



# Relationship Between Fear of Missing Out and Academic Performance Among Omani University Students: A Descriptive Correlation Study

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## ABSTRACT

**Objectives:** Smartphones and their applications play a key role in social connections, emotion expression, information transmission, and human achievements. However, the unfavorable side of such devices can lead users to develop a fear of missing out (FOMO) on what is happening around them, which may provoke adverse health, social, and academic conditions. We sought to investigate the extent of FOMO among undergraduate students in Oman and its relation to their academic performance. **Methods:** We conducted a descriptive, correlational study of a sample of 147 undergraduate students at Sultan Qaboos University, Oman. The questionnaire consisted of the FOMO scale, the participants' sociodemographic background (such as age, gender, and marital status), and their academic background (grade point average (GPA), academic year, and history of probation). **Results:** A total of 147 undergraduate students participated in this study; the majority were male (59.2%) and single (95.2%), lived off-campus (55.8%), were in their third or fourth academic year (57.1%), and had a mean GPA of 75.3%. Almost three-quarters reported that they used at least one smartphone, and their main reason for using these devices was for social interaction. Students experienced a moderate level of FOMO; the mean score of their FOMO experiences was 28.9. **Conclusions:** Prolonged and constant use of smartphones may influence students to rely on them holistically, causing them to think about, follow, and react excessively to the behavior of others.

Modern technologies, such as smartphones and their applications, provide society with enormous benefits, and have become essentials rather than accessories. Additionally, we use them to carry out meaningful tasks relating to text messages, phone calls, emails, entertainment, and social connections,<sup>1,2</sup> and they have a modern role in digital medical technology, such as telemedicine, web-based medical analysis, and remote medical monitoring.<sup>3</sup>

However, the unfavorable side of smartphone use is the risk of adverse physical health conditions due to their electromagnetic fields and wireless connection.<sup>4</sup> Additionally, they have negative consequences for psychological and mental health conditions, including compulsive behaviors, technostress,<sup>5</sup> addictive behaviors,<sup>6</sup> nomophobia,<sup>7</sup> and the fear of missing out (FOMO).<sup>8</sup>

Unlike computers and laptops, smartphones have low power consumption, are easily handled, and constitute a rich medium for connecting socially to the entire world in many forms through numerous social applications such as Facebook, Twitter, and Instagram.<sup>9</sup> This may lead individuals to care excessively about others' thoughts, feelings, and behaviors<sup>10</sup> and to compare their own lives and achievements with those of others.<sup>11</sup> Indeed, their lack of linear connections in the real world and the current trend of bonding via updated statuses, profiles, likes, and posts to connect continually to others may lead individuals to FOMO on updates and social news.

FOMO is characterized by the tendency of individuals to remain strongly connected to others' behavior and thoughts.<sup>10</sup> In this sense, while affected people do not like to be uninformed of current events,

social rejection by others can lead to either physical or social distress.<sup>12,13</sup> Studies investigating this topic have linked FOMO with poor motivation,<sup>14</sup> sleep deprivation,<sup>15</sup> alcohol-related harmful behaviors,<sup>16</sup> anxiety, and depression.<sup>17</sup>

College students are on the frontline regarding levels of smartphone usage;<sup>18</sup> they spend a meaningful amount of time on their phones for either academic or entertainment purposes.<sup>19</sup> It has been postulated that smartphone addiction runs to 24.8–27.4% among general college students,<sup>20,21</sup> and students justify their prolonged use of smartphone devices for information, social connection, academic tasks, and entertainment.<sup>1,19,22</sup> In the world of social media, students may find themselves disconnected from real-life social interactions and wishing for another state of connections from the ones they actually encounter.<sup>23</sup> In this world, social media can provide a platform for self-expression and self-presentation;<sup>24</sup> thus, students become more cautious about how they present themselves.<sup>25</sup>

Academic performance at the higher education level is considered a key for decision making in our competitive working society.<sup>26</sup> It has been linked to students' demographic background, college environment, and student outcome measured by knowledge, skills, attitudes, and behaviors.<sup>27,28</sup>

Furthermore, students' academic performance is measured by their total grade point average (GPA).<sup>29</sup> Several factors that might have an effect on students' academic performance (as measured by the total GPA) include their level of satisfaction, skills and competencies, lifestyle, learning environment, study skills, study habits, sleeping habits, study motivation, and alienation from the social environment. Recently, the emphasis and effect of modern technologies, digital distractions, and social media have been claimed.<sup>30–34</sup>

