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Fear of Missing out, Problematic Social Media use and Anxiety among Pakistani University Students: A Cross-Sectional Correlational Study

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ABSTRACT

The anxiety of being left out of enjoyable activities that one is not participating in, known as fear of missing out (FoMO), is associated with greater social media use and usage, and negatively correlates with emotional functioning. There is little evidence in South Asian university populations, and most studies focus on individual relationships, not all three. A cross-sectional correlational study was conducted with 500 undergraduate students (M age = 22.2 years, SD = 1.65) from University of Gujrat, Pakistan who were recruited through convenience sampling and filled out the Fear of Missing out Scale, the Bergen Social Media Addiction Scale and the Beck Anxiety Inventory. Because scores departed from normality, associations were examined with Spearman's rank correlations, supplemented by a simple linear regression and Mann–Whitney U comparisons by family system. FoMO correlated positively with social media addiction ($\rho = .256$, $p < .001$) and with anxiety ($\rho = .370$, $p < .001$), while social media addiction showed a weak association with anxiety ($\rho = .114$, $p = .011$). In a bivariate regression, social media addiction accounted for 5.1% of the variance in FoMO ($\beta = .226$, $p < .001$). The differences between nuclear and joint families were small, with nuclear families scoring higher than joint families on the measures of anxiety and FoMO ($p = .002$ and $p = .039$ respectively) but not on the social media addiction ($p = .202$). In this sample, FoMO was always reported to be correlated with problematic social media use, as well as anxiety, and the correlation with anxiety was larger. The design did not provide any temporal ordering or causality, and the raw scores on the anxiety measure were very high, and should be interpreted with care.

Introduction

It's said that social networking has become the norm for most of university students' social, academic and recreational activities. They actually work as advertised, but some people seem to interact with them in ways that they can't handle and which interfere with sleep, schoolwork and in-person interactions. The key elements of problematic social media use typically mirror those of other behavioural addictions, including preoccupation, escalating use, trying to modify one's mood, withdrawal, conflict and relapse (Andreassen et al., 2016; Kuss & Griffiths, 2017). There is no official diagnosis of social media addiction, and critics are right to warn against "pathologising every use of social media. Despite this, the construct has attracted a significant amount of literature and a meta-analysis across 32 countries revealed that prevalence is highly variable depending on classification and cultural context (Cheng et al., 2021). The reasons behind some users' tendency to engage in excess are plentiful (Sun & Zhang, 2021), and a construct that is found in many of these explanations is the fear of missing out.

According to Przybylski et al. (2013), FoMO is a general feeling that others are enjoying something in their absence, and a desire to continuously know what is happening to others. Based on SDT, they suggested that FoMO has been found to occur most when one's needs for autonomy, competence, and relatedness are not met in daily life, especially relatedness.Within the framework of self-determination theory (SDT) which posits that wellbeing is dependent upon meeting needs for autonomy, competence, and relatedness (Ryan & Deci, 2000), they hypothesized that FoMO exists most when these needs are not met, particularly relatedness. A systematic review of the literature demonstrates that FoMO has been used as both an antecedent, mediator, and outcome, and that the boundaries of the concept continue to be negotiated (Tandon et al., 2021). There are also individual differences, as FoMO can change depending on age, gender, and personality (Rozgonjuk et al., 2021). Whatever its precise origins, the construct captures something that platforms built around continuous updates are well placed to exploit.

The evidence connecting FoMO to problematic use is substantial. Higher FoMO has been associated with heavier social media use and addiction even after personality and attachment style are considered (Blackwell et al., 2017), with problematic use and phubbing among adolescents (Franchina et al., 2018), and, when FoMO is specific to online contexts, with symptoms of internet-communication disorder (Wegmann et al., 2017). A meta-analysis of research on social networking sites pooled these findings and reported positive associations between FoMO and both the use and the abuse of such sites (Fioravanti et al., 2021). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model supplies a plausible mechanism. It proposes that affective and cognitive reactions to internal or external cues, of which FoMO is a natural candidate, raise the pull towards gratifying behaviour, and that repeated gratification gradually erodes executive control (Brand et al., 2016, 2019).

The association of FoMO with anxiety is conceptually similar, if not too similar, as anxiety about exclusion is a component of social anxiety. FoMO has been associated with anxiety and depression, as well as problematic smartphone use (Elhai et al., 2016), and has been correlated with compulsive social media use, fatigue and anxiety (Dhir et al., 2018) in research done in India. Another path is to compare with others. Social networking sites are characterized with “picked out” and frequently flattering depictions of peers' lives, and upward comparison on such platforms has been linked with feeling envy and unhappiness (Appel et al., 2016; Festinger, 1954; Verduyn et al., 2020).

