Iran J Psychiatry 2022; 17: 2: 224-229

Original Article

Correlation between Fear of Missing out and Night Eating Syndrome among University Students

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Abstract

Objective: The aim was to explore the relationship between Night Eating Syndrome (NES) and experiencing Fear of Missing Out (FoMO) among college students in Oman.

Method: A descriptive, correlational and cross-sectional design was performed on 266 university students studying at Sultan Qaboos University in Oman. The data were collected using a demographic questionnaire, Night Eating Syndrome and Fear of Missing Out questionnaires. Data analysis was performed through Pearson correlation, One-way ANOVA and independent t-test using SPSS 24 software

Results: The participants' ages ranged between 18 and 30 years (M = 21.15; SD = 1.97). The majority of the participants were female (204, 76.7%), single (266, 97.7%), and 152 (57.1%) lived on campus Overall, a weak positive and nonsignificant correlation between FoMO and NES and a significant difference between males and females in the mean score of FoMO (P = 0.005) was noticed. The mean score of NES among students who live on campus was higher than for those living off campus (P < 0.05).

Conclusion: This study explored a limited aspect of the relationship between fear of missing out and night eating behaviors among university students in Oman. There was no significant direct relationship between both variables. The study needs to be repeated using a larger sample size and more rigorous methods to calculate the number of snacks/day, and the number of meals/day

Key words: *Fear; Night Eating Syndrome; Smartphone; Social Media; University, Students*

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Article Information:
Received Date: 2020/08/10, Revised Date: 2021/08/17, Accepted Date: 2022/01/28

Smartphones and their applications are symbols of today's human interaction and socialization (1). The current and future evolution of smartphones can create more virtual platforms for social connections. However, spending an extended amount of time using a smartphone may negatively affect physical and psychosocial aspects of daily life (2). For example, some university students only want to remain online to receive media updates and engage passively or actively in sharing information, comparing other people's thoughts, feelings, behaviors and achievements with their own (3). This exposes them to an experience termed fear of missing out (FoMO).

Fear of missing out refers to individuals' tendency to remain closely and continuously connected with others through constant presence on social media platforms (4). Students with FoMO will spend most of their day updating themselves with what others say and do to promote their emotional support and social engagement (5). This may lead to poor mental health outcomes like depression, anxiety, and the need for touch (6). It also leads to insufficient physical activity (7), poor academic performance (8) and poor sleep (9). The negative effect may influence eating behavior, food choices, and body weight (10). That is, people who use their smartphone instead of sleeping have additional opportunities to increase their food intake at night (11, 12).

Night eating syndrome (NES) is an example of delayed circadian food intake. It was first defined in 1955 and characterized by insomnia, a strong urge to eat between dinner and sleep, late-night hyperphagia, and morning anorexia (13, 14). Usually, people who have NES consume a quarter of their total daily food intake after their evening meal. The prevalence of NES in the general population is about 1.5% (15); young adults, especially university students, are more likely to have night hyperphagia than other age groups (16, 17).

Although the relationship between smartphone overuse and eating patterns has been explored in Western countries (11, 12, 18), the extensive literature search revealed a dearth of studies which explored this issue in the Arab region. Oman is a small country in Southwest Asia, with a total population of five million, the majority of whom are young. There are over seven million mobile connections, and 4.66 million people are internet users (19); the majority of mobile users are young people who are enrolled in colleges or universities. These figures increase the likelihood of FoMO and NES among this age group. The aim of the current study was to explore the correlation between fear of missing out, night eating syndrome and other variables including age and the number of snacks and meals per day among university students in Oman.

Materials and Methods

Study Design and Subjects

A descriptive correlational cross-sectional study design was used. Participants were recruited from Sultan Qaboos University. This is the only public university in Oman and is fully supported by the government and with students from all over the sultanate. The total number of students is 17,597, of whom 15,840 are undergraduates The Cohen formula was used to determine the sample size (Cohen's f2 = 0.15). Based on an 80% statistical power, and a probability level of 0.05, the estimated sample size was 113 participants. However, the researchers circulated 500 surveys as they were expecting a high attrition rate. The inclusion criteria were: (1) to be able to read and write English; (2) to have completed the English foundation year; and (3) to have registered for more than nine credit hours. 266 students completed the survey.

Data collection procedure

The researchers left flyers explaining the inclusion criteria, nature and purpose of the study on notice boards in each college. They also left the questionnaires on a desk in the hall of each college, along with a closed box for the completed surveys. The researchers left the surveys and the boxes for one week before collecting them.

Ethical considerations

The current study, which complies with the Declaration of Helsinki principles, was approved by the Research Ethics Committee of Sultan Qaboos University (approval number CON/NF/2020/05). Informed consent was obtained from all individual participants included in the study.

