



Anxiety, Stress, & Coping

An International Journal

ISSN: 1061-5806 (Print) 1477-2205 (Online) Journal homepage: www.tandfonline.com/journals/gasc20

Is fear of missing out (FOMO) differentially related to underlying dimensions of negative affectivity? Analyzing latent factors of rumination, depression, and negative affect

Jon D. Elhai & Silvia Casale

To cite this article: Jon D. Elhai & Silvia Casale (01 Feb 2026): Is fear of missing out (FOMO) differentially related to underlying dimensions of negative affectivity? Analyzing latent factors of rumination, depression, and negative affect, *Anxiety, Stress, & Coping*, DOI: [10.1080/10615806.2026.2624434](https://doi.org/10.1080/10615806.2026.2624434)

To link to this article: <https://doi.org/10.1080/10615806.2026.2624434>

 [View supplementary material](#) 

 Published online: 01 Feb 2026.

 [Submit your article to this journal](#) 

 [View related articles](#) 

 [View Crossmark data](#) 



Is fear of missing out (FOMO) differentially related to underlying dimensions of negative affectivity? Analyzing latent factors of rumination, depression, and negative affect

Jon D. Elhai ^{a,b} and Silvia Casale ^c

^aDepartment of Psychology, University of Toledo, Toledo, OH, USA; ^bDepartment of Neurosciences and Psychiatry, University of Toledo, Toledo, OH, USA; ^cDepartment of Health Sciences, Psychology Unit, University of Florence, Florence, Italy

ABSTRACT

Background/Objectives: The Fear of Missing Out on rewarding experiences (FOMO) is linked with increased and problematic social media use. FOMO is also robustly correlated with negative affectivity constructs. However, research has not yet examined FOMO's relations with underlying dimensions of negative affectivity variables, to discover more specific aspects of negative affectivity with which FOMO may be most related.

Design/Methods: We analyzed data from 461 American university students for a web survey conducted in 2024, administering self-report scales assessing FOMO, rumination, negative affect, and depression.

Results: Using confirmatory factor analyses, we discovered that FOMO was significantly more related to rumination's brooding factor than reflection factor. FOMO was equally related to underlying factors of negative affect and depression.

Conclusions: These results help improve our understanding of the psychopathology of FOMO, elucidating its more granular relationship with the brooding type of rumination, and the mechanisms by which FOMO may related to depression and anxiety. Results are discussed in the context of FOMO's relationship with an increased social comparison orientation and social anxiety.

ARTICLE HISTORY

Received 28 April 2025

Revised 18 January 2026

Accepted 23 January 2026

KEYWORDS

Depression; fear of missing out; negative affect; factor analysis; rumination

Introduction

The fear of missing out on rewarding experiences (FOMO) is a psychological construct robustly related to increased social media use (Akbari et al., 2021), problematic social media (PSMU) and problematic smartphone use (Elhai, Yang, et al., 2021; Fioravanti et al., 2021). FOMO is also associated with alcohol-related problems (Ayala Guzman et al., 2025; Riordan et al., 2025), including binge drinking (Brunborg et al., 2022), and compulsive buying (Kumar & Kumar, 2024). Greater FOMO levels have also been associated with negative affect (reviewed in Elhai, Yang, et al., 2021). The FOMO construct itself involves negative affect and anxiety content.

FOMO is defined as: (1) anxiety that one is absent from others' rewarding experiences, and (2) a persistent desire to be connected with those in one's social network (Przybylski et al., 2013). The first aspect involves the cognitive dimension of anxiety (e.g., worry, negative thinking) as it pertains to missing out on or being excluded socially. The second aspect involves the behavior of alleviating

CONTACT Jon D. Elhai  Jon.elhai@gmail.com  Department of Psychology University of Toledo 2801 West Bancroft Street Mail Stop #948 Toledo, Ohio 43560, USA

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/10615806.2026.2624434>.

© 2026 Informa UK Limited, trading as Taylor & Francis Group

FOMO-related anxiety – by checking and interacting with social media and messaging apps (Elhai, Yang, et al., 2021). FOMO has been generally conceptualized as anxiety-related psychopathology (Elhai, Yang, et al., 2021; Przybylski et al., 2013), and in fact anxiety is an important aspect of negative affectivity (Watson, 2009). More specifically, FOMO has been conceptualized as involving anxious attachment (Rifkin et al., 2025), and social anxiety by using the Internet to compensate for social interaction (Elhai, Gallinari, et al., 2020).

Across many studies, FOMO has been consistently related to negative affectivity constructs (Elhai, Yang, et al., 2021; Fioravanti et al., 2021). However, missing from the literature is the exploration of FOMO's relations with specific factors or dimensions of negative affectivity constructs. Clarifying such granular relationships can inform our understanding of mechanisms by which FOMO relates to anxiety and depression, and the relative roles of FOMO and emotional distress in influencing PSMU.

Despite the two aspects of FOMO's definition, FOMO has traditionally been found to represent a unitary construct. Elhai, Yang, et al. (2021) reviewed work on FOMO's factor structure and found support for a single underlying factor – in particular for the most widely used FOMO scale by Przybylski et al. (2013). However, a few studies have found other factor solutions for FOMO (Casale & Fioravanti, 2020; Elhai, Casale, & Bond, 2025; Wegmann et al., 2017).

Reviews demonstrate that FOMO has robust relations with anxiety (general and social anxiety) and depression symptom severity (Elhai, Yang, et al., 2021; Fioravanti et al., 2021), as well as other negative affectivity constructs such as rumination, negative affect and proneness to boredom (Elhai, Yang, et al., 2021), and neuroticism (Fioravanti et al., 2021). These relationships were generally of at least moderate magnitude, and revealed across various sample types and regions of the world. However, negative affectivity constructs are not unitary constructs; many have multiple latent dimensions (Shafer, 2006). Research has not yet examined FOMO's associations with negative affectivity constructs' latent dimensions, to assess if FOMO is differentially related to particular aspects of these constructs. Understanding specific underlying negative affectivity dimensions with which FOMO is most related can help clarify the nature of FOMO as a psychological construct, and mechanisms of its covariation with depression and anxiety. Moreover, as depression and anxiety have robust positive relations with PSMU (Casale et al., 2025, Advance Online Publication), discovering covariation mechanisms with FOMO can also help clarify the unique contribution of these factors in development and/or maintenance of PSMU.

