. Forgiveness has been conceptualised as one such mechanism (Strelan, 2020; Toussaint et al., 2017; Worthington & Scherer, 2004), defined as the intentional process of releasing resentment or negative emotions towards the self or others, and replacing them with neutral or even benevolent responses (Skalski-Bednarz, Toussaint, Webb, et al., 2024; Worthington, 2020). In addition to offence-specific forgiveness (Akhtar et al., 2017; Davis et al., 2015; Mróz et al., 2021; Skalski-Bednarz, Toussaint, Konaszewski, et al., 2024; Toussaint, Lee, et al., 2023), forgiveness has also been examined as a dispositional trait (Berry et al., 2005; Stackhouse, 2019). Individuals high in dispositional forgiveness tend to exhibit a more resilient orientation towards adversity, showing greater capacity for emotion regulation, adaptive coping, and recovery in the face of stress. This resilience may be partly explained by reductions in shame, guilt, and rumination, as well as increases in self-worth and self-coherence following self- or other-related transgressions, which together contribute to diminished self-discrepancy through the reappraisal of such experiences and the construction of more adaptive, generalised meanings (Berry et al., 2005; Macaskill, 2012; Skalski-Bednarz et al., 2025; Skalski-Bednarz, Toussaint, Webb, et al., 2024; Worthington et al., 2007).

Conceptualisations of forgiveness often converge on three dimensions: forgiveness of others, self-forgiveness, and forgiveness by God (Fincham & May, 2020; Toussaint et al., 2001; Toussaint, Worthington, et al., 2023). *Forgiveness of others* reduces hostility and fosters reconciliation, thereby strengthening social connectedness and belongingness (Lee & Enright, 2019; Long et al., 2020; Skalski-Bednarz, Toussaint, Webb, et al., 2024) – resources that directly counteract the feelings of isolation and exclusion underlying FoMO (Alabri, 2022; Scheinfeld & Voorhees, 2022). *Self-forgiveness* enables individuals to confront guilt, shame, and self-condemnation in adaptive ways, facilitating the repair of self-worth and the reconstruction of personal values (Arslan & Coşkun, 2022; Bem et al., 2021; Kim et al., 2024; Vismaya et al., 2024). Since FoMO has been consistently linked with low self-esteem and fragile self-concept (Uram & Skalski, 2022; Zhang et al., 2020), this pathway may provide an essential protective resource. Finally, *perceived forgiveness by God* offers a source of existential reassurance and meaning-focused coping, particularly salient for those embedded in religious or spiritual frameworks. For believers, perceiving themselves as forgiven by God may further strengthen this process by restoring coherence, alleviating distress, and regulating the sense of unmet needs and existential insecurity that may fuel FoMO (Exline, 2019; Fincham, 2022; Strabbing, 2017). Although this construct may appear culturally specific, its inclusion is justified by the widespread prevalence of belief in God, religiosity, and evidence that religious beliefs meaningfully shape individuals' attitudes and behaviour. Moreover, its psychological relevance appears to extend across traditions, particularly among individuals who perceive God as a personal and relational agent involved in their lives (Fincham, 2022).

Forgiveness has also begun to be examined in digital contexts. Studies show that forgiveness of others can serve as a coping strategy in response to online transgressions, such as cyberhate or interpersonal offences in virtual interactions (Mróz & Kaleta, 2022). Extending this perspective, Arslan (2017) found that dispositional forgiveness – encompassing components such as self-forgiveness and forgiveness of others – mediated the association between psychological maltreatment and Internet addiction among young adults, while mindfulness provided an additional protective pathway. Similarly, Arslan and Coşkun (2022) demonstrated that self-forgiveness mediated the link between social exclusion and Internet addiction, with mindfulness amplifying this effect. Yet, no studies have directly investigated these mechanisms in relation to FoMO, leaving a notable gap in the literature. Drawing on prior findings, we hypothesise that forgiveness of others, self-forgiveness, and perceived forgiveness by God will each be negatively associated with FoMO. Although FoMO can arise in diverse life domains (e.g., Budnick et al., 2020), it most commonly manifests in relation to social media use (Roberts & David, 2020), which provides a salient context for its study. Accordingly, the present research examines these associations in a sample of Polish social media users.

Although negative associations are expected across all forgiveness dimensions, the strongest effects may pertain to self-forgiveness. Drawing on self-concept (Zhang et al., 2020) accounts of FoMO, self-forgiveness may be particularly relevant, as it restores self-esteem, supports the reorganisation of personal values, and reduces unrealistic self-expectations that can fuel FoMO (Arslan & Coşkun, 2022; Griffin et al., 2018). Moreover, its protective role may not be uniform across FoMO severity, with potentially weaker effects under higher levels of strain, in line with stress – vulnerability perspectives (Li et al., 2012; Wang et al., 2010). When stress is low, protective factors can function adaptively, but under conditions of heightened strain, risk factors undermine their impact (Fu et al., 2012; Yang & Ye, 2014). Building on this assumption, findings by Dou et al. (2023) indicate that perceived stress moderates the effectiveness of protective resources: under high stress, cognitive and emotional depletion reduces the impact of such factors, whereas under lower stress these resources adaptively buffer against FoMO. Relatedly, intervention research shows that subgroups of distressed individuals often respond differently to positive psychological strategies (Parks et al., 2012; Sergeant & Mongrain, 2015).

Integrating the reviewed theoretical perspectives, we developed a conceptual model in which discrepancies between the ideal and real self are cognitively appraised as self-relevant threats, giving rise to FoMO-related thoughts, emotions, and behaviours. Within this framework, forgiveness and particularly self forgiveness, which is expected to show the strongest effect, is conceptualised as a regulatory resource that reduces maladaptive self evaluations and buffers the impact of these processes on FoMO, with effects that vary across levels of FoMO intensity see Figure 1.