Data analysis

Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) version 24. The level of significance was set at 0.05. Mean and standard deviations were used to describe continuous variables including student age, the FoMO scale score, and night eating score. Percentages and frequencies were used to describe categorical variables, gender, marital status, living arrangements, and academic year. One-way ANOVA and independent t-test were conducted to compare the mean of the dependent variables FoMO and NES with the independent variables age, gender, marital status, residence, and academic year. Pearson correlation was also performed to test the association between the continuous variables including FoMO, NES, age, number of snacks/days, and number of meals/day.

Instruments

Self-reporting instruments were used to collect: (1) demographic data, (2) fear of missing out survey, and (3) the night eating survey. Permission to use the surveys was obtained before their circulation.

Demographics

Researchers requested the participants to complete some information related to gender, marital status, living arrangement, academic year, number of snacks/days, and number of meals/day.

Fear of Missing Out survey (FoMO)

The FoMO survey was developed by Przybylski *et al.* (18). The scale consists of 10 items rated on a 5-point Likert-scale ranging from 1 ("not at all true for me") to 5 ("extremely true for me") with higher scores indicating increased FoMO levels. An example of items is, "It bothers me when I miss an opportunity to meet up with friends". The scale was tested for its reliability among the current study participants and obtained a Cronbach's alpha of 0.87. This was similar to a previous study (Cronbach's α = 0.88) (18), which reflects good internal consistency.

Night Eating Survey

The survey was developed in 2008 by Allison *et al.*, (20). It consisted of 14 items, each rated on a 5-point Likert-scale ranging from 1 ("never") to 5 ("always") with higher scores indicating increased levels of night eating behaviors. An item, for example, is, "Do you have cravings or urges to eat snacks when you wake up at night?" The scale was tested for its reliability in the current study participants and obtained a Cronbach's alpha of 0.73 which is similar to the original study (α = 0.70) (20).

Results

Of the 500 surveys circulated among university students over one week, 266 were returned, giving a response rate of 53.2%. The participants' ages ranged between 18 and 30 years (M = 21.15; SD = 1.97). The majority of the participants were female (204, 76.7%), single (266, 97.7%), and 152 (57.1%) lived on campus. See Table 1.

There was a significant difference in the mean scores of the dependent variable FoMO with regards to the independent variables gender (P = 0.005). There was also a significant difference in the mean scores of the dependent variable NES with regards to the independent variables living arrangement (P = 0.017) (Table 2).

A two-tailed test of significance indicated a significant inverse correlation between FoMO and age rs (264) = -0.139, P < 0.05; and positive correlation and number of meals/day age rs (264) = 0.229, P < 0.05. There was also a positive correlation between NES and number of snacks/day rs (264) = 0.250, P < 0.05. See Table 3.

Table 1. Participants' Characherstics

Variable	Frequency and Percentage
Gender	
Male	23.3% (62)
Female	76.7% (204)
Marital Status	
Single	97.7% (266)
Married	2.3% (6)
Living Arrangement	
On campus	57.1% (152)
Off campus	114% (42.9)
Academic Year	
1st academic year	9.8% (26)
2nd academic year	15% (40)
3rd academic year	28.6% (76)
4th academic year	21.1% (56)
5th academic year and above	25.6 (68)

Table 2. Bivariate Analysis of the Dependent Variables Fear of Missing Out and Night Eating Syndrome

Variable	Mean (*SD*) FoMO	FoMO	Mean (*SD*) NES	NES
Gender				
Male	23.7 (7)	t = 2.84	36.2 (9.7)	t = 0.098
Female	21.1 (6.1)	*P* = 0.005*	36 (7.4)	*P* = 0.922
Marital Status				
Single	21.7 (6.5)	t = 0.783	36.2 (21.7)	t = 1.118
Married	19.7 (1.9)	*P* = 0.434	32.5 (7.4)	*P* = 0.264
Living Arrangement				
On campus	21.2 (6.1)	t = -1.55	37 (7.7)	t = 2.28
Off campus	22.4 (6.9)	*P* = 0.122	34.8 (8.1)	*P* = 0.023*
Academic Year				

1st academic year	22.5 (6)		37.7 (9.8)	
2nd academic year	21.7 (4.2)	F = 0.906	34.7 (7.5)	F = 953
3rd academic year	22.5 (7)	*P* = 0.461	36.1 (7.9)	*P* = 0.434
4th academic year	21.4 (6.7)		37.1 (8.1)	
5th academic year	20.6 (6.7)		35.4 (7.4)	

*P ≤ 0.05; NES= Night Eating Syndrome; FoMO= Fear of Missing Out

Table 3. Correlations between Night Eating Syndrome, Fear of Missing Out, Meals/Day, Snacks/Day, and Age