We would have preferred to also include general anxiety and worry measures; we were unable to locate relevant scales with sufficient evidence for multidimensionality in factor structure. Yet we believe that our choice of constructs is fairly comprehensive in covering the various features of negative affectivity, because we include overall negative affect, depressed mood, and rumination – tapping the cognitive aspect of anxiety, and driving development of anxiety disorders (Rickerby et al., 2024). That is, we addressed a core dimension of anxiety by assessing rumination. Regarding worry, it is very similar to rumination, and both constructs are types of repetitive negative thinking (Ehring & Watkins, 2008). Moreover, as indicated above, these three included constructs have been consistently related to FOMO, whereas evidence for a link between worry and FOMO is still in its early stage, as is the evidence for the association between worry and PSMU. So our omission of assessing worry may therefore be considered less of a limitation. Finally, and most importantly, these constructs have prior evidence of multidimensionality in their factor structure, so a more granular examination of FOMO's relations with their latent dimensions can be conducted.

First, rumination is a type of repetitive negative thinking involving negative self-referencing thoughts (Watkins & Roberts, 2020). As such, it is a negative affectivity-related construct, and associated with depressed and anxious mood (Rickerby et al., 2024). Rumination is often assessed using the ten-item Ruminative Responses Scale (RRS) (Treynor et al., 2003). A two-factor conceptualization has typically been demonstrated using confirmatory factor analysis (CFA), involving five brooding items (gloomy, moody pondering) and five reflection items (analytical self-introspection about one's emotions) (Valencia & Paredes-Angeles, 2022; Whisman et al., 2020). Rumination is linked across

studies to greater FOMO levels (Elhai, Yang, et al., 2021). FOMO may trigger rumination by inducing repeated negative thoughts about social isolation (Elhai et al., 2018).

Second, positive and negative affect have been extensively studied, particularly using the 20-item Positive and Negative Affect Scales (PANAS) (Watson et al., 1988). Research using CFA has discovered the PANAS' negative affect items include two latent factors, with six fear items (involving specific fearful anxiety) and four distress items (involving non-specific emotional distress). This conceptualization has been supported in numerous studies (e.g., Allan et al., 2015; Seib-Pfeifer et al., 2017).

Third, depression is a negative affectivity construct (Watson, 2009). The Patient Health Questionnaire-9 (PHQ-9) (Kroenke et al., 2001) is a widely-used depression instrument in the literature (Manea et al., 2015), with major depressive episode's nine symptoms assessed. Prior research using CFA has revealed a two-factor structure for the PHQ-9, involving a three-item somatic factor and six-item cognitive/affective factor (Krause et al., 2008), which is well-supported (Fischer et al., 2022; Lamela et al., 2020). Depression severity has been linked across studies to FOMO (Elhai, Yang, et al., 2021; Fioravanti et al., 2021).

We should also mention the cause-and-effect nature of the FOMO-negative affectivity relationship. FOMO could potentially be a cause or effect of negative affectivity. Within the well-established I-PACE theoretical framework of Internet use disorders (Brand et al., 2019), FOMO has been conceptualized as an Internet-related cognition or cognitive bias (Elhai, Yang, et al., 2021; Stanciu & Calugar, 2022; Wegmann et al., 2017). I-PACE considers such Internet-related biases as influenced by predisposing variables such as long-standing psychopathology and biology/genetics (i.e., negative affectivity). Thus, in the I-PACE conceptualization, FOMO would be the consequence of negative affectivity, in particular a consequence that can be a reinforcing mechanism mediating relations between negative affectivity and excessive Internet use (Wegmann & Brand, 2019). On the other hand, limited repeated measures work has found that FOMO can drive (at least short-term) increases in negative affect (Elhai, Rozgonjuk, et al., 2020; Milyavskaya et al., 2018; Riordan et al., 2022). It could be hypothesized that FOMO is caused by longstanding negative affectivity (e.g., depressive/anxiety disorders), but experiencing FOMO can also worsen existing negative affect.

Also relevant is the contrast avoidance model (Newman & Llera, 2011), suggesting that for highly anxious individuals, repetitive negative thinking serves as a method for avoiding anxiety and negative affect. Yet paradoxically, repetitive negative thinking exacerbates negative affect and reduces positive affect (Baik & Newman, 2023; Kim & Newman, 2023). Thus, particularly for highly/clinically anxious individuals, FOMO may worsen negative affect.

Thus, to summarize and synthesize, FOMO involves cognitive and behavioral aspects of anxiety regarding missing out on or exclusion from rewarding experiences. FOMO is robustly correlated with negative affectivity. And FOMO seems to serve as a mechanistic role as an Internet-related cognitive bias or cognition explaining why some people high in negative affectivity develop worse negative affect and consequently engage in excessive Internet use.

Aims and hypotheses

Our aim was to conduct CFA to assess relations between FOMO's latent factor and latent factors of (1) rumination (i.e., brooding, and reflection), (2) negative affect (fear, and distress), and (3) depression (somatic, and cognitive/affective). To clarify the phenomenological nature of FOMO and mechanisms by which it is related to depression and anxiety, we aimed to investigate the specific negative affectivity dimensions most associated with FOMO. We also tested for sex differences in these models, given that women tend to have greater levels of FOMO (Elhai, Yang, et al., 2021) and negative affectivity (Altemus et al., 2014).

Our primary hypotheses were as follows:

H1: We hypothesized that there is a greater association between FOMO and maladaptive brooding than with reflection because brooding has stronger links to psychopathology (reviewed in Rickerby et al., 2024).

Additionally, in contrast with reflection that involves self-introspection, the gloomy and moody pondering nature of brooding (Valencia & Paredes-Angeles, 2022; Whisman et al., 2020) fits better with FOMO in terms of worry about being excluded socially. FOMO's connection with brooding can also fit with the contrast avoidance model (Kim & Newman, 2023).

H2: We expected that FOMO would not be substantially more related to negative affect's distress or fear dimensions. While FOMO involves fear of social exclusion, it also has a social anxiety component (Elhai, Gallinari, et al., 2020), and social anxiety is a fear – rather than distress-based disorder (Watson, 2005). Yet FOMO also has item content that involves general emotional distress (e.g., anxiety, worry, pondering) (Przybylski et al., 2013).

