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Fear of Missing Out (FOMO) and Sleep Quality: Evidence from Generation Z

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ABSTRACT

The widespread use of social media on smartphones has led to the various psychological issues, one of them are Fear of missing out (FOMO) and poor sleep among generation Z. The research problem of this study was to verify the hypothesis that the Fear of Missing Out (FOMO) is associated with the quality of sleep among Generation Z youths in three urban cities, namely Mardan, Peshawar, and Abbottabad in Pakistan. There were 300 participants (150 males and 150 females). Online Google Forms were used to gather data in Peshawar and Abbottabad, paper and pencil surveys were used in Mardan. FOMO and sleep quality respectively were measure with the aid of FOMO Scale, (FOMO; α = .70) and Sleep Quality Scale (SQS; α =.69). The one-way ANOVA indicated that no significant differences were found between the participants in terms of FOMO (F (2, 297) = 0.46, p = 0.63, η^2= 0.003) or sleep quality (F (2, 297) = 1.81, p = 0.17, η^2= 0.012) between the participants of Mardan, Peshawar, and Abbottabad. Furthermore, the independent samples t test did not report any statistically significant gender difference in FOMO (t (298) = 1.19, p = 0.23, Cohen's d = 0.14). The results however declare that males reported a higher sleep quality as opposed to females (t (298) = 2.70, p = 0.01, Cohen's d = 0.32). Correlation analysis revealed that there is a positive relationship between FOMO and poorer quality of sleep. The results foreground the need to foster healthy digital habits and enhance sleep awareness among the Generation Z. One of the limitations of the study is that the sample is purposive, the research was based on self-report scales, and the differences between the cities that used different data collection methods, which can potentially limit the generalization of the results. To gain more insight on these relations, future studies need to utilize longitudinal designs and objective measures of sleep.

Keywords: *Fear of missing out, sleep quality, generation Z*

INTRODUCTION

The social media have developed remarkably fast and transformed the life of the youths especially in the developing world such as Pakistan where internet and smartphone usage has increased in the past few years. The Instagram, Tik Tok, snapchat, and WhatsApp apps allow others to post and view the social life events in real time, which has transformed the online world to a place where it is highly appreciated to be positively depicted socially (Baloch, 2025; Vogel et al., 2014). The inability to miss any news about the lives of other users and their success may make the young users feel excluded or miss an important interaction, which also prompts them to monitor social media platforms regularly, which could be defined as Fear of Missing Out (Przybylski et al., 2013; Wolniewicz et al., 2018).

Gen Z is also known as digital native (Marc Prensky, 2001). They are the individuals that have been brought up on computers and the internet. Generation Z group of individuals that were born between 1997 and 2012 (Dimock, 2019) is the first generation to develop in the sphere of digital technology and social media. Recent survey reports have indicated that Generation Z is the first mobile-first generation and that a

significant portion of this generation has acquired their first smartphone at age under 18 and that they use mobile devices immensely to play video games, social media, and digital entertainment (Tapjoy, 2023). One of the studies has revealed that the social media dependence, technology use at night, and sleep issues are prevalent within Generation Z, and a large proportion of it tends to go to bed later than it should due to social media use and disrupted sleep patterns (Sleep Health Foundation, 2024; American Academy of Sleep Medicine, 2022) than its predecessors, which is why the latter is a highly suitable cohort in the correlation analysis of FOMO with the quality of sleep.