		1	2	3	4	5
1.	NES	1	0.045	-0.005	0.250**	-0.040
2.	FoMO	0.045	1	0.229**	0.077	-0.139*
3.	Meals/day	-0.005	0.229**	1	-0.007	-0.090
4.	Snacks/day	0.250**	0.077	-0.007	1	-0.129*
5.	Age	-0.040	-0.139*	-0.090	-0.129*	1

*P ≤ 0.05; NES= Night Eating Syndrome; FoMO= Fear of Missing Out

Discussion

This was a preliminary study which investigated the relationship between FoMO and NES. It reported a weak positive and nonsignificant correlation between FoMO and NES. The total mean scores of students' FoMO were 23.7 for males and 21.1 for females out of 50, which reflect a weak score. In Oman, cost of internet connection is relatively high compared with neighboring countries, which may explain why students did not demonstrate a high score. Another explanation is that the majority of the students are living on campus which means they need to abide by university rules and regulations, which restrict students from waking up during the night. With respect to the current study findings, previous studies had found a significant correlation between increased use of the internet and eating disorders (11, 12, 18). A possible justification is that smartphone overuse leads to a low level of physical activities, inappropriate sleeping patterns, skipping regular meals and hence an increase in snack intakes and eating during the night, leading to obesity problems (21, 22). However, one explanation for the results in the current study may be that it explored limited aspects of internet addiction, the relationship between social internet addiction anxiety and experiencing of NES, a type of eating disorder. The use of the internet by university students is not limited to social media; it extends to cover surfing the internet for academic and recreational purposes, which is not measured by the FoMO scale. Therefore, more research is required in this area to validate or refute the current results.

One possible indirect link between FoMO and eating disorders is that students who suffer FoMO engage in intentional or unintentional social comparison, leading them to feel inferior and have negative evaluations of themselves (23). They may also be influenced by the body shape of celebrities, which can lead to eating disorders such as anorexia nervosa, bulimia nervosa, food preoccupation, and others (24, 25). University students who use social media may also encounter the pro-eating disorder groups which prefer social networking platforms such as Facebook and Twitter to promote their activities (26). Pro-eating disorder platforms encourage the attainment of a low body weight and may suggest strategies for weight reduction, such as vomiting, fasting, and excessive physical exercise (27). Therefore, public lectures aiming to promote university students' knowledge about FoMO and eating disorders should be initiated.

Another significant finding was that the mean score of FoMO in the current study was significantly higher for the male students than for females. Although this supported the findings of some studies (18, 28), others found no differences (29, 30). Several reasons may justify the current findings. Male students tend to be more strongly addicted to the internet, spending a long time in social media (31). They are also more desirous of finding new friends through social media than are their female counterparts (32, 33). Another explanation specific to the current study is related to Arab cultural norms, where females are reluctant to share their personal information and photos on social media (31). University students should be provided with health promotion classes about the risks and balanced use of social media. More research is required to investigate a breakdown of internet use among Omani university students, such as how many hours are spent on using the internet for playing, chatting, watching movies and studying.

The mean score of NES for students who live on campus was higher than for those living with their families. This is expected, as the transition to college can cause significant changes in students' dietary options in the new environment for meal preparation, planning, and consumption (34). Numerous students skip meals for several reasons, including study overload, less appetite in the morning, financial constraints, lack of food preparation skills, poor living conditions, limited cooking resources and technology addiction (35-37). This encourages them to use the university facilities or fast-food outlets with limited healthy options (38), representing a time of significant risk for weight gain, a

decrease in physical activities, and increase in calorie intake (39). Therefore, faculty members need to draw the students' attention to the importance of eating healthy food, and especially breakfast.

Limitation

This study had some limitations. The self-reported questionnaires are subject to recall bias. Hence, cohort studies and more rigorous methods to calculate the number of snack/days, and the number of meals/day are recommended in the future. Second, data collection originated from just one national university, which may restrict generalization of our findings, although participants were represented from all over Oman. Recruiting a more heterogeneous and larger sample size from different private universities might increase generalizability and further validate our study findings.

Conclusion

The current study explored one aspect of the relationship between FoMO and NES among university students in Oman. Although there no significant direct relationship was found, previous literature indicates that the variables are connected indirectly. Further studies are required to validate our study findings. Health awareness programs about negative consequences of FoMO and about healthy eating habits might be introduced for university students. Improvements in time management skills could help them to overcome missing meals and stop overnight eating. Future studies should also address more variables that might play a mediating role in predicting the relationship between FoMO and NES. Healthcare providers and faculty members should collaborate to find new approaches to help students to control and use technology effectively without suffering its negative consequences.

Acknowledgment

The authors wish to thank the College of Nursing at Sultan Qaboos University for their continuous support.

Conflict of Interest

None.

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