Transitioning to the college environment forces students to face new challenges in which changes in their emotional detachment and social role can lead to further distress.<sup>35</sup> Therefore, prolonged interactions with smartphones may tempt students to care excessively about how others think, feel, and behave<sup>10</sup> and to compare their achievements with those of others.<sup>11</sup> Constant connection via smartphones can trigger impatience in carrying out individuals' daily life activities,<sup>36</sup> interfere with their cognitive abilities,<sup>37</sup> and develop a platform of academic distractions,<sup>38</sup> multitasking

responsibilities,<sup>39</sup> and an excessive amount of time dedicated to interrupted studying;<sup>40</sup> the results, therefore, can negatively influence students' academic performance.<sup>41</sup>

Despite the rapid development of smartphones worldwide, limited empirical research has discussed this phenomenon.<sup>10</sup> Our study is a response to this lack of knowledge and thus will help to explore this phenomenon among college students. The findings of our study will provide academic staff with increased understanding of the extent of this problem and enhance their ability to determine whether other technical aspects might affect students' academic performance. Therefore, our study aimed to examine the extent of FOMO among undergraduate students in Oman and its relation to their academic performance. We hypothesized that there is a negative relationship between FOMO and academic performance in this cohort.

## METHODS

Approval to conduct the study was obtained from the Research Ethics Committee of the College of Nursing at Sultan Qaboos University. All students who agreed to partake in the study provided written, informed consent. We used a descriptive, correlational, and cross-sectional research design. Data was collected using a self-administered questionnaire. The sample consisted of 147 undergraduate students who met the eligibility criteria, including students who were willing to participate in the study, had completed their foundation program (English, computer skills, and mathematics), and had at least one smartphone device that was continuously connected to the internet.

The Information Centre provided a list of the students' emails. A sample of 250 participants were selected randomly, and an email was sent to all possible students inviting them to participate in the study. Sultan Qaboos University email addresses start with the student number (e.g., s1250xx@squ.edu.om) and, therefore, the authors were not able to recognize students by their names. The study design, purpose, methods, and potential benefits were explained to the students, and they were assured that their participation was voluntary and harm-free and that they were able to withdraw at any time. All students gave their informed consent. The researchers explained through

the email that the questionnaire would not take more than 15 minutes to complete. Once they finished, they could return the questionnaire via email or put it in the locked box in a specific place. No students' identification information was collected. The data were collected within a month during the spring semester in 2018. A power analysis was conducted to determine the estimated sample size.<sup>42</sup> A sample of 140 participants was estimated with an effect size of 0.5 ( $\alpha = 0.05, p = 0.800$ ).

We used a self-reported questionnaire, which included four sections.<sup>1</sup> The first section reported demographic features, such as gender, age, living arrangements, hobbies, habits, sleeping hours, and stimulant use.<sup>2</sup> The second section was related to academic data such as study program, academic year, studying hours, history of honoring and probation, and academic performance. Academic performance was measured by the student's GPA, which was defined as the final semester grade score within a given program weighted by the unit value agreed by the university grading system.<sup>43</sup> Students' grades are recorded on a four-point scale: A = 4.0 (88–100), A- = 3.7 (85–87.9), B+ = 3.3 (82–84.9), B = 3.0 (79.0–81.9), B- = 2.7 (76.0–78.9), C+ = 2.3 (73.0–75.9), C = 2.0 (70.0–72.9), C- = 1.7 (67.0–69.9), D+ = 1.3 (65.0–66.9), D = 1 (60.0–63.9), and F = 1.0 (lower than 60). According to the grading scale, grades A and A- indicate exceptional performance, grades B+, B, and B- indicate very good performance, grades C+, C, and C- indicate satisfactory performance, and grades D+ and D indicate minimally acceptable performance, while grade F indicates an unacceptable performance.<sup>3</sup> The third section was related to smartphone use, including the number of smartphones, class time use, status, and notification responses.<sup>4</sup> The FOMO questionnaire uses a scale consisting of 10 items<sup>10</sup> rated on a five-point Likert scale ranging from 1 ('not at all true of me') to 5 ('extremely true of me'). The FOMO scale demonstrated good internal consistency (Cronbach's  $\alpha = 0.88$ ), with higher scores indicating higher levels of FOMO.