H3: Because of FOMO's prominent maladaptive cognitive content (Stanciu & Calugar, 2022), we hypothesized that FOMO would be more related to depression's cognitive/affective than somatic dimension, also fitting with the contrast avoidance model (Kim & Newman, 2023).

Method

Procedure and participants

During spring and fall 2024 semesters, we recruited young adult college students (age 18-25) for this study from the psychology department's research pool of a medium-sized Midwestern U.S. university. We posted the study's details on the department's Sona Systems web portal for students to view and enroll if preferred, in exchange for required Introductory Psychology course research points. Enrolling required agreeing to an online consent statement. Consenting participants were routed to a cross-sectional web survey built on Psychdata.com. The research was first approved by the university's institutional review board.

Despite the fact that there were 545 students enrolled in the Sona Systems study, our resulting dataset contained data on 572 participants. Our study eliminated 14 empty rows ($n = 14$), along with duplicate entries observed through reconciliation of timestamps and identities ($n = 27$), quick participants (<215 s; $n = 29$), and participants older than 25 ($n = 32$) despite our advertisement that only those aged 18–25 would be included. Among the remaining 470 participants, we discovered that some demonstrated careless responding, answering at least 16 questions consecutively with the same response ($n = 9$); this was about 2% of the 470 participants, roughly in the ballpark of careless responding prevalence (Curran, 2016). Our final sample included 461 participants.

Participants had an average age of 19.48 years ($SD = 1.55$). Participants reported either female sex ($n = 289$, 62.7%) or male sex from birth ($n = 172$, 37.3%). 303 participants (68.2%) reported Caucasian race, with minority representation from Asian ($n = 85$, 19.1%), African-American ($n = 56$, 12.6%), and Latinx ($n = 46$, 10.0%) participants (multiple race/ethnic categories could be selected). Most participants were freshmen ($n = 283$, 61.4%) or sophomores ($n = 93$, 20.2%). About half were working part-time ($n = 232$, 50.3%), with 190 (41.2%) unemployed. Most participants were either currently in a romantic relationship but not cohabitating ($n = 149$, 32.3%), or not in a relationship ($n = 272$, 59.0%); relatively few were in cohabitating relationships ($n = 40$, 8.7%).

Measures

In addition to querying demographics, we administered the following psychological scales in English. We used a past-month reference for completing each measure.

FOMO scale

The FOMO Scale (Przybylski et al., 2013) includes 10 items reflecting FOMO, using a 5-point Likert scale from 1 (not at all true of me) to 5 (extremely true of me). Summing items produces a total score, with higher scores indicating greater FOMO. The scale has demonstrated validity and reliability (Elhai, Yang, et al., 2021; Fioravanti et al., 2021). Our sample's internal consistency (coefficient alpha) was .86, and McDonald's Omega total (for ordinal items) was .90.

RRS

The 10-item RRS (Treyner et al., 2003) taps rumination content and has four response options from 1 (almost never) to 4 (almost always). We summed brooding and reflection items separately to produce two subscale scores, with higher scores indicating higher rumination levels. The RRS is valid and reliable (He et al., 2021; Valencia & Paredes-Angeles, 2022). Coefficient alpha was .83 for brooding and .80 for reflection; Omega was .87 for brooding and .85 for reflection.

PANAS

The PANAS (Watson et al., 1988) includes 20 items reflecting positive and negative affect, with response options from 1 (very slightly or not at all) to 5 (extremely). We analyzed only the 10 negative affect items, and summed the fear and distress items separately to produce two subscale scores, with higher scores indicating greater negative affect. The PANAS is valid and reliable (Crawford & Henry, 2004; Diaz-Garcia et al., 2020). Coefficient alpha was .83 for fear and .79 for distress; Omega was .87 for fear and .84 for distress.

PHQ-9

The PHQ-9 (Kroenke et al., 2001) has nine items reflecting symptoms of a major depressive episode, using a response scale from 0 (not at all) to 4 (nearly every day). We summed somatic and cognitive/affective items separately to yield two subscale scores, with higher scores indicating higher depression levels. The scale is valid and reliable (reviewed in Wu et al., 2020). Coefficient alpha was .81 for somatic and .84 for cognitive/affective symptoms; Omega was .81 for somatic and .88 for cognitive/affective symptoms.

Data analysis

We used R software version 4.42 for data cleaning and preliminary analyses. We used several R packages, including *careless* (for careless responding detection), *mice* (missing data imputation), *fmsb* and *GPArotation* (internal consistency), *pastecs* (descriptive statistics), *apaTables* (correlations), *car* and *sjstats* (ANOVA results). After excluding data rows with a large amount of missing data (discussed above), we used maximum likelihood procedures to impute remaining trivial amounts of missing item-level data, one scale at a time (we found at most three missing items on a scale for a participant). Then, we summed scale scores.

We conducted descriptive statistical analyses, and Pearson correlations for FOMO, the negative affectivity measures and age. We used univariate, between-group ANOVAs (with Type III sum of squares), comparing sexes on the scale scores.

We used Mplus software version 8.11 to conduct CFAs. None of the scales' items had more than 5 response options. And all of these measures' response scales have descriptive anchors for each point along the scale (e.g., "not at all," "a little," etc.). Therefore, these items can better be described as ordinal rather than continuous items. So, for each scale's CFA, we used weighted least squares estimation with a mean- and variance-adjusted chi-square (WLSMV), treating items as ordinal, using a polychoric covariance matrix and probit factor loadings, which are the optimal and most rigorous methods for handling such ordinal data (Verhulst & Neale, 2021). We judged model fit based on established standards, using Tucker-Lewis Index (TLI) and comparative fit index (CFI) values $\geq .95$, root mean square error of approximation values $< .06$, and standardized root mean square residual $< .08$ (recently discussed in Xia & Yang, 2019); however, with ordinal data RMSEA values are less accurate in model fit detection (Shi et al., 2020). For the FOMO scale, we specified a residual error covariance between item 1 ("I fear others have more rewarding experiences than me") and item 2 ("I fear my friends have more rewarding experiences than me"), because of extremely similar content dealing with others having more rewarding experiences. Neglecting to specify such a residual error covariance in this case of similar item content could otherwise lead to inaccurate results

(Cole et al., 2007). No other residual covariances were specified. We set a metric for each scale's factor(s) by fixing the first unstandardized loading to a value of 1.