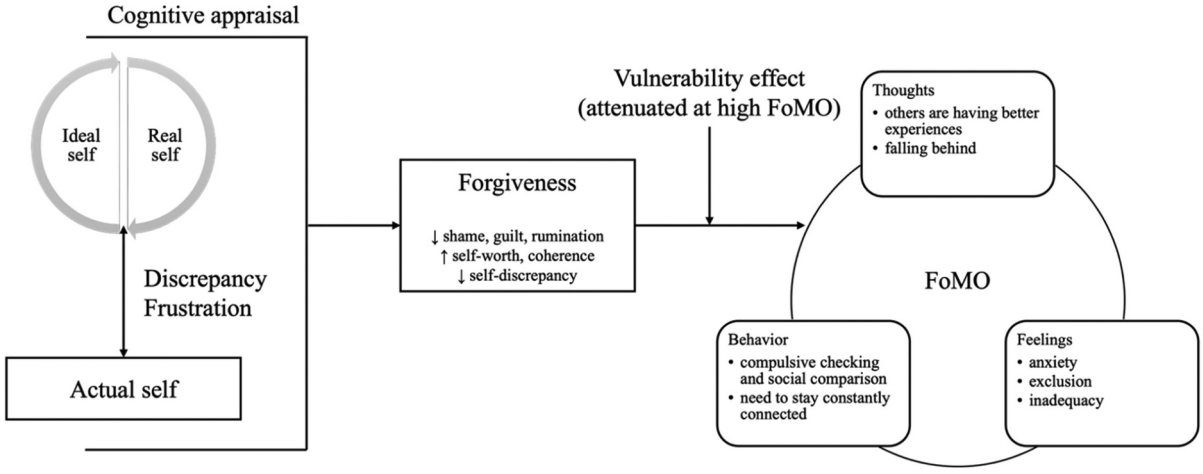

Figure 1. Conceptual model linking self-discrepancy, cognitive appraisal, forgiveness, and fear of missing out (FoMO). *Note*. The model depicts FoMO as a cognitive, emotional, and behavioural response emerging from the appraisal of discrepancies between the ideal and real self in the domain of social life. This discrepancy is cognitively evaluated as self-relevant and potentially threatening, giving rise to FoMO-related thoughts, feelings, and behaviours. Forgiveness, particularly self-forgiveness, is conceptualised as a regulatory resource that operates by reducing shame, guilt, and rumination, while enhancing self-worth and coherence, thereby diminishing self-discrepancy. As a result, it buffers the intensity of FoMO. Importantly, the effectiveness of this regulatory process is expected to vary across levels of FoMO, with weaker effects observed at higher FoMO intensity, consistent with a vulnerability-based perspective on non-uniform protective effects.

To account for heterogeneity in FoMO, the present study employs quantile regression to examine whether the predictive role of forgiveness varies across its distribution. Unlike ordinary least squares (OLS), which estimates average effects across the entire distribution, quantile regression allows for the examination of differential associations at specific points of the outcome distribution, making it particularly suitable for detecting variability in effects across low, moderate, and high levels of FoMO. Protective associations of forgiveness are expected to weaken, and may become nonsignificant, at higher levels of FoMO.

Materials and methods

Participants

We conducted a cross-sectional study in Poland, recruiting a general population sample of 290 social media users in the spring of 2024 through open calls on social media platforms (e.g., Facebook, X) and institutional mailing lists. Eligibility criteria included Polish nationality, a minimum age of 18 years, and a self-declaration of active social media use. The average age of participants was 40.8 years ($SD = 13.7$, range = 18–65). The sample consisted of 58% female, 40% male, and 2% other. With respect to place of residence, 28% reported living in towns with fewer than 100,000 inhabitants (reference group), 19% in towns of 100,000–250,000, 14% in cities of 250,000–500,000, 23% in cities of more than 500,000, and 16% in villages. Educational attainment was distributed as follows: 3% elementary school, 3% middle school/junior high, 44% high school, 32% college/university, and 18% vocational/technical school. In terms of employment, 66% were employed (reference group), 9% were unemployed, and 25% were students, of whom 16% combined study with employment. Regarding marital status, 52% were married or in civil partnerships, 12% were cohabiting, and 36% were single (reference group). Most participants (88%) identified as Christians, while 12% reported no religious affiliation.

Procedure

Data were collected through an anonymous online survey administered via Qualtrics. After providing informed consent, participants first completed demographic questions (sex, age, residence, education, marital status, and employment), followed by psychological measures assessing dispositional forgiveness and FoMO. The survey took approximately 10 minutes to complete. To ensure high data quality, the questionnaire included an attention-check item and response time monitoring; no irregularities were detected. Participation was voluntary and uncompensated. All data were stored securely on encrypted servers in compliance with the General Data Protection Regulation (GDPR). The study was approved by the institutional ethics committee, and participants were informed of their rights, including the right to withdraw at any time without consequences.

Power analysis

An a priori power analysis was conducted for the multiple regression analysis. Assuming a small-to-moderate effect size ($f^2 = .13$), a significance level of $\alpha = .05$ (two-tailed), desired power of $1 - \beta = .80$, and 17 predictors, the required minimum sample size was estimated at $N = 166$. The final sample of 290 participants therefore, exceeded this threshold, ensuring sufficient statistical power for the planned analyses. Quantile regression models were included as a robustness check; no separate a priori power analysis was conducted for these models.

Measures

Dispositional forgiveness

Dispositional forgiveness was measured with the Toussaint Forgiveness Scale (TFS; Toussaint et al., 2001) in the Polish adaptation by Charzyńska and Heszen (2013). The instrument consists of 9 items grouped into three dimensions: *forgiveness of others* (5 items), *self-forgiveness* (2 items), and *perceived forgiveness by God* (2 items). Responses were given on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*),

with higher scores reflecting higher dispositional forgiveness. An example item is: "I find it hard to forgive myself for some of the things I have done wrong" (reverse-scored). In the present study, internal consistency was acceptable for forgiveness of others (α = .77) and self-forgiveness (α = .71; Spearman – Brown r = .69), and high for perceived forgiveness by God (α = .88; r = .76).

Fear of missing out

FoMO was assessed with the Fear of Missing Out Scale by Przybylski et al. (2013). The instrument consists of 10 items that capture concerns about missing rewarding experiences and the need to stay connected with others. Responses were given on a five-point scale ranging from 1 (*completely untrue*) to 5 (*completely true*). Example items include: "I get worried when I find out my friends are having fun without me" and "I get anxious when I don't know what my friends are up to". In this study, we used the Polish version of the scale, which demonstrated high internal consistency (α = .90).

Statistical analysis

All analyses were conducted in R (version 4.5.0). Preliminary data screening involved examining skewness and kurtosis of the study variables, as well as Levene's tests for equality of variances and inspection of residual plots to verify model assumptions. Descriptive statistics (means, medians, standard deviations, skewness, and kurtosis) were computed for all variables. Pearson's correlation coefficients with 95% confidence intervals were calculated to examine bivariate associations between dimensions of dispositional forgiveness and FoMO. To examine the associations between forgiveness dimensions while accounting for sociodemographic covariates, we conducted OLS multiple regression analyses with FoMO as the dependent variable. In addition, quantile regression analyses were performed at the 25th, 50th, and 75th percentiles of FoMO to test whether the associations observed in OLS regression were consistent across different levels of FoMO. No missing data were observed, as all questionnaire items were required responses in the online survey. Categorical sociodemographic variables were dummy-coded, with reference categories specified in the tables. Multicollinearity was assessed using variance inflation factors (VIF), which indicated no concerns (all VIFs < 2). Internal consistency was assessed using Cronbach's α, and for two-item subscales using Spearman – Brown coefficients. Statistical significance was set at $p < .05$ (two-tailed). Effect sizes were reported as adjusted R^2 for OLS regression models and pseudo R^2 for quantile regression models. Quantile regression models were estimated using the *quantreg* package, with additional processing and reporting supported by the *broom* and *dplyr* packages.