We used SPSS Statistics (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.) for statistical analysis, a  $p$ -value of 0.050 was considered significant. Data were described using mean and percentage; linear regression was conducted to predict the relationship between FOMO and GPA. Analysis

**Table 1:** Distribution of FOMO experiences among students' demographical variables.

Demographic variables	Number, n	Percentage, %	Significant at $p < 0.050$
<b>Age, years</b>			
17–19	21	14.3	Not significant F = 0.920, $p = 0.401$
20–22	101	68.7	
23–25	25	17.0	
<b>Gender</b>			
Male	87	59.2	Significant F = 4.659, $p = 0.033$
Female	60	40.8	
<b>Marital status</b>			
Single	140	95.2	Not significant F = 0.174, $p = 0.677$
Married	7	4.8	
<b>Living arrangement</b>			
On campus	65	44.2	Not significant F = 0.428, $p = 0.514$
Off-campus	82	55.8	
<b>Substance misuse</b>			
None	131	89.1	Not significant F = 2.322, $p = 0.130$
Smoking	6	4.1	
Alcohol	4	2.7	
Shisha	6	4.1	

FOMO: fear of missing out.

of variance was performed to determine the major statistical differences between the variables.

## RESULTS

Of the 250 questionnaires distributed, 147 were returned, giving a response rate of 58.8%. The age of the respondents ranged from 18 to 22, and the mean age was 21.0 years. The majority of the participants were male (59.2%) and single (95.2%), lived off-campus (55.8%), and were not substance users ( $n = 131, 89.1\%$ ). Overall, the results of this study showed significant gender differences in the prevalence of FOMO (59.2% in males and 40.8% in females,  $p = 0.033$ ). We failed to find a significant correlation between the sociodemographic variables and the students' FOMO experiences, such as age ( $p = 0.401$ ), gender ( $p = 0.033$ ), marital status ( $p = 0.677$ ), and living arrangements ( $p = 0.514$ ) [Table 1].

The reliability of the FOMO questionnaire was assessed and showed a Cronbach's  $\alpha$  of 0.749. A composite FOMO score was calculated

**Table 2:** Students' responses to the FOMO questionnaire.

Items	Not at all true of me	Slightly true of me	Moderately true of me	Very true of me	Extremely true of me
Q1 = I fear others have more rewarding experiences than me.	22 (15.0%)	33 (22.4%)	75 (51.0%)	8 (5.4%)	9 (6.1%)
Q2 = I fear my friends have more rewarding experiences than me.	25 (17.0%)	38 (25.9%)	54 (36.7%)	23 (15.6%)	7 (4.8%)
Q3 = I get worried when I find out my friends are having fun without me.	31 (21.1%)	40 (27.2%)	37 (25.2)	30 (20.4%)	9 (6.1%)
Q4 = I get anxious when I don't know what my friends are up to.	30 (20.4%)	34 (23.1%)	50 (34.0%)	27 (18.4%)	6 (4.1%)
Q5 = It is important that I understand my friends "in-jokes."	7 (4.8%)	25 (17.0%)	52 (35.4%)	41 (27.9%)	22 (15.0%)
Q6 = Sometimes, I wonder if I spend too much time keeping up with what is going on.	9 (6.1%)	28 (19.0%)	60 (40.8%)	42 (28.6%)	8 (5.4%)
Q7 = It bothers me when I miss an opportunity to meet up with friends.	10 (6.8%)	26 (17.7%)	57 (38.8%)	39 (26.5%)	15 (10.2%)
Q8 = When I have a good time it is important for me to share the details online (e.g., updating status).	29 (19.7%)	23 (15.6%)	52 (35.4%)	25 (17.0%)	18 (12.2%)
Q9 = When I miss out on a planned get-together it bothers me.	10 (6.8%)	29 (19.7%)	58 (39.5%)	34 (23.1%)	16 (10.9%)
Q10 = When I go on vacation, I continue to keep tabs on what my friends are doing.	20 (13.6%)	34 (23.1%)	53 (36.1%)	29 (19.7%)	11 (7.5%)

FOMO: fear of missing out.