After conducting CFA for each scale separately, we conducted three combined CFAs, between FOMO's factor and the latent factors of (1) rumination (brooding and reflection), (2) negative affect (fear and distress), and (3) depression (somatic and cognitive/affective). We used Wald chi-square tests of parameter constraints to statistically test the difference in size between FOMO's correlations with a scale's two latent factors (e.g., FOMO-brooding's r vs. FOMO-reflection's r).

We also conducted invariance testing between men and women for each of the three combined CFAs, to assess sex differences in factor loadings. We tested for the difference between a given (full) CFA model allowing sexes to vary on factor loadings against a (restricted) model constraining factor loadings as equal between sexes. Because of using the WLSMV estimator, we used a correction factor for invariance testing, using the following Mplus syntax: Model = configural scalar.

Results

Preliminary analyses

Table 1 presents descriptive statistics for scale scores and age. Table 1 also displays bivariate Pearson correlations among the measures and age. Age was only significantly related (inversely) to FOMO scores. Scale scores were mostly moderately to largely correlated with each other. Table 2 demonstrates associations between sex and the scale scores; several significant sex differences emerged, but effect sizes were small.

Individual CFAs

The single-factor FOMO CFA demonstrated good fit, WLSMV $\chi^2(34) = 226.25$, $p < .001$, TLI = .95, CFI = .97, RMSEA = .11 (95% CI: .10-.13), SRMR = .05. The two-factor rumination CFA also fit well, WLSMV $\chi^2(34) = 183.14$, $p < .001$, TLI = .95, CFI = .96, RMSEA = .10 (95% CI: .08-.11), SRMR = .04. The two-factor negative affect CFA fit well, WLSMV $\chi^2(34) = 189.45$, $p < .001$, TLI = .96, CFI = .97, RMSEA = .10 (95% CI: .09-.11), SRMR = .04. And the two-factor depression CFA fit well, WLSMV $\chi^2(26) = 110.15$, $p < .001$, TLI = .97, CFI = .98, RMSEA = .08 (95% CI: .07-.10), SRMR = .04. As expected, RMSEA values did not seem to indicate good fit (Shi et al., 2020). CFA factor loadings (and factor intercorrelations) are displayed in the online Supplemental file.

Combined CFAs

The combined FOMO-rumination CFA fit well, WLSMV $\chi^2(166) = 598.54$, $p < .001$, TLI = .94, CFI = .95, RMSEA = .08 (95% CI: .07-.08), SRMR = .06. The brooding-reflection correlation was .81. FOMO correlated significantly more with the brooding ($r = .52$) than reflection factor ($r = .24$), Wald $\chi^2(1) = 19.71$, $p < .001$. Table 3 indicates a sex difference in factor loadings, as loadings were uniformly higher for

Table 1. Means, standard deviations, and Pearson correlations for scale scores and age.

Variable	M	SD	1	2	3	4	5	6	7
1. Age	19.48	1.55							
2. FOMO	23.61	7.85	-.11*						
3. Depression-Somatic	3.59	2.56	.01	.33**					
4. Depression-Cognitive/Affective	3.80	3.74	.07	.37**	.68**				
5. NA-Fear	13.53	4.97	-.01	.36**	.52**	.63**			
6. NA-Distress	9.68	3.68	-.04	.34**	.45**	.52**	.67**		
7. Rumination-Brooding	11.15	3.75	.02	.42**	.51**	.63**	.60**	.53**	
8. Rumination-Reflection	9.71	3.55	.00	.21**	.39**	.55**	.47**	.41**	.66**

Note: FOMO = Fear of missing out; NA = Negative Affect.

* $p < .05$. ** $p < .001$.

Table 2. Sex differences for the scale scores using analyses of variance.

Variable	Men M	Men SD	Women M	Women SD	<i>F</i> (1,459)	<i>p</i>	η_p^2
FOMO	22.99	7.57	23.97	8.01	1.68	.20	.004
Depression-Somatic	3.06	2.37	3.91	2.62	12.14	<.001	.03
Depression-Cognitive/Affective	3.18	3.27	4.17	3.96	7.64	.006	.02
NA-Fear	13.02	4.88	13.83	5.01	2.86	.09	.006
NA-Distress	8.81	3.28	10.20	3.81	15.90	<.001	.03
Rumination-Brooding	10.30	3.44	11.66	3.85	14.64	<.001	.03
Rumination-Reflection	9.10	3.37	10.07	3.61	8.07	.005	.02

Note: FOMO = Fear of missing out; NA = Negative affect.

Table 3. Sex differences on factor loadings using invariance testing.

Combined CFA Model	Difference testing
FOMO-rumination	$\chi^2_{diff}(64) = 89.46, p = .02$
FOMO-negative affect	$\chi^2_{diff}(74) = 87.39, p = .14$
FOMO-depression	$\chi^2_{diff}(61) = 68.43, p = .24$

women on FOMO and brooding. However, the magnitude of difference between the full model (allowing sex differences) and restricted model (constraining factor loadings by sex) was negligible, $\Delta CFI < .01$ (Cheung & Lau, 2011).

The combined FOMO-negative affect CFA fit reasonably well, WLSMV $\chi^2(166) = 694.73, p < .001$, TLI = .93, CFI = .94, RMSEA = .08 (95% CI: .08-.09), SRMR = .07. The fear-distress correlation was .81. FOMO's correlations with fear ($r = .43$) and distress ($r = .39$) factors did not significantly differ, Wald $\chi^2(1) = .60, p = .44$. Table 3 shows no significant sex difference in factor loadings.

The combined FOMO-depression CFA fit well, WLSMV $\chi^2(148) = 503.47, p < .001$, TLI = .95, CFI = .96, RMSEA = .07 (95% CI: .07-.08), SRMR = .06. The somatic-cognitive/affective correlation was .83. FOMO's correlations with somatic ($r = .39$) and cognitive/affective ($r = .45$) factors did not significantly differ, Wald $\chi^2(1) = 1.40, p = .24$. Table 3 shows no significant sex difference in factor loadings.

We also tested a variation of the combined FOMO-depression CFA, using a slightly different depression conceptualization, with 5 somatic and 4 cognitive/affective items (Richardson & Richards, 2008). In short, very similar results emerged, such that FOMO's correlations with somatic ($r = .44$) and cognitive/affective ($r = .41$) factors again did not significantly differ, Wald $\chi^2(1) = .00, p = .98$.