The evidence is not as clean at the social media use level. There is some evidence and review that suggests that heavier use is linked to anxiety, depression, and distress in youth (Keles et al., 2020; Marino et al., 2018; Primack et al., 2017; Vannucci et al., 2017). Some associations are small (Orben & Przybylski, 2019), and an eight-year longitudinal study did not show evidence of the relationship between changes in S.M. usage and subsequent depression or anxiety within individuals (Coyne et al., 2020). Overall, these findings indicate that social media use, and how individuals approach using social media, may be more important than just “exposure.” Also the direction of influence is not clear. FoMO has been established as a link between psychological symptoms and adverse outcomes of excessive network use (Oberst et al., 2017), and longitudinal studies are just starting to unravel the order of events (Yuan et al., 2021).

The question of utility of Pakistan to investigate these questions is not a good one to ask. Research conducted among Pakistani youth reveals that FoMO has positive association with SIA (Zahoor, 2022) and that peer pressure along with FoMO significantly accounts for a small proportion of variance (Batool et al., 2023). Research that places FoMO, problematic use, and clinical-style anxiety symptoms in the same sample of university students is nonetheless scarce, and Pakistani students live within a family context that differs from that of most participants in the Western studies on which the field has leaned. Joint households remain common, and one might expect the closer daily contact and shared obligations they provide to buffer feelings of exclusion. The expectation is not straightforward. A recent study of undergraduates in Karachi found higher odds of moderate to severe stress among students living in joint family systems (Ali et al., 2026), possibly because family expectations are also a source of pressure. Family system therefore seemed worth examining as an exploratory contextual variable rather than as the object of a confident prediction.

The present study examined FoMO, problematic social media use, and anxiety among undergraduates at the University of Gujrat. It had three confirmatory aims. We tested whether FoMO is positively associated with problematic social media use (H1) and with anxiety (H2), and whether problematic social media use is positively associated with anxiety (H3). We also estimated, through simple regression, how much of the variance in FoMO scores overlaps with problematic use, and compared students from nuclear and joint families on all three measures as an exploratory question.

Method

Design and Setting

The study used a cross-sectional, correlational design. Data were gathered from students of the University of Gujrat, a public-sector university in Gujrat district, Punjab, Pakistan, over a period of two months.

Participants

The target group consisted of under-graduate students of the University. The participants were recruited using the non-probability sampling technique (convenience sampling) where students were approached based on their availability to the researcher. Eligible students were active users of one or more social media platforms, and must be 18-30 years of age. Informed consent was not obtained from some students and from students that returned incomplete questionnaires, these were not included. The final sample was 500 students, and one case was missing for FoMO, resulting in analyses being based on 499 cases. A sensitivity calculation suggested that a sample of this size would have approximately 80% of power (two-tailed $\alpha = .05$) to detect a bivariate correlation of approximately $|r| = .13$.

Participants ranged in age from 19 to 30 years (M = 22.2, SD = 1.65). Women made up slightly more than half of the sample (approximately 56%). Most students described their socioeconomic status as middle class, most were unmarried, and urban residents outnumbered rural residents. The majority were enrolled in BS programmes. Family system was close to evenly divided, with approximately 240 students (48%) from nuclear and 260 (52%) from joint families.

Measures

Demographic form. A form developed for the study recorded age, gender, residence, programme of study, socioeconomic status, family system, and marital status.

Fear of missing out. FoMO was measured with the 10-item Fear of Missing Out Scale (Przybylski et al., 2013). Items such as *I fear others have more rewarding experiences than me* are rated from 1 (*not at all true of me*) to 5 (*extremely true of me*) and summed, giving a possible range of 10 to 50. Higher scores indicate stronger FoMO.

Problematic social media use. Social media addiction was assessed with the six-item Bergen Social Media Addiction Scale (Andreassen et al., 2016), whose items map onto salience, tolerance, mood modification, relapse, withdrawal, and conflict. Responses range from 1 (*very rarely*) to 5 (*very often*), producing totals between 6 and 30, with higher totals indicating more severe problematic use.

Anxiety. Anxiety was measured with the Beck Anxiety Inventory (BAI; Beck et al., 1988). Respondents rate 21 symptoms for the preceding month from 0 (*not at all*) to 3 (*severely*), giving totals from 0 to 63. Conventional interpretive bands place scores of 0–7 in the minimal range, 8–15 mild, 16–25 moderate, and 26–63 severe (Beck & Steer, 1993). The inventory leans heavily on somatic symptoms, a feature that bears on the interpretation of the results.