Results

Preliminary analyses indicated that the distributions of all study variables did not deviate substantially from normality, as skewness and kurtosis values were within the recommended range of ±1. Levene's tests suggested equality of variances across groups, and inspection of residual plots revealed no major violations of homoscedasticity. These findings supported the use of parametric analyses. Descriptive statistics and intercorrelations among study variables are presented in Table 1. Forgiveness of others was positively and moderately associated with self-forgiveness, r = .43, $p < .001$. Perceived forgiveness by God showed a small positive correlation with both self-forgiveness, r = .21, p = .001, and forgiveness of others, r = .12, p = .041.

Table 1. *Descriptive statistics and correlation (N = 290).*

					r		
Variable	*M*	*Med*	*Sk*	*K*	1.	2.	3.
Forgiveness of others	15.71 (2.01)	16	−0.14	0.30	—		
Perceived forgiveness by God	6.1 (2.84)	6	0.06	−0.71	.12* [.01, .23]	—	
Self-forgiveness	5.78 (2.30)	6	−0.02	−0.85	.43*** [.23, .55]	.21** [.08, .34]	
Fear of Missing Out	28.4 (6.65)	28.50	0.17	−0.35	−.05 [−.15, .06]	−.07 [−.18, .04]	−.11* [−.20, −.02]

*Note. M = mean; Med = median; Sk = skewness; K = kurtosis; r = Pearson correlation coefficient. Values in parentheses represent standard deviations. Correlations are Pearson's r. 95% confidence intervals are shown in brackets. *p < .05, **p < .01, ***p < .001.*

Table 2. *Dispositional forgiveness as predictor with sociodemographic covariates of fear of missing out: ordinary least squares regression (N = 290).*

Predictor	*B*	β	*SE B*	*t*	*p*	CI95% B
(Intercept)	27.28		8.34	4.54	<.001	[20.6, 52.10]
Forgiveness of others	−0.19	−.07	0.2	−1.06	.288	[−0.60, 0.18]
Perceived forgiveness by God	−0.07	−.03	0.15	−0.53	.598	[−0.36, 0.21]
Self-forgiveness	−0.73	−.26	0.18	−4.20	<.001	[−1.10, −0.40]
Sex: male (ref = female)	−1.47		1.27	−1.17	.245	[−3.98, 1.02]
Age	−0.09	−.03	0.22	−0.42	.674	[−0.52, 0.34]
Residence: city 100k–250k (ref = <100k)	3.79		2.78	1.36	.174	[−1.69, 9.24]
Residence: city 250k–500k (ref = <100k)	1.70		2.66	0.64	.523	[−3.54, 6.93]
Residence: city > 500k (ref = <100k)	2.44		1.06	2.30	.022	[0.35, 4.53]
Residence: village (ref = <100k)	1		1	1.01	.314	[−0.96, 2.97]
Education: middle school / junior high (ref = elementary school)	6.53		6.82	0.96	.339	[−6.90, 20]
Education: high school (ref = elementary school)	3.14		4.67	0.67	.502	[−6.05, 12.3]
Education: college/university (ref = elementary school)	3.74		5.24	0.71	.476	[−6.58, 14]
Education: vocational/technical school (ref = elementary school)	1.39		5.89	0.24	.813	[−10.20, 13]
Marital status: married/civil (ref = single)	−0.95		2.30	−0.42	.678	[−5.48, 3.57]
Marital status: cohabiting (ref = single)	1.17		0.84	1.39	.165	[−0.49, 2.83]
Employment: unemployed (ref = employed)	−2.86		3.05	−0.94	.350	[−8.87, 3.16]
Employment: student & employed (ref = employed)	−2.39		3.09	−0.77	.441	[−8.48, 3.71]

Note. Predictor = independent variable. B = unstandardized regression coefficient. β = standardized regression coefficient (beta). SE B = standard error of the unstandardized coefficient. t = t-statistic. p = significance level. CI95% B = 95% confidence interval for B. Overall model: $F_{(17,\ 261)} = 1.83$, $p = .025$, Adjusted $R^2 = .05$. Other sex (n = 6) was excluded from the models due to underrepresentation (sensitivity analyses including this category did not materially alter the results). Standardized coefficients were not reported for sociodemographic variables because several were categorical, making standardization less interpretable; thus, unstandardized coefficients are presented.

FoMO was negatively correlated with self-forgiveness, $r = -.11$, $p = .049$, representing a small effect. No other correlations reached statistical significance.

The results of the OLS regression are presented in Table 2. The overall model was significant, $F_{(17,\ 261)} = 1.83$, $p = .025$, with an adjusted R^2 of .05. Among the forgiveness predictors, only self-forgiveness was significantly associated with FoMO ($B = -0.73$, $p < .001$). Regarding sociodemographic covariates, residence in a city with more than 500,000 inhabitants was positively related to FoMO ($B = 2.44$, $p = .022$). All other sociodemographic predictors were nonsignificant ($p_s > .05$).

Finally, we examined whether the patterns of associations observed in the OLS regression were sustained across different levels of FoMO. The results of the quantile regression analyses are presented in Table 3. At the 25th percentile of FoMO, self-forgiveness was significantly associated with lower FoMO ($B = -0.74$, $p = .002$). At the 50th percentile, self-forgiveness again significantly predicted lower FoMO ($B = -0.73$, $p = .008$). At the 75th percentile, however, the effect of self-forgiveness was not significant ($B = -0.57$, $p = .081$).

For sociodemographic covariates, living in a city of 100,000–250,000 residents ($B = 7.05$, $p = .015$) and in a city of more than 500,000 residents ($B = 3.74$, $p = .008$) were associated with higher FoMO at the 25th percentile. At the same percentile, marital status (cohabiting vs. single) was also positively related to FoMO ($B = 2.66$, $p = .022$). At the 50th and 75th percentiles, none of the sociodemographic covariates reached significance ($p_s > .05$).

Overall, these results suggest that the negative association between self-forgiveness and FoMO was evident at lower and moderate levels of FoMO, but was not significant at higher FoMO severity (75th percentile).

Discussion

The most striking finding of this study is that the negative relationship between forgiveness and FoMO is not uniform but depends on the level of FoMO. As hypothesised, self-forgiveness was modestly associated with decreased FoMO among individuals with low to moderate levels. This pattern is consistent with stress – vulnerability perspectives, which posit that the effectiveness of psychological resources diminishes as stress increases; accordingly, high FoMO may reflect a level of strain at which additional regulatory resources are required (Alhaj et al., 2024; Li et al., 2012; Wang et al., 2010). In practical terms, this indicates that a one point increase in self-forgiveness (on a 2 to 10 scale) was associated with an approximately 0.7 point decrease in