The other major issue that is associated with this phenomenon is its impacts upon the state of sleep. Sleep is also one of the most noticeable biological activities and is needed to maintain the psychological and physical health (Walker, 2009). Sleep disorders have always been linked to the deterioration of the memory, the lack of concentration, emotional disorders, stress, and psychiatric susceptibility (Levenson et al., 2016; Medic et al., 2017). Sleep habits, late bedtime, and the impact of late-night technologies are other factors that result in reduction of the quality of sleep (Van den Bulck, 2007; Hale, L. & Guan, S, 2015). There is an emerging body of evidence to indicate one of the social media use increases has been attributed to FOMO, anxiety, and maladaptive nighttime behaviors. According to Oberst et al. (2017), troublesome use of the social networking sites (SNS) and psychological distress had a strong relationship with FOMO among adolescents. The analysis also revealed that the connection between anxiety, depression and overuse of social media was mediated by FOMO. According to Adams et al. (2017) college students tended to lose sleep to keep up with social processes and not be isolated. The results were implied to be that FOMO and social distractions related to technology were the factors that lead to sleep deprivation in first-year college students. It has also been signifying that social media behaviour through FOMO can have a negative impression on sleep patterns. According to the study, adolescents with greater FOMO experienced greater likelihood to use social media late at night which was correlated with tardy bedtime and reduced sleep period (Scott & Woods, 2018). Exelmans and Van den Bulck (2016) established that the use of mobile at bedtime was a strong predictor of poor sleep quality, fatigue and insomnia in adults. Milyavskaya et al. (2018) showed that FOMO was more common in the second part of the day and was linked with increased stress, fatigue, negative mood, and low quality of sleep among college students. Research by Wolniewicz et al. (2018) showed that negative affectivity and problematic smartphone use have a positive relationship with FOMO and argue that emotional distress can lead to the increased risk of smartphone interactions. Li et al. (2020) described the situation in Asia, where the higher school students used social media, the worse the quality of their sleep and the more they experienced depressive symptoms. The same patterns have also been pointed out in studies conducted in Pakistan. In this study, Zahoor (2022) discovered that the effects of FOMO on predicting social media addiction among the young adult population were significant, showing that psychological factors are relevant to excessive digital use. Similarly, Sajid and Shaheen (2025) found out that increased use of social media among university students was linked to late bedtime and a short sleep duration. A meta-analysis and systematic review showed positive correlations with low degrees of sleep, including sleep quality, bedtime procrastination, and sleep hygiene, whose positive relationships with FOMO are constant across all individuals, which means that more digitally involved individuals are inclined to sacrifice the quality of sleep to stay digitally active (Brombach et al., 2025). In the same vein, research conducted during covid-19 on smartphone addiction indicated that FOMO can mediate between the connection between the use of mobile devices and poor sleep behavior, bed procrastination with poor health outcomes, which can be used to connect technology habits to poor health outcomes (Huang et al., 2023). These associations are also supported by empirical research. To provide an example, in the group of university students who are engaged social media users, the scores of FOMO have proven to be significantly connected to worse Sleep Quality, the latter sleep onset, and the abnormal sleep patterns (Safira & Tumanggor, 2026). Electronic device use and related FOMO were also reported to be correlated with lower sleep quality and higher cognitive pre sleep arousal, which also characterizes the behavioral pathways by which electronic use can influence the rest patterns (Almeida et al., 2023). These results indicate that FOMO

not only has the potential to promote more frequent social media checking, but can also lead to sleep disturbance directly due to its role in arousing, postponing the onset of sleep, and decreasing sleep duration.

Khyber Pakhtunkhwa is a culturally diversified state with such cities as Mardan, Peshawar and Abbottabad, whose process of modernization and technological absorption is extremely fast. In this aspect, the phenomenon of FOMO has taken one of the central positions in the behavior of young people. Certain research has specified that FOMO may be culturally constructive and cause a change in behavior. Here, individuals must experience more FOMO in the collectivist, and not individualistic societies due to the more intensive nature of the needs in the social belonging domain, but FOMO may increase the relationship between digital use and perceived exhaustion in the individualistic cultures (Wang et al., 2026). In addition, sleep is a biological and cultural procedure that is affected by physiological demands, in addition, social practices, values, and beliefs (Iwelunmor et al., 2015). It means that the dependence of FOMO and the usage of social media on the quality of sleep is likely to be mediated by cultural context.

Problem Statements The study intent to assess the relationship between Fear of Missing Out and Sleep Quality among Generation Z.

Objectives

- To estimate FOMO and sleep quality of Gen Z.
- To determine the connection between FOMO and the quality of sleep among Gen Z.
- To investigate gender differences in FOMO and sleep quality.
- To assess the variations in FOMO and sleep quality among the participants of Mardan, Peshawar and Abbottabad cities.

Hypothesis

- H1: There will be a significant relationship between Fear of Missing Out (FOMO) and Sleep quality among Generation Z.
- H2: There will be a significant mean difference in Fear of Missing Out (FOMO) between male and female participants among Generation Z.
- H3: There will be a significant mean difference in sleep quality between male and female participants among Generation Z.
- H4: There will be significant mean differences in Fear of Missing Out (FOMO) and sleep quality among Generation Z across cities (Mardan, Peshawar, and Abbottabad).

Research Design

Correlational survey study design, quantitative method and purposive sampling technique was used in research.