Reliability. [Insert Cronbach's α for the FoMO, BSMAS, and BAI scores in the present sample from the SPSS reliability output.]

Procedure

Permission to use the scales was obtained from their authors before data collection began. Participants received a verbal and written explanation of the study's purpose, were assured that their responses would remain confidential, and gave verbal and written consent. They then completed a questionnaire battery comprising the demographic form and the three scales, administered directly by the researcher, who remained available to answer questions. Completed questionnaires were checked for completeness on the spot, and participants were thanked for their time.

Ethical Considerations

The study was approved by the Board of Studies of the Department of Psychology. Participation was voluntary, participants could withdraw at any point without penalty, and the information they supplied was used for research purposes only. No names or other direct identifiers were analysed.

Data Analysis

Data were processed in IBM SPSS Statistics, version 26. Frequencies, percentages, means, and standard deviations described the sample and the study variables. Preliminary screening showed that scores on the three measures departed from normality, so rank-based procedures were adopted for the principal tests. Spearman's rank-order correlations addressed H1 to H3. For FoMO and problematic social media use, a Pearson coefficient was also computed as a preliminary step towards a simple linear regression, which was specified with problematic social media use as the predictor and FoMO as the criterion. Differences between nuclear and joint family students on each measure were examined with Mann–Whitney *U* tests, and effect sizes were expressed as $r = |Z|/\sqrt{N}$. All tests were two-tailed with $\alpha = .05$. Because three family-system comparisons were run, a Bonferroni-adjusted threshold of .017 was used as an interpretive safeguard alongside the nominal level.

Results

Table 1: Descriptive Statistics for the Study Variables

Variable	*n*	Possible range	*M*	*SD*	Mean item score
Fear of missing out	499	10–50	38.78	4.35	3.88
Problematic social media use	500	6–30	23.81	2.94	3.97
Anxiety (BAI)	500	0–63	48.28	4.97	2.30

Note. Mean item score is the scale mean divided by the number of items.

Table 1 summarises the three measures. Scores clustered towards the upper end of each scale. Item-level means ranged from 3.74 to 4.26 on the FoMO scale, from 3.64 to 4.19 on the Bergen scale, and from 2.19 to 2.54 on the 0–3 BAI response format. The mean BAI total of 48.28 lies well within the range conventionally labelled severe, a point taken up in the Discussion.

Table 2: Spearman Rank-Order Correlations Among the Study Variables

Variable	1	2	3
1. Fear of missing out	—		
2. Problematic social media use	.256***	—	
3. Anxiety	.370***	.114*	—

Note. $N = 499–500$. $^{*}p < .05$. $^{***}p < .001$.

Table 2 presents the rank-order correlations. All three were positive and statistically significant. FoMO was related to problematic social media use ($\rho = .256$, $p < .001$), supporting H1, and to anxiety ($\rho = .370$, $p < .001$), supporting H2. Problematic social media use showed a weak but reliable association with anxiety ($\rho = .114$, $p = .011$), supporting H3. Against the benchmarks of .10, .20, and .30 proposed for individual-differences research (Gignac & Szodorai, 2016), these coefficients correspond to a small, a medium, and a large effect respectively. The Pearson correlation between FoMO and problematic social media use was $r = .226$ ($p < .001$), slightly lower than its rank-order counterpart.

Table 3: Simple Linear Regression Predicting FoMO from Problematic Social Media Use

Predictor	*B*	*SE B*	β	*t*	*p*
Intercept	30.81	1.55	—	19.88	< .001
Problematic social media use	0.335	0.065	.226	5.18	< .001

Note. $N = 499$. $R^2 = .051$; adjusted $R^2 = .049$; $F(1, 497) = 26.84$, $p < .001$.

A simple linear regression was run with problematic social media use as the predictor and FoMO as the criterion (Table 3). The model was significant, $F(1, 497) = 26.84$, $p < .001$, and explained 5.1% of the variance in FoMO ($R^2 = .051$, adjusted $R^2 = .049$). Each additional point on the Bergen scale was associated with a 0.34-point higher FoMO score ($B = 0.335$, $SE = 0.065$, $\beta = .226$, $t = 5.18$, $p < .001$). Roughly 95% of the variance in FoMO therefore remained unexplained. In a bivariate model the standardised coefficient equals the correlation coefficient, so reversing the roles of the two variables would leave R^2 and β unchanged; the unstandardised slope for predicting problematic use from FoMO would be about 0.15, as calculated from the reported standard deviations.