Table 3. *Dispositional forgiveness as a predictor with sociodemographic covariates of fear of missing out: quantile regression at the 25th, 50th, and 75th percentiles (N = 290).*

tau	Predictor	*B*	β	*SE B*	*t*	*p*	CI95% B
.25	(Intercept)	24.34		10.6	3.13	.002	[12.47, 54.20]
	Forgiveness of others	−0.31	−.10	0.22	−1.46	.144	[−0.74, 0.11]
	Perceived forgiveness by God	−0.17	−.08	0.2	−0.89	.372	[−0.57, 0.21]
	Self-forgiveness	−0.74	−.26	0.24	−3.13	.002	[−1.20, −0.28]
	Sex: male (ref = female)	−2.38		1.49	−1.62	.107	[−5.32, 0.51]
	Age	−0.08	−.03	0.35	−0.21	.831	[−0.76, 0.61]
	Residence: city 100k–250k (ref = <100k)	7.05		2.9	2.45	.015	[1.42, 12.80]
	Residence: city 250k–500k (ref = <100k)	0.83		3.78	0.23	.821	[−6.56, 8.27]
	Residence: city > 500k (ref = <100k)	3.74		1.44	2.65	.008	[1.00, 6.66]
	Residence: village (ref = <100k)	0.22		1.22	0.20	.841	[−2.15, 2.64]
	Education: middle school / junior high (ref = elementary school)	7.22		7.81	0.91	.363	[−8.19, 22.43]
	Education: high school (ref = elementary school)	3.86		5.86	0.66	.511	[−7.63, 15.34]
	Education: college/university (ref = elementary school)	7.49		6.43	1.16	.248	[−5.15, 20.04]
	Education: vocational/technical school (ref = elementary school)	−4.12		10.2	−0.41	.680	[−24.10, 15.71]
	Marital status: married/civil (ref = single)	−2.66		4.74	−0.58	.560	[−12.06, 6.53]
	Marital status: cohabiting (ref = single)	2.66		1.14	2.30	.022	[0.39, 4.87]
	Employment: unemployed (ref = employed)	−3.66		3.76	−1.01	.313	[−11.17, 3.57]
	Employment: student & employed (ref = employed)	−3.83		3.85	−1.02	.307	[−11.50, 3.61]
.50	(Intercept)	21.76		10.6	3.08	.002	[11.83, 53.25]
	Forgiveness of others	−0.13	−.04	0.27	−0.49	.623	[−0.67, 0.40]
	Perceived forgiveness by God	−0.17	−.07	0.22	−0.79	.430	[−0.60, 0.25]
	Self-forgiveness	−0.73	−.25	0.27	−2.67	.008	[−1.27, −0.19]
	Sex: male (ref = female)	−1.48		1.95	−0.76	.448	[−5.30, 2.34]
	Age	−0.11	−.04	0.26	−0.44	.661	[−0.61, 0.39]
	Residence: city 100k–250k (ref = <100k)	3.48		3.19	1.09	.277	[−2.78, 9.74]
	Residence: city 250k–500k (ref = <100k)	2.66		4.94	0.54	.591	[−7.03, 12.34]
	Residence: city > 500k (ref = <100k)	2.78		1.58	1.76	.079	[−0.31, 5.87]
	Residence: village (ref = <100k)	0.83		1.56	0.53	.593	[−2.22, 3.89]
	Education: middle school / junior high (ref = elementary school)	6.64		7.46	0.89	.374	[−7.98, 21.26]
	Education: high school (ref = elementary school)	6.99		6.33	1.11	.270	[−5.41, 19.39]
	Education: college/university (ref = elementary school)	9.17		6.72	1.37	.173	[−3.99, 22.34]
	Education: vocational/technical school (ref = elementary school)	−1.89		12.1	−0.16	.876	[−25.63, 21.85]
	Marital status: married/civil (ref = single)	−0.12		3.27	−0.04	.971	[−6.53, 6.29]
	Marital status: cohabiting (ref = single)	1.63		1.13	1.45	.149	[−0.58, 3.85]
	Employment: unemployed (ref = employed)	−3.14		4.74	−0.66	.508	[−12.43, 6.14]
	Employment: student & employed (ref = employed)	−3.57		4.76	−0.75	.453	[−12.90, 5.75]
.75	(Intercept)	32.24		14	2.85	.005	[12.42, 67.11]
	Forgiveness of others	−0.23	−.08	0.37	−0.71	.477	[−0.98, 0.46]
	Perceived forgiveness by God	−0.11	−.06	0.26	−0.50	.617	[−0.63, 0.38]
	Self-forgiveness	−0.57	−.21	0.35	−1.75	.081	[−1.29, 0.07]
	Sex: male (ref = female)	−0.95		1.83	−0.50	.618	[−4.49, 2.67]
	Age	−0.02	−.01	0.43	−0.07	.944	[−0.87, 0.81]
	Residence: city 100k–250k (ref = <100k)	1.26		4.66	0.24	.809	[−8.00, 10.26]
	Residence: city 250k–500k (ref = <100k)	3.94		5.45	0.73	.466	[−6.70, 14.66]
	Residence: city > 500k (ref = <100k)	1.55		1.72	0.96	.340	[−1.73, 5.03]
	Residence: village (ref = <100k)	1.39		1.57	0.94	.348	[−1.60, 4.55]
	Education: middle school / junior high (ref = elementary school)	4.68		7.69	0.60	.549	[−10.46, 19.70]
	Education: high school (ref = elementary school)	2.66		7.64	0.36	.719	[−12.23, 17.73]
	Education: college/university (ref = elementary school)	2.15		8.47	0.26	.799	[−14.45, 18.77]
	Education: vocational/technical school (ref = elementary school)	15.16		12.9	1.18	.240	[−10.07, 40.45]
	Marital status: married/civil (ref = single)	0.02		2.69	0.01	.994	[−5.25, 5.29]
	Marital status: cohabiting (ref = single)	0.01		1.28	0.01	.995	[−2.50, 2.52]
	Employment: unemployed (ref = employed)	−2.50		4.28	−0.56	.578	[−10.77, 6.01]
	Employment: student & employed (ref = employed)	−1.89		4.42	−0.40	.689	[−10.44, 6.90]

Note. Tau = quantile. Predictor = independent variable. B = unstandardized regression coefficient. β = standardized regression coefficient (beta). SE B = standard error of the unstandardized coefficient. t = t-statistic. p = significance level. CI95% B = 95% confidence interval for B. Overall model fit: Pseudo R^2 = .12. Other sex (n = 6) was excluded from the models due to underrepresentation (sensitivity analyses including this category did not materially alter the results).). Standardized coefficients (β) were obtained by estimating the quantile regression models on z-standardized variables. Given the nature of quantile regression, these coefficients should be interpreted cautiously and are not directly comparable across quantiles. Standardized coefficients were not reported for sociodemographic variables because several were categorical, making standardization less interpretable; thus, unstandardized coefficients are presented.

FoMO (on a 10 to 50 scale). However, this association did not extend to higher FoMO intensity, suggesting that its role is limited rather than uniform across the distribution.