**Table 3:** Distribution of FOMO experiences based on students' smartphone use patterns.

Smartphone variables	Number, n	Percentage, %	Significant at $p < 0.050$
<b>Number of smartphones</b>			
1	112	76.2	Not significant
2	24	16.3	F = 1.317,
3	9	6.1	$p = 0.267$
> 3	2	1.4	
<b>Uses in classroom</b>			
Study	32	21.8	Not significant
Work	16	10.9	F = 0.787,
Photo and video-taking	6	4.1	$p = 0.600$
Shopping	3	2.0	
Watching videos	5	3.4	
Texting	36	24.5	
Playing games	1	0.7	
Making calls	3	2.0	
Chatting	45	30.6	
<b>Smartphone status</b>			
Loud	8	5.4	Not significant
Silence	108	73.5	F = 1.027,
Vibrate	15	10.2	$p = 0.383$
Off	16	10.9	
<b>Notification in class</b>			
Ignore the notification until class ends	73	49.7	Not significant
Send a message saying in the class	40	27.2	F = 1.377,
Ask the instructor to allow you to respond	11	7.5	$p = 0.252$
Reply without permission	23	15.6	

FOMO: fear of missing out.

**Table 4:** Distribution of FOMO experiences based on students' academic profile.

Academic variables	Number, n	Percentage, %	Significant at $p < 0.050$
<b>Academic year</b>			
First	6	4.1	Not significant F = 0.344, $p = 0.848$
Second	25	17.0	
Third	39	26.5	
Fourth	45	30.6	
Fifth	32	21.8	
<b>Probation history</b>			
Yes	63	42.9	Not significant F = 0.026, $p = 0.873$
No	84	57.1	
<b>Academic achievement</b>			
Yes	16	10.9	Not significant F = 0.319, $p = 0.573$
No	131	89.1	
<b>Sleep, hours</b>			
3–5	24	16.3	Significant $r = -0.169$ $p = 0.041$
6–8	103	70.1	
> 8	20	13.6	

FOMO: fear of missing out.

by summarizing the students' responses to the questionnaire; the mean score was 28.9. These scores ranged from 10 to 47, indicating a moderate level of FOMO: 34.0%, 40.8%, and 38.8% of students, for example, responded 'moderately' to 'get anxious when I don't know what my friends are up to,' 'sometimes I wonder if I spend too much time keeping up with what is going on,' and 'it bothers me when I miss an opportunity to meet up with friends,' respectively [Table 2].

Of the respondents, 76.2% use at least one smartphone. The main reason for using a smartphone in the classroom was to chat (30.6%) and send messages (24.5%). However, fewer than a quarter of the students reported using their smartphone for learning purposes. During class time, 73.5% of the students reported that they kept

their smartphone on 'silent,' and 49.7% of them ignored any mobile notifications received [Table 3]. No statically significant differences in FOMO were identified between students based on their number of smartphones ( $p = 0.267$ ), their purpose of use in the classroom ( $p = 0.600$ ), their status ( $p = 0.383$ ), or their notification responses ( $p = 0.252$ ).

With regard to students' academic profiles, the mean GPA was  $75.3 \pm 7.5$ ; more than half of the students were in their third (26.5%) or fourth (30.6%) academic year; 42.9% were under study probation, and approximately 70% slept for between six and eight hours a day [Table 4]. An evaluation of students' academic profiles showed a significant correlation between students' FOMO experiences and their daily sleeping hours ( $r = -0.169, p = 0.041$ ), whereas no relationships with other academic variables, such as academic year ( $p = 0.848$ ), history of academic rewards ( $p = 0.573$ ), and history of probation ( $p = 0.873$ ) were found.

To understand further whether the students' GPA (the dependent variable) could be predicted by their FOMO experiences (the independent variable), we calculated linear regression; however, no significant correlation was found ( $T(1, 145) = -1.012, p = 0.313$ ), with an  $r^2$  of 0.007 [Table 5].

## DISCUSSION

Smartphones and their applications play an essential role in many millennial students' social and academic lives when exchanging information, connecting to others, and using entertainment. Few studies have turned their attention to the impact of FOMO on students' academic lives; thus, our study aimed to build robust empirical measures of FOMO among undergraduate students, specifically to create a brief and rich platform of information about students' experiences of FOMO and its impact on their academic performance.

**Table 5:** Result of the linear regression analysis.

Predictor	Unstandardized coefficients		Standardized coefficients	T	p-value	95% Confidence interval for B	
	B	Standard error	Beta			Lower bound	Upper bound
Total FOMO	78.304	3.026	-	25.878	< 0.001	72.323	84.284
	-0.104	0.102	-0.084	-1.012	0.313*	-0.306	0.099

\*Significant value. FOMO: fear of missing out.