Sample of the study

This study used a sample of 300 male and female Generation Z participants aged 14-29 years. Students were chosen voluntarily, had different level of education but higher number of bachelors students were taken to represent the Generation Z population

Demographic Information

The demographic characteristic of research is Age, Gender (Male, Female), Education, City.

Measurement

In this research, two questionnaires are used, including FOMO Scale and Sleep Quality Scale.

Fear of Missing Out (FOMO)

The FOMO Scale was used to measure Fear of Missing Out. Developed by Przybylski et al. (2013). It is a self-report instrument, composed of 10 items. Respondents indicate their answers to every item on a 5-point Likert scale. The greater the scores, the greater the levels of Fear of Missing Out (FOMO). The scale showed having an internal homogeneity with a Cronbach's alpha of 0.91 and a composite reliability of 0.84**,** confirming the instrument's reliability across multiple samples, which is good internal consistency (Przybylski et al., 2013).

Sleep Quality

Sleep quality was measured with the scale of Sleep Quality which was developed by Yi et al. (2006)**.** The SQS consists of 28 items that are used to establish many factors about sleep which include trouble in falling asleep, sleep maintenance, depth of sleep, sleep satisfaction, and dysfunction in the day due to lack of sleep. The respondents will respond to all the items based on the 4-point Likert scale. The high scores are those which are pointers to low quality of sleep, Cronbach's Alpha had been established to be (.92) which is excellent internal consistency (Yi et al., 2006).

Procedure

The research studied the association between the Fear of Missing Out (FOMO) and the quality of sleep among Generation Z. Once after obtaining the permissions from the concerned authorities, the data were collected using a FOMO scale and Sleep Quality Scale (SQS) from total sample of 300 participants, (150 male and 150 female) were chosen by the purposive sampling method. Three cities of Mardan, Peshawar, Abbottabad were the places where the participants were recruited. Physical (paper -pencil) questionnaires and online Google Forms were used to collect data to guarantee a wider turnout. Mardan had about 100 respondents that filled out the questionnaires using the paper-pencil technique, with 100 respondents at Peshawar and 100 respondents at Abbottabad filling out the questionnaires using Google Forms. The participants were contacted face to face or via online and were given an informed consent form explaining what the motive of the study was, that involvement in the study is voluntary and that their identities will be confidential and anonymous. Individuals who voluntarily volunteered and gave informed consent were the only ones who were involved in the study. The respondents were informed that the information they provide would be applied exclusively on academic's grounds. The participants were given clear instructions before completing the questionnaires and sufficient time was offered to them to respond to all items. Upon completing it, the participants would be thanked and debriefed briefly on the overall purpose of the study. The data was coded and analyzed by using Statistical Package for Social Sciences (SPSS). Descriptive

statistics for demographic profiling, correlation analysis to find relationship between Fear of Missing Out and sleep quality, t test was used as statistical analyses to explore the gender differences in Generation Z and one-way ANOVA to find the mean difference in cities, respectively.

RESULTS

Table 1: ***Sociodemographic Characteristics of Gen Z (N=300)***

Demographics		*N*	%
Gender	Male	150	50
	Female	150	50
Age	14-29	300	100
City	Mardan	100	33.3
	Peshawar	100	33.3
	Abbottabad	100	33.3
Qualification	Matric	7	2.3
	Intermediate	17	5.7
	Bachelor	262	87.3
	Master	12	4
	PhD	2	0.7

Table 1 shows the demographic features of the study participants Gen Z in terms of gender, age, city, and qualification. The study included one hundred fifty (50%) male and one hundred fifty (50%) female study participants. Concerning age, were between 14-29 years. In terms of geographical location, participants were well spread across three cities, that is, one hundred (33.3%) Mardan, one hundred (33.3) Peshawar, and one hundred (33.3) Abbottabad. Regarding the level of education, they were seven (2.3) Matric qualification, seventeen (5.7) Intermediate qualification, the largest number was two hundred sixty-two (87.3) Bachelor degree, twelve (4) Master degree, and two (0.7) PhD qualification.

Table 2: ***Psychometric Properties for Scale (N=300)***

Scale	*K*	*M*	Range	*SD*	Cronbach's α
Fear of Missing Out Scale	10	25.59	40	6.79	.70
Sleep Quality Scale	27	37.52	54	9.28	.69

Table 2 shows the psychometric characteristics of the study scales such as the suitable quantity of items, mean scores, standard deviations, and the reliability coefficients of Cronbach. The 10-item FOMO Scale showed a satisfactory internal consistency of Cronbach's α .70. The Sleep Quality Scale, which has 28 items, due to low reliability and missing responses, we remove item no 17 to improve reliability now final scale had Cronbach's alpha reliability value of 0.69, that is an acceptable internal consistency coefficient in the current study. Comprehensively, the reliability coefficients indicate that the two instruments are reliable enough to measure the variables.