Discussion

In the present study, we used CFA to examine relations between FOMO and underlying dimensions of negative affectivity. We found support for FOMO's differential relations with latent factors of rumination. However, FOMO was not differentially related to underlying factors of negative affect or depression.

We expected based on prior research that FOMO would be significantly associated with our negative affectivity measures overall. For example, recently FOMO was found robustly related to depression and anxiety symptom severity (Alhaj et al., 2024; Wang et al., 2022) and worry (Elhai, Casale, & Montag, 2025). Other recent work discovered FOMO largely related to rumination and anxiety sensitivity scores (Fitzgerald et al., 2023). However, prior research has not examined more specific associations between FOMO and multiple dimensions of negative affectivity constructs, which we explored in the present paper.

In CFA, FOMO was roughly moderately correlated with rumination's reflection factor, but yielded a large correlation with the brooding factor, supporting H1. Treynor et al. (2003) described rumination's reflection factor as self-introspection about emotion. They described brooding as a moody, gloomy type of pondering, and suggested that it reflects one's comparison of their situation

against an unreachd standard. In comparison to reflection, brooding is considered the more maladaptive type of rumination (Rickerby et al., 2024). In their meta-analysis, Rickerby et al. (2024) discovered that in contrast to reflection, brooding was more related to major depressive, generalized anxiety, and social anxiety disorder diagnoses and symptom severity. Given FOMO's moderate to large correlations with numerous depression and anxiety measures (Elhai, Yang, et al., 2021; Fioravanti et al., 2021), and brooding's relationship with depression and anxiety found in the present paper, it is not surprising that we found a large relationship between FOMO and brooding, and is also consistent with the contrast avoidance model (Newman & Llera, 2011).

Interestingly, brooding's feature of self-comparison against an unachieved standard also fits with research findings on FOMO. People high in FOMO levels tend to have a high social comparison orientation, unrealistically comparing themselves to people online (often who have idealized body images, that could even be doctored or Photoshopped) (Reer et al., 2019; Servidio et al., 2024).

FOMO was equally related to negative affect's fear and distress factors, supporting H2. On one hand, FOMO has item content involving general emotional distress (Przybylski et al., 2013). However, FOMO is also associated with social anxiety disorder symptoms (reviewed in Elhai, Yang, et al., 2021; Fioravanti et al., 2021), which is a fear-based rather than distress-based disorder (Watson, 2005). Perhaps some individuals high in FOMO suffer from general negative affectivity but also a specific social anxiety (fear-based) component preventing them from participating in others' experiences. Elhai, Gallinari, et al. (2020) suggested that FOMO involves the desire for social connection, but also the fear and avoidance of such connection as well (i.e., social anxiety), which can manifest in offline avoidance and/or non-social types of internet use.

FOMO equally related to depression's somatic and cognitive/affective dimensions, rejecting H3. FOMO is a cognitive bias about using the Internet, so we expected a fairly strong relationship with depression's cognitive/affective dimension. However, we anticipated a milder relationship between FOMO and depression's somatic symptoms, which instead involve fatigue, restlessness, and sleep impairment – not characteristic of FOMO. It is possible that individuals high in depression's somatic symptoms lack the energy to keep up with social media and manage social notifications, which could exacerbate their FOMO. After all, responding to smartphone notifications requires attention and productivity with task management (Walter et al., 2015), which may be difficult for depressed individuals (especially with depression's somatic symptoms) to manage because of their low energy and behavioral activation (Elhai, Sapci, et al., 2021). Compacting this problem, high FOMO-scoring individuals have more daily disruptions in activity from receiving interruptive smartphone notifications (Rozgonjuk et al., 2019), would could exacerbate fatigue. Recent evidence linking FOMO to sleep impairment (Aslan, 2025; Brombach et al., 2025; Chin & Xie, 2025) and daytime tiredness (Koban et al., 2022) help us interpret the unexpected association we observed between FOMO and depression's somatic dimension. Finally, depression's underlying dimensions may have differential associations with specific dimensions of FOMO, as FOMO has been conceptualized to have trait and state components (Wegmann et al., 2017), as well as pervasive apprehension and constant connection desire dimensions (Elhai, Casale, & Bond, 2025).

Limitations and future research

Our study had the limitation of using a cross-sectional research design. Therefore, we cannot reliably determine cause and effect from the FOMO-negative affectivity relationships we discovered. Future work could use repeated measures or longitudinal designs to examine relations between FOMO and negative affectivity. Additionally, we analyzed a convenience sample of college students, so results may not generalize to the general population or clinical samples. In fact, our sample was overrepresented by first-year, traditional aged college students who received course incentives for participating, and by women, and therefore our findings may not generalize well to older samples and/or with more representation from men, especially in light of age and sex differences in negative affectivity

(Altemus et al., 2014). Furthermore, we used self-report methodology in assessing negative affectivity (and FOMO), rather than using interview-based or diagnostic measures. We also did not use behavioral measures to examine FOMO. Thus, our relationships between FOMO and negative affectivity constructs may be partially due to shared method variance. Furthermore, the two factors within a negative affectivity construct (e.g., rumination's brooding and reflection factors) had correlations exceeding .80, suggesting inadequate discriminant validity. Also, we were unable to locate multidimensional measures of general anxiety or worry to include. Finally, although we found only small bivariate effects for sex in relation to both FOMO and rumination's factors, we discovered that the combined FOMO-rumination CFA's factor loadings differed by sex; yet the magnitude of difference was only mild. Future research should use repeated measures designs with broader samples and interview methodology in assessing FOMO's specific relations with negative affectivity. Researchers should also consider variables that may buffer FOMO such as cognitive reappraisal (Hartanto et al., 2024).

Conclusion

Nonetheless, the findings provide insight into the psychopathology of FOMO. Understanding FOMO's stronger relationship with brooding than reflection provides more granular information about the phenomenology of FOMO than previously found in research. Results offer promise in understanding the mechanisms by which FOMO may be related to negative affectivity such as depression and anxiety.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The anonymized data from this project are available in a Mendeley repository: <https://data.mendeley.com/datasets/pwfr54ss5p/1>.