Across the study results, which are representative of 147 students, a moderate level of FOMO experiences existed compared with other investigations.<sup>44</sup> One study found that students find a platform through these devices and its applications for emotional support and social engagement.<sup>45</sup>

Neither age, marital status, living arrangements, nor substance use pointed towards a relationship with FOMO experiences, which supports previous findings.<sup>11,46,47</sup> However, our results highlight significant gender differences in FOMO experiences; male students seem to have higher levels of FOMO than female students (their mean FOMO scores are 29.8 and 26.6, respectively). Similarly, being male or young is associated with high levels of FOMO experiences.<sup>10</sup> While both males and females socialize with their families and friends through their mobile devices, females tend to emphasize their family connections, whereas males are more inclined to include both their friends and families in their social media.<sup>48</sup> Males are more competitive when exploring and creating via smartphones and thus rely on their smartphones to complete all their tasks. While males use smartphones for learning purposes, entertainment, and social connections, females consider smartphones to be a method of social bonding.<sup>49,50</sup>

Our study indicated a negative and significant correlation between sleeping hours and level of FOMO; the fewer hours students sleep, the higher their level of FOMO. It is not just the excessive use of electronic devices in general that can affect sleep quantity and quality; studies have accused smartphones and social media misuse of leading to sleep deprivation.<sup>51,52</sup> Students may keep their devices on vibrate mode to enable them to respond constantly to their notifications; for many, social media could be connected with their hours of sleep hygiene, and routine.<sup>53</sup> One study investigated the influence of FOMO experiences on college students' sleeping patterns; the study found that students may delay or miss sleep in favor of opportunities to socialize and follow events even if these things did not happen.<sup>15</sup> Moreover, chatting and texting are associated with less sleep.<sup>53,54</sup>

Despite the moderate level of FOMO experiences among undergraduate students, our study indicated no relationship between students' FOMO experiences and their GPA ( $p = 0.313$ ). However, our results were inconsistent with some

previous works<sup>11</sup> in which students with lower levels of FOMO obtained lower GPAs. Other studies that investigated the problematic use of smartphones and social media presented a significant and negative relationship between these variables.<sup>40,41</sup> Indeed, we can infer that prolonged smartphone and social media use is not necessarily problematic. Intensive use of smartphones can benefit students' academic life; thus, FOMO can discriminate between the problematic versus the non-problematic uses of these devices.<sup>17</sup>

Despite the students' high GPA scores, excessive smartphone use among undergraduate students could also be explained by their desire to achieve a sense of balance in their new academic environment, in which students might use all the available resources and work diligently to achieve their goals. In this regard, students need to adjust to their academic lives, college requirements, and future plans. FOMO could act as a mediator, linking their college requirements with their social engagements.<sup>55</sup>

A study conducted among university students in Oman emphasized the negative consequences of university life maladjustment for developing and experiencing stress and triggers that lead to depression due to the potential loss of traditional social support and supervision.<sup>56</sup> Indeed, living away from family and friends may add additional burdens to students' well-being and academic achievements. Thus, the culture of Arabic families, especially in Oman, emphasizes students' desire to be connected continuously to their support system, in which they can present their activities and be updated with those of others as well as communicate easily with their classmates and instructors.<sup>57</sup> Students who maintain such relationships with family and friends through this support system are more likely to perform well at college.<sup>58,59</sup> Students, therefore, rely on their smartphones and social media to collaborate, work, connect, and facilitate their academic life.<sup>24</sup>

Our study has some limitations that are congruent with previous studies in which the sample size and sample technique are the key issues. It would be very beneficial to study such phenomena within a large sample that presents varied geo-sociodemographic properties. Future studies should also address the cultural differences, social support, and pattern of smartphone use in FOMO experiences as a mediator of students' academic achievements and sleeping properties.

## CONCLUSION

Smartphones and their applications play a significant role in global communications; they have become a mark of our civilization and support the spirit of human connections. FOMO is considered one of the factors that might affect students' reactions, responses, and behaviors. The university students surveyed experienced a moderate level of FOMO, and frequent assessment of this issue among university students is important by academic administrators, and the specialized professionals would be useful to develop appropriate interventions. Workshops on both a national and a global basis are also highly recommended to collaborate the efforts of colleges, academic administrators, and mobile companies to discuss and solve the rapid growth of such phenomena.

### Disclosure

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