Table 3: Descriptive Statistics and Correlation for Study Variables

Variables	1	2
1. Fear of Missing Out	-	

2. Sleep Quality	.27**	-

**p<.01

Table 3 shows the correlation between Fear of Missing out (FOMO) and Sleep Quality. The Pearson Correlation test was applied to test the relation between these two variables. The findings showed that FOMO and Sleep Quality had positive correlation (r = .27, p <.001). This discovery shows that the greater the levels of FOMO, poor the quality of sleep of the participants. These findings support the hypothesis that there will be a significant relationship between Fear of Missing Out (FOMO) and sleep quality among Generation Z. Relationship strength is weak but significant indicating that sleep problems are also likely to increase as FOMO increases.

Table 4: ***Mean Comparison of Male and Female Generation Z Participants on Fear of Missing Out and Sleep Quality***

	Gender						
	Male (N = 150)		***Female (N = 150)***				
Variables	***M***	***SD***	***M***	***SD***	***t (298)***	***p***	***Cohen's d***
Fear of Missing Out	26.06	7.09	25.13	6.46	1.19	0.23	0.14
Sleep Quality	39.0	8.86	36.05	9.48	2.70	0.01	0.32

Note. t= t-statistic

Table 4 shows the independent samples t-test findings of gender differences in FOMO and Sleep Quality among the participants of Generation Z. The findings showed that the difference between the Fear of Missing Out (FOMO) in male and female was not significant, (t (298) = 1.19, p = 0.23). The FOMO scores were marginally bigger in male respondents (M = 26.06, SD = 7.09) than in female respondents (M = 25.13, SD = 6.46), but the difference was not statistically significant. The impact has been low (Cohen's d = 0.14). However, the results demonstrated that there was a large gender difference in the quality of sleep, (t (298) = 2.70, p = 0.01). The male participants (M = 39.00, SD = 8.86) had a higher value of the sleep quality score compared to the female participants (M = 36.05, SD = 9.48). The magnitude of the effect was small to medium (Cohen's d = 0.32), which showed a small gender difference in the quality of sleep. Altogether, the findings indicate that gender has no significant effect on FOMO among the participants belonging to Generation Z which rejected the hypothesis that there will be a significant mean difference in Fear of Missing Out between male and female participants among Generation Z, but the quality of sleep dramatically varies between male and female groups with males claiming to have slightly better sleep quality than females support hypothesis that there will be a significant difference in quality of sleep between male and female respondents among Generation Z.

Table 5: ***Mean Comparison of Fear of Missing Out and Sleep Quality of Generation Z across cities***

	Cities									
	Mardan (N = 100)		***Peshawar (N = 100)***		***Abbottabad (N = 100)***					
Variables	***M***	***SD***	***M***	***SD***	***M***	***SD***	***F***	***p***	***η2***	***Post-Hoc***

Fear of Missing Out	25.40	7.37	25.26	6.06	26.12	6.91	0.46	0.63	0.003	ns
Sleep Quality	38.96	10.83	36.91	8.95	36.71	7.71	1.81	1.70	0.012	ns

Note. η^2 = effect size. ns = not significant ($p > .05$).

Table 5 demonstrates the findings regarding the comparison of the FOMO and the Sleep Quality between the participants of Mardan, Peshawar, and Abbottabad. In the case of FOMO, the highest mean score was recorded in Abbottabad (M = 26.12, SD = 6.91), then Mardan (M = 25.40, SD = 7.37) and finally, Peshawar (M = 25.26, SD = 6.06). Nonetheless, the one-way ANOVA showed that this difference was not significant, ($F(2, 297) = 0.46$, $p = .63$, $\eta^2 = 0.003$), which implies that the level of FOMO was not significantly different across all three cities. Likewise, regarding the quality of sleep, the participants of Mardan were the best with the highest mean score (M = 38.96, SD = 10.83), then Peshawar (M = 36.91, SD = 8.95), and Abbottabad (M = 36.71, SD = 7.71). In spite of these differences in means, the results of the ANOVA showed that the differences in the quality of sleep among the cities were not significant, ($F(2, 297) = 1.81$, $p = 0.17$, $\eta^2 = 0.012$). In addition, the Tukey HSD post-hoc analysis did not reveal any significant pairwise differences of either of the cities in terms of FOMO or sleep quality ($p > .05$). These results indicate that the respondents of Mardan, Peshawar, and Abbottabad had reported the same levels of FOMO and sleep quality.