Although statistically significant, the effect sizes were small, indicating modest practical impact when considered in isolation. Thus, self-forgiveness should be interpreted as a modest, context-dependent resource rather than a primary determinant of FoMO. At the same time, given the widespread prevalence of FoMO and its consistent associations with psychological distress (Baker

et al., 2016; Groenestein et al., 2024; Sultan Ibrahim et al., 2022; Wibowo & Safaria, 2025), even small effect sizes may carry practical significance from the perspective of prevention and management, particularly in the case of modifiable variables. Evidence suggests that self-forgiveness can be enhanced through structured psychological interventions, including low-cost, population-level approaches such as brief, scalable strategies based on self-guided workbooks (e.g., REACH Self-Forgiveness; Worthington, 2013; Forgive for Good; Luskin, 2002), which have been shown to reduce rumination, improve emotional regulation, and foster compassion and empathy, all of which support the development of forgiveness.

More broadly, our study contributes to the growing body of research on resilience in digital contexts by situating self-forgiveness within a self-regulatory and developmental framework. This suggests that self-forgiveness may operate as a potential regulatory mechanism primarily at the level of normative self-evaluative processes, rather than under conditions of dysregulated functioning. To our knowledge, this is among the first studies to link self-forgiveness with FoMO, extending prior work focused primarily on problematic online behaviours such as internet addiction (Arslan, 2017; Arslan & Coşkun, 2022). Self-forgiveness may support the integration of negative self-relevant experiences into a coherent sense of self, consistent with lifespan perspectives on identity integration, including Erikson's (2015) notion of ego integrity. In this view, it may help recalibrate discrepancies between the actual and ideal self – central to FoMO (Zhang et al., 2020) – thereby reducing susceptibility to FoMO and highlighting its relevance for preventive and educational contexts.

Equally important is what did not emerge. Forgiving others and perceiving forgiveness by God showed no clear link to FoMO. This supports the view, as proposed by Zhang et al. (2020), that FoMO is an anxiety more strongly rooted in one's relationship with oneself than in interpersonal offences or spiritual reassurance. It may be that FoMO functions primarily as a form of self-evaluative anxiety rather than a response to relational harm: it stems from feelings of being left out or falling behind others, rather than from direct interpersonal transgressions. In this sense, forgiving others may not neutralise the source of FoMO, since the core problem lies less in others' actions than in one's own insecurities (Lee, 2022). For Polish social media users, FoMO thus appears to be a largely secular and self-related concern, less amenable to comfort through religious or interpersonal forgiveness. Moreover, in line with cross-cultural findings, self-forgiveness seems to be the most consistent dimension of forgiveness associated with well-being and mental health, whereas the relevance of interpersonal or divine forgiveness may vary depending on context (Skalski-Bednarz et al., 2025).

The effect of self-forgiveness remained significant even after accounting for sociodemographic variables. A few noteworthy sociodemographic patterns emerged. Living in large urban areas was associated with higher FoMO, suggesting that environments saturated with opportunities and constant connectivity may intensify FoMO regardless of personal traits. At the lower end of the FoMO distribution, marital status also showed an effect, with cohabiting individuals reporting higher FoMO than singles. It may be that those in relationships are more attuned to social opportunities or feel stronger pressure to keep up with shared experiences, which can heighten sensitivity to what is being missed. However, this association does not necessarily translate into clinical or pathological levels of FoMO.

Practical implications

The present findings carry practical implications for preventive and educational interventions in digital contexts, but they should not be understood as interventions for clinical cases where FoMO is already a severe problem. Educational programmes in schools, universities, or workplaces could consider self-forgiveness as a factor associated with lower FoMO in social media contexts. Given that the observed effects were limited to lower and moderate levels of FoMO, such programmes may be particularly relevant at early stages of risk, where maladaptive patterns are not yet consolidated. Simple practices – like journaling, cognitive reframing, or guided self-compassion exercises – may be explored as ways of supporting more adaptive interpretations of missed opportunities and reducing negative self-comparisons. Framed developmentally, these practices may support identity consolidation and socio-emotional regulation in the context of social comparison. They may also relate to broader aspects of psychological well-being, including depression and anxiety, as suggested by prior intervention research on self-forgiveness (Cornish & Wade,

2015; Skalski-Bednarz et al., 2025; Vismaya et al., 2024). For individuals with very high FoMO, broader therapeutic approaches targeting stress, loneliness, or identity insecurity may be needed before forgiveness-based techniques can take hold. In this sense, self-forgiveness is best viewed as a preventive and developmental resource within a broader toolkit for cultivating digital resilience.

Limitations

Several limitations of the present study should be acknowledged. First, the cross-sectional design based on self-reported data precludes causal inferences; it remains unclear whether forgiveness reduces FoMO, whether lower FoMO facilitates forgiveness, or whether both are shaped by third variables such as personality or general mental health. Second, our focus was on adult social media users in Poland, recruited online, which limits generalisability. The sample was not nationally representative and was skewed towards middle-aged adults, which may limit the applicability of the findings to younger populations, who typically report higher levels of FoMO and may differ in both digital engagement and identity-related processes. Moreover, the cultural specificity of the sample restricts the generalisability of the results beyond the Polish context, as the expression of FoMO and the role of forgiveness may vary across cultural and religious environments, particularly with regard to beliefs about and experiences of forgiveness by God. We also did not assess which platforms participants used or how intensively, and recruitment via platforms such as Facebook and X does not allow firm conclusions about actual usage patterns. Given that FoMO is context-dependent and may vary across platforms, which host diverse and niche forms of interaction (e.g., Gündüz et al., 2024), future research should account for platform-specific engagement. In line with the exploratory nature of the present study, the primary focus was on establishing general associations rather than testing more complex models. Relatedly, we measured FoMO in its standard social-media form, without distinguishing between its variants (e.g., work-related, family-related), which future research should also address.

Additionally, dispositional forgiveness was measured with the TFS, a widely used instrument in the Polish context; however, two subscales (self-forgiveness and perceived forgiveness by God) rely on only two items, which is not optimal. We therefore also reported Spearman – Brown reliability coefficients, which indicated acceptable internal consistency. Although ultra-brief measures are clearly inadequate for precise diagnosis, they can demonstrate satisfactory validity and reliability in specific research contexts, particularly when the goal is to examine associations between variables rather than to establish clinical thresholds (Matthews et al., 2022). At the same time, no well-established multi-item measures of perceived forgiveness by God are currently available in Polish, and alternatives such as the Heartland Forgiveness Scale present notable methodological limitations (Kaleta et al., 2016). Thus, while the TFS is an appropriate choice, further development of more robust measures is warranted. Given that variables such as personality traits and mental health indicators commonly co-occur with FoMO and are theoretically intertwined with both forgiveness and self-related processes (Alhaj et al., 2024; Blackwell et al., 2017; Skalski-Bednarz et al., 2025), their inclusion as covariates would be important for isolating the unique contribution of forgiveness. Importantly, it should be noted that the constructs examined in the present study were assessed using instruments with established validity, including evidence of both convergent and discriminant validity in prior research (Charzyńska & Heszen, 2013; Przybylski et al., 2013), which supports the interpretability of the observed associations despite the absence of these controls. Given that this is the first study to investigate the associations between FoMO and forgiveness, the main aim was to establish basic links and main effects without relying on excessively complex models. Future studies should therefore replicate these findings and provide more in-depth investigations of the underlying mechanisms by incorporating potential mediating, moderating, and confounding variables, particularly those related to psychological distress and self-concept, as well as by employing longitudinal or experimental designs and broadening the scope to include diverse age groups and contextual factors (e.g., urban vs. rural environments, FoMO types, and social media use patterns).