Table 4: Mann–Whitney U Comparisons Between Nuclear and Joint Family Students

Variable	Nuclear mean rank	Joint mean rank	*U*	*Z*	*p*	*r*
Anxiety	271.54	231.08	26,151.50	−3.14	.002	.14
Problematic social media use	242.05	258.30	29,171.00	−1.28	.202	.06
Fear of missing out	263.82	237.30	27,767.50	−2.06	.039	.09

Note. Group sizes approximately 240 (nuclear) and 260 (joint) 499 cases. $r = |Z|/\sqrt{N}$.

Table 4 reports the Mann–Whitney comparisons. Students from nuclear families had higher anxiety ranks than students from joint families, $U = 26{,}151.50$, $Z = -3.14$, $p = .002$, $r = .14$. They also ranked higher on FoMO, $U = 27{,}767.50$, $Z = -2.06$, $p = .039$, $r = .09$. Problematic social media use did not differ by family system, $U = 29{,}171.00$, $Z = -1.28$, $p = .202$, $r = .06$, although the mean rank was nominally higher among joint-family students. Only the anxiety difference stayed below the Bonferroni-adjusted threshold of .017, and all three effect sizes were small.

Discussion

This study set out to clarify how FoMO, problematic social media use, and anxiety relate to one another among Pakistani undergraduates. All three pairwise associations were positive, which is what the theoretical literature would lead one to expect, but they differed in strength. FoMO was most closely tied to anxiety, moderately tied to problematic use, and problematic use was only weakly tied to anxiety. Several features of the data, described below, argue for treating these coefficients as descriptions of this sample rather than as estimates that generalise cleanly.

The moderate association between FoMO and problematic social media use (ρ = .256) fits the picture assembled by Fioravanti et al. (2021) and the individual studies on which it draws (Blackwell et al., 2017; Franchina et al., 2018; Wegmann et al., 2017). It also sits comfortably beside the Pakistani evidence. Zahoor's (2022) study revealed that FoMO positively predicted social media addiction among young adults and Batool et al. (2023) reported the combined effect of FoMO and peer pressure explained approximately 4% of the variance in the addictive use in the southern part of Punjab. Some 5.1% of the variance was shared across the two here, between the FoMO alone. If a student is troubled by the prospect of missing out, then he or she has a reason to keep checking feeds repeatedly, and frequent, repetitive checking can be made more automatic and difficult to control, as the Bergen items suggest (Brand et al., 2016; Ryan & Deci, 2000). But a figure close to 5% still leaves a lot of variances in problematic use to be accounted for by a different factor, and the presence of belongingness and peer pressure in the southern Punjab study suggests some of that variance may be due to that factor.

Another less flattering interpretation goes. Some items within the FoMO also mention social media behavior, including sharing information about fun moments on the internet or knowing what friends are doing, and trouble (Bergen) and preoccupation (FoMO) without social media. There might thus be some common-method variance and content overlap in the measurement of these constructs in the observed correlation (all self-reported in a single session), and not a substantive psychological process.

The FoMO–anxiety coefficient (ρ = .370) was the largest in the study, in line with earlier work linking FoMO to anxiety and related distress (Dhir et al., 2018; Elhai et al., 2016). Social comparison is the explanation most often offered. If feeds keep suggesting that other people's lives are fuller, worry about one's own standing is a short step away (Appel et al., 2016; Verduyn et al., 2020). The same caution applies, however. Some FoMO items, such as becoming worried or anxious when unaware of friends' activities, are themselves anxiety-tinged, and the two constructs may partly index a shared tendency towards apprehension. Direction is equally open. Anxious students may be more susceptible to FoMO, which would be consistent with accounts that cast FoMO as a mechanism connecting psychological symptoms to the consequences of heavy networking (Oberst et al., 2017), and a design that measures everything once cannot arbitrate between these possibilities.

Problematic social media use was only weakly related to anxiety (ρ = .114), a coefficient close to the conventional threshold for a small effect. This is consistent with the mixed literature presented in the Introduction above. There are reviews or surveys that document the associations with anxiety and distress (Keles et al., 2020; Marino et al., 2018; Primack et al., 2017; Vannucci et al., 2017) as well as analyses suggesting that the links between digital technology use and wellbeing are small (Orben & Przybylski, 2019) and with longitudinal evidence that changes in time spent on social media do not reliably predict later anxiety (Coyne et al., 2020). The tentative conclusion that can be drawn from the above trend is that the psychological orientation toward social media (as reflected in FoMO is more closely associated with anxiety than the level of compulsive use of social media is. That call for a

formal mediation test, of which these data can offer no help since there was no measured mechanism and all the variables were measured at one time point.