DISCUSSION

The current study aimed to determine the association between the Fear of Missing Out (FOMO), and sleep quality among Generation Z and potential gender and city of residence differences. Reliability was also found through the internal consistency of the items calculated in scales that were not fully standardized in the local area. The Fear of Missing out Scale (FOMO) was discovered to have a moderate reliability (Cronbach's alpha = .70) and Sleep Quality Scale (SQS) had a reliability (Cronbach's alpha =.69) when a single item number 17 was removed due missing responses and to increase the internal consistency. These values indicate that the two scales were reliable to be utilized in the study.

The first focus study intended to investigate the correlation between Fear of Missing Out and Sleep Quality in Generation Z. Data contained in table 3 indicated the presence of weak positive correlation ($r = .27$, $p < .001$), showed that increased FOMO was related to a slightly worse sleep quality. This finding is consistent with previous researches that show that people with a high degree of FOMO have a higher risk of having problems with sleep disorders and sleep maintenance because, in this case, it is more preoccupied with social interactions and social network messages (Elhai et al., 2017; Przybylski et al., 2013). In young adults, Wolniewicz et al. (2018) also established a similar correlation, in which FOMO was associated with sleep disruptions and a decrease in total sleep duration. The low level of the correlation implies, though, that though FOMO has a significant impact on sleep, there are probably other confounding factors, including personal coping mechanisms, daily stress, or individual differences in media use which contribute to the strength of the relationship. The same finding is also echoed by a study by Li et al. (2020) who indicated that although FOMO has a role in sleep issues in adolescents and young adults, the effect size is mostly small meaning that FOMO does not predict sleep quality. The identified low positive correlation can also be regarded in terms of the cognitive and emotional processes behind FOMO. Przybylski et al. (2013) highlighted that FOMO is a pattern of social anxiety in which people are always alert to the happenings on social gatherings and online news. This continued mental activity can cause arousal in the pre-sleep phase which postpones the onset of sleep or decreased sleep efficiency. On the same note, Scott and Woods (2020) claimed that even the slightest exposure to digital distractions prior to sleep may affect circadian functions and sleeping patterns, particularly among generation Z, who are already highly vulnerable to abnormal

sleep patterns. All the results point to the idea that FOMO, albeit with a low degree of connection, is a pertinent psychosocial determinant of sleep quality among digitally connected young people.

The second focus of the research involved the study of gender related differences in FOMO. The outcome of the table 4 results showed no statistically significant difference in the means between males and females ($t(298) = 1.19$, $p = 0.23$, Cohen's $d = 0.14$) though males had higher mean scores. This observation refutes the hypothesis that the means difference in Fear of Missing Out (FOMO) will be significant between male and female respondents of Generation Z. The outcomes of the current study are in agreement with part of the earlier studies on the same that are found in the literature. As an example, the research by Przybylski, et al. (2013) has not revealed any main or interactive effect on the level of FOMO depending on age of participants and gender. This makes it easy to conclude that the psychological and behavioral impacts of FOMO are greater than the demographics. In a study by Zahoor (2022) to assess how the Fear of Missing Out influences the problem of social media addiction and social curiosity in the context of the Covid-19 lockdown, young adults in Pakistan with access to online surveys were targeted to complete the questionnaires. The results indicated that FOMO and social curiosity predicted social media addiction positively. The researchers came to the conclusion that it does not differ depending on gender or age category. Likewise, Rozgonjuk et al. (2021) assess the relationship between FOMO and the age, gender, and personality characteristics with the help of a large sample of 3,370 German participants. The researchers determined that although the younger participants stated that the level of FOMO was higher, males and females did not experience the difference in FOMO levels, which should presuppose that both males and females feel the same anxiety about the prospect of missing a certain social event or online communication. Similarly, Al-Nasah (2024) study explored the concept of FOMO and self-esteem in seventh and tenth-grade students of the Jordanian private schools in Amman. They established that they did not statistically find any differences in the level of FOMO between male and female respondents with an exception of the expression of need fame. These findings imply that gender may not play a major role in determining the FOMO of young adults and adolescents.