Conclusions

These preliminary findings suggest that self-forgiveness is inversely associated with FoMO in the context of Polish social media users. The effect was relatively small and appeared beneficial only at low and moderate levels of FoMO, tapering off once FoMO reached higher intensities. This indicates a limited, though noteworthy, role for

self-forgiveness – particularly in preventive contexts and in view of the broader health-promoting effects of self-forgiveness highlighted in prior research. In contrast, forgiving others and perceiving divine forgiveness showed no meaningful associations, suggesting that FoMO may be rooted more strongly in self-related insecurities than in interpersonal or spiritual dynamics.

Author contributions

Conceptualisation, S.S-B.; methodology, S.S-B. and L.T.; validation, S.S-B.; formal analysis, S.S-B.; investigation, P.U.; resources, S.S-B.; data curation, S.S-B.; writing – original draft preparation, S.S-B.; writing – review and editing, S.S-B., L. T., P.U., and P.A. All authors have read and agreed to the published version of the manuscript.

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Ethical approval and informed consent statements

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics Committee of Humanitas University in Sosnowiec (#6/2025). Informed consent was obtained from all individual participants included in the study.

Data availability statement

The data presented in this study are available from the corresponding author upon reasonable request. Access to the data is restricted due to privacy considerations and ethical requirements, and may be granted pending approval by the relevant institutional ethics committee.

References

Akhtar, S., Dolan, A., & Barlow, J. (2017). Understanding the relationship between state forgiveness and psychological wellbeing: A qualitative study. *Journal of Religion and Health*, *56*(2), 450–463. https://doi.org/10.1007/s10943-016-0188-9

Alabri, A. (2022). Fear of missing out (FOMO): The effects of the need to belong, perceived centrality, and fear of social exclusion. *Human Behavior and Emerging Technologies*, *2022*, 1–12. https://doi.org/10.1155/2022/4824256

Alhaj, H., Muthana, A., Abdalla, A., Marouf, M., & Awad, N. (2024). How are FOMO and nomophobia linked to symptoms of depression, anxiety and stress among university students? *BJPsych Open*, *10*(S1), S16–S17. https://doi.org/10.1192/bjo.2024.104

Arslan, G. (2017). Psychological maltreatment, forgiveness, mindfulness, and internet addiction among young adults: A study of mediation effect. *Computers in Human Behavior*, *72*, 57–66. https://doi.org/10.1016/j.chb.2017.02.037

Arslan, G., & Coşkun, M. (2022). Social exclusion, self-forgiveness, mindfulness, and internet addiction in college students: A moderated mediation approach. *International Journal of Mental Health and Addiction*, *20*(4), 2165–2179. https://doi.org/10.1007/s11469-021-00506-1

Baker, Z. G., Krieger, H., & LeRoy, A. S. (2016). Fear of missing out: Relationships with depression, mindfulness, and physical symptoms. *Translational Issues in Psychological Science*, *2*(3), 275–282. https://doi.org/10.1037/tps0000075

Bem, J. R., Strelan, P., & Proeve, M. (2021). Roads less travelled to self-forgiveness: Can psychological flexibility overcome chronic guilt/shame to achieve genuine self-forgiveness? *Journal of Contextual Behavioral Science*, *21*, 203–211. https://doi.org/10.1016/j.jcbs.2021.08.001

Berry, J. W., Worthington, E. L., Jr., O'Connor, L. E., Parrott, L., & Wade, N. G. (2005). Forgivingness, vengeful rumination, and affective traits. *Journal of Personality*, *73*(1), 183–226. https://doi.org/10.1111/j.1467-6494.2004.00308.x

Beyens, I., Frison, E., & Eggermont, S. (2016). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior*, *64*, 1–8. https://doi.org/10.1016/j.chb.2016.05.083

Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality & Individual Differences*, *116*, 69–72. https://doi.org/10.1016/j.paid.2017.04.039

Budnick, C. J., Rogers, A. P., & Barber, L. K. (2020). The fear of missing out at work: Examining costs and benefits to employee health and motivation. *Computers in Human Behavior*, *104*, 106161. https://doi.org/10.1016/j.chb.2019.106161

Butt, A. K., & Arshad, T. (2021). The relationship between basic psychological needs and phubbing: Fear of missing out as the mediator. *Psych Journal*, *10*(6), 916–925. https://doi.org/10.1002/pchj.483

ÇetiNkaya, A., Kirik, A. M., & Gündüz, U. (2021). Fear of missing out and problematic social media use: A research among university students in Turkey. *AJIT-E Online Academic Journal of Information Technology*, *32*(47), 12–31. https://doi.org/10.5824/ajite.2021.04.001.x

Charzyńska, E., & Heszen, I. (2013). Zdolnosc do wybaczania i jej pomiar przy pomocy polskiej adaptacji Skali Wybaczania LL Toussainta. DR Williamsa, MA Musicka i SA Everson [The capacity to forgive and its measurement with the Polish adaptation of The Forgiveness Scale LL Toussaint, D. R. Williams, MA Musick and SA Everson]. *Przegląd Psychologiczny*, *56*(4), 423–446.

Cornish, M. A., & Wade, N. G. (2015). Working through past wrongdoing: Examination of a self-forgiveness counseling intervention. *Journal of Counseling Psychology*, *62*(3), 521–528. https://doi.org/10.1037/cou0000080

Davis, D. E., Hook, J. N., Van Tongeren, D. R., DeBlaere, C., Rice, K. G., & Worthington, E. L., Jr. (2015). Making a decision to forgive. *Journal of Counseling Psychology*, *62*(2), 280–288. https://doi.org/10.1037/COU0000054

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, *49*(3), 182–185. https://doi.org/10.1037/a0012801

Dogan, V. (2019). Why do people experience the fear of missing out (FoMO)? Exposing the link between the self and the FoMO through self-construal. *Journal of Cross-Cultural Psychology*, *50*(4), 524–538. https://doi.org/10.1177/0022022119839145

Dou, F., Li, Q., Li, X., Li, Q., & Wang, M. (2023). Impact of perceived social support on fear of missing out (FoMO): A moderated mediation model. *Current Psychology*, *42*(1), 63–72. https://doi.org/10.1007/s12144-021-01404-4

Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior*, *63*, 509–516. https://doi.org/10.1016/j.chb.2016.05.079

Erikson, E. H. (2015). *Identity and the life cycle*. WW Norton & Company.

Exline, J. J. (2019). Anger toward God and divine forgiveness. In E. L. Worthington Jr., & N. G. Wade (Eds.), *Handbook of forgiveness* (2nd ed., pp. 117–127). Routledge.