AI statement

The authors did use did not rely on large language models or artificial intelligence in this research project or article write-up.

Ethics approval

IRB approval was received from the University of Toledo's Social, Behavioral and Educational IRB before the project was conducted (IRB #301970-UT).

Patient consent

All participants provided consent via an informed consent statement before participating.

CRedit

JDE and SC conceptualized the project and developed the methodology. JDE curated the data and conducted project administration. JDE conducted formal analysis. JDE wrote the original draft, and SC reviewed and edited. JDE and SC provided final approval for the version to be published. Both authors agree to be accountable for all aspects of the work

ORCID

Jon D. Elhai  <http://orcid.org/0000-0001-5205-9010>

Silvia Casale  <http://orcid.org/0000-0003-3823-9773>

References

- Akbari, M., Seydavi, M., Palmieri, S., Manseuto, G., Caselli, G., & Spada, M. M. (2021). Fear of missing out (FoMO) and internet use: A comprehensive systematic review and meta-analysis. *Journal of Behavioral Addictions*, 10(4), 879–900. <https://doi.org/10.1556/2006.2021.00083>
- 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>
- Allan, N. P., Lonigan, C. J., & Phillips, B. M. (2015). Examining the factor structure and structural invariance of the PANAS across children, adolescents, and young adults. *Journal of Personality Assessment*, 97(6), 616–625. <https://doi.org/10.1080/00223891.2015.1038388>
- Altemus, M., Sarvaiya, N., & Neill Epperson, C. (2014). Sex differences in anxiety and depression clinical perspectives. *Frontiers in Neuroendocrinology*, 35(3), 320–330. <https://doi.org/10.1016/j.yfrne.2014.05.004>
- Aslan, Y. (2025). Fear of missing out (FoMO) and sleep disturbance as sequential mediators in the relationship between excessive screen time and life satisfaction in Turkish young adults. *BMC Public Health*, 25(1), 3248. <https://doi.org/10.1186/s12889-025-24547-6>
- Ayala Guzman, R., Strowger, M., Kazlauskaitė, K., & Braitman, A. L. (2025). Fear of missing out serially mediated by social media use and alcohol-related content on alcohol outcomes among college students: A cross-sectional examination. *Psychological Reports*, 332941251314729. <https://doi.org/10.1177/00332941251314729>
- Baik, S. Y., & Newman, M. G. (2023). The transdiagnostic use of worry and rumination to avoid negative emotional contrasts following negative events: A momentary assessment study. *Journal of Anxiety Disorders*, 95, 102679. <https://doi.org/10.1016/j.janxdis.2023.102679>
- Brand, M., Wegmann, E., Stark, R., Muller, A., Wolfing, K., Robbins, T. W., & Potenza, M. N. (2019). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. *Neuroscience & Biobehavioral Reviews*, 104, 1–10. <https://doi.org/10.1016/j.neubiorev.2019.06.032>
- Brombach, R. K., Kuhn, K., Eads, O., & Dietch, J. R. (2025). Systematic review and meta-analysis of correlation coefficients between fear of missing out and sleep health dimensions. *Psychological Reports*, 332941251399088. <https://doi.org/10.1177/00332941251399088>
- Brunborg, G. S., Skogen, J. C., & Burdzovic Andreas, J. (2022). Fear of missing out and binge-drinking among adolescents. *Drug and Alcohol Review*, 41(1), 230–237. <https://doi.org/10.1111/dar.13356>
- Casale, S., & Fioravanti, G. (2020). Factor structure and psychometric properties of the Italian version of the Fear of Missing Out Scale in emerging adults and adolescents. *Addictive Behaviors*, 102, 106179. <https://doi.org/10.1016/j.addbeh.2019.106179>
- Casale, S., Fioravanti, G., Gori, A., Nigro, F., & Bocci Benucci, S. (2025). Investigating the role of avoidance expectancies and metacognitions about social compensation through SNS in the pathway from psychological distress to problematic social networking sites use. *Psychological Reports*, 332941251320309. <https://doi.org/10.1177/00332941251320309>
- Cheung, G. W., & Lau, R. S. (2012). A direct comparison approach for testing measurement invariance. *Organizational Research Methods*, 15(2), 167–198. <https://doi.org/10.1177/1094428111421987>
- Chin, B. N., & Xie, Y. (2025). Insomnia as a behavioral pathway from fear of missing out to depression in emerging adults. *Brain Sciences*, 15(9), 17. <https://doi.org/10.3390/brainsci15090917>
- Cole, D. A., Ciesla, J. A., & Steiger, J. H. (2007). The insidious effects of failing to include design-driven correlated residuals in latent-variable covariance structure analysis. *Psychological Methods*, 12(4), 381–398. <https://doi.org/10.1037/1082-989X.12.4.381>
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 43(3), 245–265. <https://doi.org/10.1348/0144665031752934>
- Curran, P. G. (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology*, 66, 4–19. <https://doi.org/10.1016/j.jesp.2015.07.006>
- Diaz-Garcia, A., Gonzalez-Robles, A., Mor, S., Mira, A., Quero, S., Garcia-Palacios, A., Banos, R. M., & Botella, C. (2020). Positive and Negative Affect Schedule (PANAS): Psychometric properties of the online Spanish version in a clinical sample with emotional disorders. *BMC Psychiatry*, 20(1), 56. <https://doi.org/10.1186/s12888-020-2472-1>
- Ehring, T., & Watkins, E. R. (2008). Repetitive negative thinking as a transdiagnostic process. *International Journal of Cognitive Therapy*, 1(3), 192–205. <https://doi.org/10.1521/ijct.2008.1.3.192>