A simple comment is due to the regression. The model was presented in the opposite direction from the motivating direction of the study, i.e., the predictor was problematic use and the criterion was FoMO. The standardised slope in a bivariate model is the same as the correlation and the statistical conclusion would be the same if the roles were reversed, and the terms predictor and criterion do not have any causal connotations here. The reverse specification is not a logically senseless one. Exposures to other people's uses raises the likelihood of exposure and the potential for enhancing FoMO is just as likely as a one-way feedforward as a one-way feedthrough. Experimental studies also indicate that the use of social media can influence emotions, in the sense that reducing social media use can help decrease loneliness and depression (Hunt et al., 2018). The present model is the one that assumes that the two constructs have a small degree of common variance, and no more than that.

In comparison, students from nuclear families were higher in anxiety scores, as was FoMO, but problematic use was not significantly different. The relatedness aspect of self-determination theory is related: when students are a part of a bigger family, they could be more likely to have an offline balance of needs for relatedness and, as a result, feel less compelled to track their peers' activities. Neither perceived support nor need satisfaction was assessed here, so this finding is not appealing and is also placed somewhat awkwardly next to the finding of Ali et al. (2026) that living in a joint family was linked to higher levels of stress. Family expectations, crowding, and lack of privacy could cancel out the support that joint households offer. Effect sizes were small ($r = .06$ to $.14$); only the difference in anxiety variables met correction for three comparisons and family system is confounded with residence, socioeconomic status, and other variables not controlled. If there is no difference in problematic use, it would indicate that there is widespread problematic use of social media for this population, across the different household types.

The raw scores need to be scrutinised. The average BAI total score (48.28) is in the range that is often considered severe, and the average item responses on the Bergen and FoMO scales were close to 4 on a 5-point scale. If a particular student is an average student, taken literally, he or she is suffering from severe anxiety. That seems like a stretch and was not done as part of this study, as there was no clinical evaluation or cut-off analysis. It may be more likely attributed to a tendency to agree or to respond to items in the extreme, to the overlap between the BAI somatic items and a general arousal to the task, which may have been increased during assessment periods, and to the non-random nature of the sample. Regardless of what this is, standard deviations that are small compared to the potential range of scores indicate limited variation and ceiling effects. They can result in distorted distributions, weaken correlations, and partially account for the nonnormality of the distribution, and so may underestimate, or may misrepresent, associations in a more diverse population.

The results are consistent with the views that FoMO is a psychologically meaningful correlate of problem use and/or anxiety, but cannot distinguish between the proposed mechanisms (need satisfaction, comparison tendencies, executive control), since they were not measured in the study. The results provide limited support for increasing FoMO in counselling dialogues with students who report compulsive social media use or higher anxiety levels, as well as for psychoeducation to increase awareness of the connection between worry about FoMO and checking behaviours. However, as many people and times can be involved, small effects may not be trivial, and any programme developed based on it must be piloted and assessed before it is scaled up, as it is unclear whether it will have a positive or negative effect. Counselling centres may also see a slightly higher level of anxiety and FoMO among students in the nuclear family, but family structures are a generalisation and should not be used to put individual students into a family type.

In addition to these, there are a number of restrictions: The participants were selected by convenience sampling from one public university and cannot be generalised to other other universities, provinces and age groups. Because of the cross-sectional design, it is not possible to infer temporal order. All of the measures are self-reports and were administered in one session; reliability coefficients should accompany the scores for each sample. The regression was applied to data which were not normally distributed and no residual diagnostics were performed, hence the inferential statistics of the regression are approximate; the rank-based correlations offer a reassuring cross-check and are not a substitute. Some potential confounders such as depression, loneliness, sleep, personality and platforms/hours of use were not assessed. As a result of this sample size, no analysis of gender differences could be conducted and therefore such information cannot be reported. Lastly, the family-system contrasts were exploratory and comprised various tests.

Conclusion and Future Recommendations

Among 500 Pakistani undergraduates, higher FoMO went with more problematic social media use and, more strongly, with greater anxiety, while problematic use itself was only weakly related to anxiety. Students from nuclear families reported somewhat higher anxiety. The associations are modest to moderate, the anxiety scores are unusually high, and the design cannot separate cause from consequence. For now, FoMO is best regarded as a plausible marker of vulnerability that merits further study, not as an established cause or a ready-made intervention target. A panel study with at least three waves across a semester, analysed with cross-lagged models that separate within-person from between-person variance (see Yuan et al., 2021), could show whether FoMO precedes, follows, or reciprocally relates to problematic use and anxiety. Public and private institutions and rural and urban backgrounds, with adequate male representation, would address generalizability.

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