Fincham, F. D. (2022). Towards a psychology of divine forgiveness. *Psychology of Religion and Spirituality*, *14*(4), 451–461. https://doi.org/10.1037/rel0000323

Fincham, F. D., & May, R. W. (2020). Divine, interpersonal and self-forgiveness: Independently related to depressive symptoms? *Journal of Positive Psychology*, *15*(4), 448–454. https://doi.org/10.1080/17439760.2019.1639798

Fu, Q., Ye, B., & Wen, Z. (2012). The impact mechanism of stressful life events on adolescents' subjective well-being. *Psychological Development and Education*, *28*(5), 516–523.

Griffin, B. J., Worthington, E. L., Jr., Davis, D. E., Hook, J. N., & Maguen, S. (2018). Development of the self-forgiveness dual-process scale. *Journal of Counseling Psychology*, *65*(6), 715–726. https://doi.org/10.1037/cou0000293

Groenestein, E., Willemsen, L., van Koningsbruggen, G. M., Ket, H., & Kerkhof, P. (2024). The relationship between fear of missing out, digital technology use, and psychological well-being: A scoping review of conceptual and empirical issues. *PLOS ONE*, *19*(10), e0308643. https://doi.org/10.1371/journal.pone.0308643

Gündüz, U., Demirel, S., & Tombul, I. (2024). Exploring the concept of financial domination on social media: Sentiment and text analysis on Twitter. *Atlantic Journal of Communication*, *32*(4), 602–625. https://doi.org/10.1080/15456870.2023.2178000

Gündüz, U., & Pembecioğlu, N. (2019). The selfies as a step forward to become "more" and "the most" by giving up "the self". *Media Literacy and Academic Research*, *2*(2), 109–127. https://www.mlar.sk/wp-content/uploads/2019/12/6_U_Gunduz.pdf

Gupta, M., & Sharma, A. (2021). Fear of missing out: A brief overview of origin, theoretical underpinnings and relationship with mental health. *World Journal of Clinical Cases*, *9*(19), 4881–4889. https://doi.org/10.12998/wjcc.v9.i19.4881

Kaleta, K., Mróz, J., & Guzewicz, M. (2016). Polska adaptacja skali przebaczenia - Heartland Forgiveness Scale [Polish adaptation of the Heartland Forgiveness Scale]. *Przegląd Psychologiczny*, *59*, 401–416.

Kim, J. J., Bechtel, S. K., Davis, C. M., Mavor, A. N., Cramer, V. G., French, C. R., Painter, K. J., & Hodge, A. S. (2024). The role of apology in the self-forgiveness-health link: Self-forgiveness predicts physical health via mental health. *Spirituality in Clinical Practice*, *12*(4), 461–473. https://doi.org/10.1037/scp0000369

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Lee, J. (2022). Three emotional design strategies to deal with FOMO. In G. Bruyns & H. Wei (Eds.), *[] with design: Reinventing design modes* (pp. 833–849). Springer. https://doi.org/10.1007/978-981-19-4472-7_55

Lee, Y. R., & Enright, R. D. (2019). A meta-analysis of the association between forgiveness of others and physical health. *Psychology and Health*, *34*(5), 626–643. https://doi.org/10.1080/08870446.2018.1554185

Li, D., Zhang, W., Li, X., Li, N., & Ye, B. (2012). Gratitude and suicidal ideation and suicide attempts among Chinese adolescents: Direct, mediated, and moderated effects. *Journal of Adolescence*, *35*(1), 55–66. https://doi.org/10.1016/j.adolescence.2011.06.005

Long, K. N. G., Worthington, E. L., Jr., VanderWeele, T. J., & Chen, Y. (2020). Forgiveness of others and subsequent health and well-being in mid-life: A longitudinal study on female nurses. *BMC Psychology*, *8*(1), 104. https://doi.org/10.1186/s40359-020-00470-w

Luskin, F. (2002). *Forgive for good: A proven prescription for health and happiness*. HarperCollins.

Macaskill, A. (2012). Differentiating dispositional self-forgiveness from other-forgiveness: Associations with mental health and life satisfaction. *Journal of Social & Clinical Psychology*, *31*(1), 28–50. https://doi.org/10.1521/jscp.2012.31.1.28

Matthews, R. A., Pineault, L., & Hong, Y. H. (2022). Normalizing the use of single-item measures: Validation of the single-item compendium for organizational psychology. *Journal of Business & Psychology*, *37*(4), 639–673. https://doi.org/10.1007/s10869-022-09813-3

Mróz, J., & Kaleta, K. (2022). Internet addiction as a moderator of the relationship between cyberhate severity and decisional forgiveness. *International Journal of Environmental Research and Public Health*, *19*(10), 5844. https://doi.org/10.3390/ijerph19105844

Mróz, J., Kaleta, K., & Skrzypińska, K. (2021). The role of spiritual intelligence and dispositional forgiveness in predicting episodic forgiveness. *Journal of Beliefs & Values*, *42*(4), 415–435. https://doi.org/10.1080/13617672.2020.1851555

Parks, A. C., Della Porta, M. D., Pierce, R. S., Zilca, R., & Lyubomirsky, S. (2012). Pursuing happiness in everyday life: The characteristics and behaviors of online happiness seekers. *Emotion*, *12*(6), 1222–1234. https://doi.org/10.1037/a0028587

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, *29*(4), 1841–1848. https://doi.org/10.1016/j.chb.2013.02.014

Reer, F., Tang, W. Y., & Quandt, T. (2019). Psychosocial well-being and social media engagement: The mediating roles of social comparison orientation and fear of missing out. *New Media and Society*, *21*(7), 1486–1505. https://doi.org/10.1177/1461444818823719

Roberts, J. A., & David, M. E. (2020). The social media party: Fear of missing out (FoMO), social media intensity, connection, and well-being. *International Journal of Human-Computer Interaction*, *36*(4), 386–392. https://doi.org/10.1080/10447318.2019.1646517

Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2020). Fear of missing out (FoMO) and social media's impact on daily-life and productivity at work: Do WhatsApp, Facebook, Instagram, and Snapchat use disorders mediate that association? *Addictive Behaviors*, *110*, 106487. https://doi.org/10.1016/j.addbeh.2020.106487

Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2021). Individual differences in fear of missing out (FoMO): Age, gender, and the big five personality trait domains, facets, and items. *Personality & Individual Differences*, *171*, 110546. https://doi.org/10.1016/j.paid.2020.110546

Scheinfeld, E., & Voorhees, H. L. (2022). How social media, FoMO, and isolation influence our perceptions of others who "break the rules". *Social Media + Society*, *8*(2). https://doi.org/10.1177/20563051221103841

Sergeant, S., & Mongrain, M. (2015). Distressed users report a better response to online positive psychology interventions than nondistressed users. *Canadian Psychology / Psychologie Canadienne*, *56*(3), 322–331. https://doi.org/10.1037/cap0000034