- Elhai, J. D., Casale, S., & Bond, R. (2025). FOMO's apprehension of missing out and constant connection desire dimensions differentially correlate with problematic smartphone and social media use, but not with depression or generalized anxiety. *Journal of Anxiety Disorders*, 114, 103037. <https://doi.org/10.1016/j.janxdis.2025.103037>
- Elhai, J. D., Casale, S., & Montag, C. (2025). Worry and fear of missing out are associated with problematic smartphone and social media use severity. *Journal of Affective Disorders*, 379, 258–265. <https://doi.org/10.1016/j.jad.2025.03.062>
- Elhai, J. D., Gallinari, E. F., Rozgonjuk, D., & Yang, H. (2020). Depression, anxiety and fear of missing out as correlates of social, non-social and problematic smartphone use. *Addictive Behaviors*, 105, 106335. <https://doi.org/10.1016/j.addbeh.2020.106335>
- Elhai, J. D., Levine, J. C., Alghraibeh, A. M., Alafnan, A., Aldraiweesh, A., & Hall, B. J. (2018). Fear of missing out: Testing relationships with negative affectivity, online social engagement, and problematic smartphone use. *Computers in Human Behavior*, 89, 289–298. <https://doi.org/10.1016/j.chb.2018.08.020>
- Elhai, J. D., Rozgonjuk, D., Liu, T., & Yang, H. (2020). Fear of missing out predicts repeated measurements of greater negative affect using experience sampling methodology. *Journal of Affective Disorders*, 262, 298–303. <https://doi.org/10.1016/j.jad.2019.11.026>
- Elhai, J. D., Sapci, O., Yang, H., Amialchuk, A., Rozgonjuk, D., & Montag, C. (2021). Objectively-measured and self-reported smartphone use in relation to surface learning, procrastination, academic productivity, and psychopathology symptoms in college students. *Human Behavior and Emerging Technologies*, 3(5), 912–921. <https://doi.org/10.1002/ISSN2578-1863>
- Elhai, J. D., Yang, H., & Montag, C. (2021). Fear of missing out (FOMO): Overview, theoretical underpinnings, and literature review on relations with severity of negative affectivity and problematic technology use. *Brazilian Journal of Psychiatry*, 43(2), 203–209. <https://doi.org/10.1590/1516-4446-2020-0870>
- Fioravanti, G., Casale, S., Benucci, S. B., Probst, A., Falone, A., Ricca, V., & Rotella, F. (2021). Fear of missing out and social networking sites use and abuse: A Meta-analysis. *Computers in Human Behavior*, 122, 106839. <https://doi.org/10.1016/j.chb.2021.106839>
- Fischer, F., Levis, B., Falk, C., Sun, Y., Ioannidis, J. P. A., Cuijpers, P., Shrier, I., Benedetti, A., Thombs, B. D., & Depression Screening Data, P. H. Q. C. (2022). Comparison of different scoring methods based on latent variable models of the PHQ-9: An individual participant data meta-analysis. *Psychological Medicine*, 52(15), 3472–3483. <https://doi.org/10.1017/S0033291721000131>
- Fitzgerald, H. E., Lubin, R. E., Duncan, T., Hiseordt, M., & Otto, M. W. (2023). Underscoring the F in FoMO: How does anxiety sensitivity contribute to fear of missing out? *Cognitive Behaviour Therapy*, 52(1), 38–46. <https://doi.org/10.1080/16506073.2022.2131619>
- Hartanto, A., Wong, J., Lua, V. Y., Tng, G. Y., Kasturiratna, K. S., & Majeed, N. M. (2024). A daily diary investigation of the fear of missing out and diminishing daily emotional well-being: The moderating role of cognitive reappraisal. *Psychological Reports*, 127(3), 1117–1155. <https://doi.org/10.1177/00332941221135476>
- He, J., Liu, Y., Cheng, C., Fang, S., Wang, X., & Yao, S. (2021). Psychometric properties of the Chinese version of the 10-item Ruminative Response Scale among undergraduates and depressive patients. *Frontiers in Psychiatry*, 12, 626859. <https://doi.org/10.3389/fpsy.2021.626859>
- Kim, H., & Newman, M. G. (2023). Worry and rumination enhance a positive emotional contrast based on the framework of the Contrast Avoidance Model. *Journal of Anxiety Disorders*, 94, 102671. <https://doi.org/10.1016/j.janxdis.2023.102671>
- Koban, K., Neureiter, A., Stevic, A., & Matthes, J. (2022). The COVID-19 infodemic at your fingertips. Reciprocal relationships between COVID-19 information FOMO, bedtime smartphone news engagement, and daytime tiredness over time. *Computers in Human Behavior*, 130, 107175. <https://doi.org/10.1016/j.chb.2021.107175>
- Krause, J. S., Bombardier, C., & Carter, R. E. (2008). Assessment of depressive symptoms during inpatient rehabilitation for spinal cord injury: Is there an underlying somatic factor when using the PHQ? *Rehabilitation Psychology*, 53(4), 513–520. <https://doi.org/10.1037/a0013354>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Kumar, S., & Kumar, S. (2024). Compulsive use of social media and unrestrained buying behavior: Delineating the role of social comparison, fear of missing out and self esteem. *Journal of Internet Commerce*, 23(4), 503–532. <https://doi.org/10.1080/15332861.2024.2421731>
- Lamela, D., Soreira, C., Matos, P., & Morais, A. (2020). Systematic review of the factor structure and measurement invariance of the patient health questionnaire-9 (PHQ-9) and validation of the Portuguese version in community settings. *Journal of Affective Disorders*, 276, 220–233. <https://doi.org/10.1016/j.jad.2020.06.066>
- Manea, L., Gilbody, S., & McMillan, D. (2015). A diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. *General Hospital Psychiatry*, 37(1), 67–75. <https://doi.org/10.1016/j.genhosppsych.2014.09.009>
- Milyavskaya, M., Saffran, M., Hope, N., & Koestner, R. (2018). Fear of missing out: prevalence, dynamics, and consequences of experiencing FOMO. *Motivation and Emotion*, 42(5), 725–737. <https://doi.org/10.1007/s11031-018-9683-5>