Skalski-Bednarz, S. B., Toussaint, L. L., Konaszewski, K., & Surzykiewicz, J. (2024). Episodic forgiveness in young American adults and its pathways to distress by health, outlook, spirituality, aggression, and social support. *Health Psychology Report*, *13*(3), 236–249. https://doi.org/10.5114/hpr/185739

Skalski-Bednarz, S. B., Toussaint, L. L., Makhashvili, N., Razmadze, M., Dębski, P., & Surzykiewicz, J. (2025). Dispositional forgiveness and mental health and well-being: Adaptation of the Toussaint forgiveness scale in Georgia and cross-cultural comparison with Poland. *Religions*, *16*(6), 720. https://doi.org/10.3390/rel16060720

Skalski-Bednarz, S. B., Toussaint, L. L., Webb, J. R., & Krok, D. (2024). Forgiveness of others and health: A review of key models and implications. *Humanitas Pedagogika i Psychologia*, *2*(30), 221–244. https://doi.org/10.5604/01.3001.0054.9768

Skalski-Bednarz, S. B., Toussaint, L. L., Webb, J. R., Wilson, C. M., Worthington, E. L., Jr., Williams, D. R., Reid, S. D., & Surzykiewicz, J. (2024). Religion and flourishing among Afro-Trinidadians: The influence of proneness to guilt/shame and forgiveness by God on the relationship between religious commitment and health. *Frontiers in Public Health*, *12*, 1443960. https://doi.org/10.3389/fpubh.2024.1443960

Stackhouse, M. R. D. (2019). Trait forgiveness as a predictor of state forgiveness and positive work outcomes after victimization. *Personality & Individual Differences*, *149*, 209–213. https://doi.org/10.1016/j.paid.2019.06.006

Strabbing, J. T. (2017). Divine forgiveness and reconciliation. *Faith and Philosophy*, *34*(3), 272–297. https://doi.org/10.5840/faithphil20178283

Strelan, P. (2020). The stress-and-coping model of forgiveness: Theory, research, and the potential of dyadic coping. In J. E. In & L. Worthington Jr., & N. G. Wade (Eds.), *Handbook of forgiveness* (2nd ed. pp. 63–73). Routledge/Taylor & Francis Group.

Sultan Ibrahim, S. A., Dahlan, A., Pauzi, N. W. M., & Vetrayan, J. (2022). Fear of missing out (FoMO) and its relation with depression and anxiety among university students. *Environment-Behaviour Proceedings Journal*, *7*(20), 233–238. https://doi.org/10.21834/ebpj.v7i20.3358

Toussaint, L., Lee, J. A., Hyun, M. H., Shields, G. S., & Slavich, G. M. (2023). Forgiveness, rumination, and depression in the United States and Korea: A cross-cultural mediation study. *Journal of Clinical Psychology*, *79*(1), 143–157. https://doi.org/10.1002/JCLP.23376

Toussaint, L. L., Webb, J. R., & Hirsch, J. K. (2017). Self-forgiveness and health: A stress-and-coping model. In L. Woodyatt, E. L. Worthington Jr., M. Wenzel, & B. J. Griffin (Eds.), *Handbook of the psychology of self-forgiveness* (pp. 87–99). Springer International Publishing. https://doi.org/10.1007/978-3-319-60573-9_7

Toussaint, L. L., Williams, D. R., Musick, M. A., & Everson, S. A. (2001). Forgiveness and health: Age differences in a U.S. probability sample. *Journal of Adult Development*, *8*(4), 249–257. https://doi.org/10.1023/A:1011394629736

Toussaint, L., Worthington, E. L., Jr., Webb, J. R., Wilson, C., & Williams, D. R. (2023). Forgiveness in human flourishing. In M. L. Heras, M. G. Grau, & Y. Rofcanin (Eds.), *Human flourishing* (pp. 117–131). Springer International Publishing. https://doi.org/10.1007/978-3-031-09786-7_8

Uram, P., & Skalski, S. (2022). Still logged in? The link between Facebook addiction, FoMO, self-esteem, life satisfaction and loneliness in social media users. *Psychological Reports*, *125*(1), 218–231. https://doi.org/10.1177/0033294120980970

Vismaya, A., Gopi, A., Romate, J., & Rajkumar, E. (2024). Psychological interventions to promote self-forgiveness: A systematic review. *BMC Psychology*, *12*(1), 258. https://doi.org/10.1186/s40359-024-01671-3

Wang, J., Li, D., & Zhang, W. (2010). Adolescence's family financial difficulty and social adaptation: Coping efficacy of compensatory, mediation, and moderation effects. *Journal of Beijing Normal University (Social Sciences)*, *4*, 22–32.

Wibowo, A., & Safaria, T. (2025). The role of FOMO on psychological well-being with nomophobia as a mediator among college students. *Current Psychology*, *44*(7), 6092–6101. https://doi.org/10.1007/s12144-025-07636-y

Wijaya, L. S., & Subroto, U. (2025). The influence of fear of missing out on self-concept among high school students. *Akademik: Jurnal Mahasiswa Humanis*, *5*(1), 353–366. https://doi.org/10.37481/jmh.v5i1.1209

Worthington, E. L., Jr. Jr. (2013). *Moving forward: Six steps to forgiving yourself and breaking free from the past*. Waterbrook Press.

Worthington, E. L., Jr. (2020). Understanding forgiveness of other people: Definitions, theories, and processes. In E. L. Worthington Jr., & N. G. Wade (Eds.), *Handbook of forgiveness* (2nd ed., pp. 11–21). Routledge/Taylor Francis Group.

Worthington, E. L., Jr., & Scherer, M. (2004). Forgiveness is an emotion-focused coping strategy that can reduce health risks and promote health resilience: Theory, review, and hypotheses. *Psychology and Health*, *19*(3), 385–405. https://doi.org/10.1080/0887044042000196674

Worthington, E. L., Jr., Witvliet, C. V. O., Pietrini, P., & Miller, A. J. (2007). Forgiveness, health, and well-being: A review of evidence for emotional versus decisional forgiveness, dispositional forgivingness, and reduced unforgiveness. *Journal of Behavioral Medicine*, *30*(4), 291–302. https://doi.org/10.1007/s10865-007-9105-8

Wuysang, J. M., Patriani, I., Pijoh, F. E., & Rahmawati. (2025). Fear of missing out and the dynamics of student identity: An intercultural communication perspective in the digital age (study at Faculty of Social and Political Sciences of Universitas Tanjungpura Pontianak). *Technium Social Sciences Journal*, *74*, 1–20. https://doi.org/10.47577/tssj.v74i1.13091

Yang, Q., & Ye, B. (2014). The effect of gratitude on adolescents' life satisfaction: The mediating role of perceived social support and the moderating role of stressful life events. *Journal of Psychological Science*, *37*(3), 610–616.

Zhang, Z., Jiménez, F. R., & Cicala, J. E. (2020). Fear of missing out scale: A self-concept perspective. *Psychology and Marketing*, *37*(11), 1619–1634. https://doi.org/10.1002/mar.21406