- Newman, M. G., & Llera, S. J. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: A review and synthesis of research supporting a contrast avoidance model of worry. *Clinical Psychology Review*, 31(3), 371–382. <https://doi.org/10.1016/j.cpr.2011.01.008>
- 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 & Society*, 21(7), 1486–1505. <https://doi.org/10.1177/14614448188223719>
- Richardson, E. J., & Richards, J. S. (2008). Factor structure of the PHQ-9 screen for depression across time since injury among persons with spinal cord injury. *Rehabilitation Psychology*, 53(2), 243–249. <https://doi.org/10.1037/0090-5550.53.2.243>
- Rickerby, N., Krug, I., Fuller-Tyszkiewicz, M., Forte, E., Davenport, R., Chayadi, E., & Kiropoulos, L. (2024). Rumination across depression, anxiety, and eating disorders in adults: A meta-analytic review. *Clinical Psychology: Science and Practice*, 31(2), 251–268. <https://doi.org/10.1037/cps0000110>
- Rifkin, J. R., Chan, C., & Kahn, B. E. (2025). Anxiety about the social consequences of missed group experiences intensifies fear of missing out (FOMO). *Journal of Personality and Social Psychology*, 128(2), 300–313. <https://doi.org/10.1037/pspa0000418>
- Riordan, B. C., Conner, T. S., Scarf, D., Winter, T., Mason, A., Anderson-Luxford, D., & Kuntsche, E. (2025). FoMo predicts alcohol use and harms over and above the big five personality traits among university students. *Journal of Substance Use*, 30(1), 117–121. <https://doi.org/10.1080/14659891.2023.2288846>
- Riordan, B. C., Winter, T., Flett, J. A. M., Mason, A., Scarf, D., Jose, P. E., & Conner, T. S. (2022). Does the fear of missing out moderate the relationship between social networking use and affect? A daily diary study. *Psychological Reports*, 125(6), 3084–3099. <https://doi.org/10.1177/00332941211040441>
- Rozgonjuk, D., Elhai, J. D., Ryan, T., & Scott, G. (2019). Fear of missing out is associated with disrupted activities from receiving smartphone notifications and surface learning in college students. *Computers & Education*, 140, 103590. <https://doi.org/10.1016/j.compedu.2019.05.016>
- Seib-Pfeifer, L.-E., Pugnaghi, G., Beauducel, A., & Leue, A. (2017). On the replication of factor structures of the Positive and Negative Affect Schedule (PANAS). *Personality and Individual Differences*, 107, 201–207. <https://doi.org/10.1016/j.paid.2016.11.053>
- Servidio, R., Soraci, P., Griffiths, M. D., Boca, S., & Demetrovics, Z. (2024). Fear of missing out and problematic social media use: A serial mediation model of social comparison and self-esteem. *Addictive Behaviors Reports*, 19, 100536. <https://doi.org/10.1016/j.abrep.2024.100536>
- Shafer, A. B. (2006). Meta-analysis of the factor structures of four depression questionnaires: Beck, CES-D, Hamilton, and Zung. *Journal of Clinical Psychology*, 62(1), 123–146. <https://doi.org/10.1002/jclp.20213>
- Shi, D., Maydeu-Olivares, A., & Rosseel, Y. (2020). Assessing fit in ordinal factor analysis models: SRMR vs. RMSEA. *Structural Equation Modeling: A Multidisciplinary Journal*, 27(1), 1–15. <https://doi.org/10.1080/10705511.2019.1611434>
- Stanciu, D., & Calugar, A. (2022). What is irrational in fearing to miss out on being online. An application of the I-PACE model regarding the role of maladaptive cognitions in problematic internet use. *Computers in Human Behavior*, 135, 107365. <https://doi.org/10.1016/j.chb.2022.107365>
- Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, 27(3), 247–259. <https://doi.org/10.1023/A:1023910315561>
- Valencia, P. D., & Paredes-Angeles, R. (2024). Revisiting the factor structure of the Ruminative Response Scale: A bifactor approach. *Trends in Psychology*, 32, 1408–1425. <https://doi.org/10.1007/s43076-022-00214-2>
- Verhulst, B., & Neale, M. C. (2021). Best practices for binary and ordinal data analyses. *Behavior Genetics*, 51(3), 204–214. <https://doi.org/10.1007/s10519-020-10031-x>
- Walter, S. R., Dunsmuir, W. T. M., & Westbrook, J. I. (2015). Studying interruptions and multitasking in situ: The untapped potential of quantitative observational studies. *International Journal of Human-Computer Studies*, 79, 118–125. <https://doi.org/10.1016/j.ijhcs.2015.01.008>
- Wang, Y., Liu, B., Zhang, L., & Zhang, P. (2022). Anxiety, depression, and stress are associated with internet gaming disorder during COVID-19: Fear of missing out as a mediator. *Frontiers in Psychiatry*, 13, 827519. <https://doi.org/10.3389/fpsy.2022.827519>
- Watkins, E. R., & Roberts, H. (2020). Reflecting on rumination: Consequences, causes, mechanisms and treatment of rumination. *Behaviour Research and Therapy*, 127, 103573. <https://doi.org/10.1016/j.brat.2020.103573>
- Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology*, 114(4), 522–536. <https://doi.org/10.1037/0021-843X.114.4.522>
- Watson, D. (2009). Differentiating the mood and anxiety disorders: A quadripartite model. *Annual Review of Clinical Psychology*, 5, 221–247. <https://doi.org/10.1146/annurev.clinpsy.032408.153510>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070. <https://doi.org/10.1037/0022-3514.54.6.1063>

- Wegmann, E., & Brand, M. (2019). A narrative overview about psychosocial characteristics as risk factors of a problematic social networks use. *Current Addiction Reports*, 6(4), 402–409. <https://doi.org/10.1007/s40429-019-00286-8>
- Wegmann, E., Oberst, U., Stodt, B., & Brand, M. (2017). Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder. *Addictive Behaviors Reports*, 5, 33–42. <https://doi.org/10.1016/j.abrep.2017.04.001>
- Whisman, M. A., Miranda, R., Fresco, D. M., Heimberg, R. G., Jeglic, E. L., & Weinstock, L. M. (2020). Measurement invariance of the ruminative responses scale across gender. *Assessment*, 27(3), 508–517. <https://doi.org/10.1177/1073191118774131>
- Wu, Y., Levis, B., Riehm, K. E., Saadat, N., Levis, A. W., Azar, M., Rice, D. B., Boruff, J., Cuijpers, P., Gilbody, S., Ioannidis, J. P. A., Kloda, L. A., McMillan, D., Patten, S. B., Shrier, I., Ziegelstein, R. C., Akena, D. H., Arroll, B., Ayalon, L., & ... Thombs, B. D. (2020). Equivalency of the diagnostic accuracy of the PHQ-8 and PHQ-9: A systematic review and individual participant data meta-analysis. *Psychological Medicine*, 50(8), 1368–1380. <https://doi.org/10.1017/S0033291719001314>
- Xia, Y., & Yang, Y. (2019). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behavior Research Methods*, 51(1), 409–428. <https://doi.org/10.3758/s13428-018-1055-2>