The third area of study involved gender disparities in the Sleep Quality. The outcomes showed that males perceived to have higher quality of sleep as compared to females ($t(298) = 2.70$, $p = 0.01$, Cohen's $d = 0.32$). The hypothesis stating that the mean difference in the quality of sleep between the female and male participants within the Generation Z would be meaningful is proven by this observation, 27 items of Sleep Quality Scale were used because 17th number item were removed due to missing responses and the poor internal consistency. . The outcomes provided by the present study are comparative with previous researches that have discovered that females tend to be more susceptible to sleep disturbance and poor sleep quality than males. To take one example, the article by Fatima et al. (2016) explored the quality of sleep among a large population of young adults identifying it as more prevalent in females than in males. Similarly, Alosta et al. (2024) compared the gender differences in sleep quality as a cross-sectional study that included research among Jordan and found that the level of sleep disturbance was higher among women compared to their counterparts. Besides, Ijaz et al. (2022) also examined the quality of sleep-in medical students and discovered that a larger proportion of female student group was rated a poor sleeper compared to male students. Khan et al. (2024) also supports the results by studying the connection between sleep issues and using social media among adolescents living in 40 countries and found that girls had more issues with sleep-onset in comparison to boys. The results are correspondent with the outcomes of the current research and suggests, females are likely to have sleep-related issues more than males are.

In table 5 the fourth research focus involved examining city-level differences in FOMO and sleep quality. The ANOVA did not find any significant differences in FOMO ($F(2, 297) = 0.46$, $p = 0.63$, $\eta^2 = 0.00$) or sleep quality ($F(2, 297) = 1.81$, $p = 017$, $\eta^2 = 0.01$) among the participants of Mardan, Peshawar, and Abbottabad. Even though the mean FOMO score in Abbottabad ($M = 26.12$) and mean sleep quality in Mardan ($M = 38.96$) were slightly higher, the differences, however, were not statistically significant, which

means that the urban participants in these cities have similar levels of FOMO and sleep quality. According to Baek and Parkinson (2022) individuals tend to establish relationships with other individuals that have the same demographic traits, values, and behavioral patterns. The growth of digitalization has led to the creation of social networking sites that ensure that despite the geographical variations between the youth, cultural and behavioral similarities are created (Akinlar & Küçüksüleymanoğlu, 2024). The same has been reported earlier with other studies informing that FOMO is more linked to psychological needs and social media use than the geographic location (Przybylski et al., 2013). Equally, similar FOMO and sleep-related behaviors were found in studies conducted by Scott and Woods (2018) when adolescents were similar regarding their social media usage patterns. Furthermore, Li et al. (2020) have found that there were no differences in the relationships between FOMO, social media use, and sleep quality in the groups of students, which encourages the current results that urban young people may have similar patterns of digital and sleep behavior in spite of city.

CONCLUSION

The current research evaluated the association between Fear of Missing Out (FOMO) and sleep quality on Generation Z members of Mardan, Peshawar, and Abbottabad. The results showed a statistically week positive correlation between FOMO and sleep quality scores, which means that people with higher FOMO have poorer sleep quality. The independent samples t-test results revealed no notable difference in FOMO by the gender factor, but males mean scored significantly higher than females in terms of the sleep quality ratings. Also, one-way ANOVA revealed no significant differences between FOMO or sleep quality in the three cities. Through these results, it is possible that there are common patterns of lifestyles, digital media exposure, and use of social media among Generation Z youth in urban settings in Pakistan. The paper points to the significance of the conceptualization of FOMO as a psychological determinant of sleep patterns and the need to be aware of it and implement interventions that would lead to a healthier approach to digital behavior. The knowledge related to the effect of FOMO on the quality of sleep can be utilized to create educational materials, counseling services, and online wellness interventions that may help to align behavior, lifestyle, and emotional regulation and will ultimately result in healthier behaviors and overall improved performance of the Generation Z.

LIMITATION

Various limitations are related to this research and they need to be considered when analysis is taking place of the findings. First, the study focus on generation Z leaving the insights of other generations who may also face challenges related to FOMO and sleep. The cross-sectional research design restricts the possibility to find relationships between Fear of Missing Out (FOMO) and sleep quality in the respondents of Generation Z. Second, self-report questionnaires measures were used to collect the data, two different mediums of survey might affect and they are susceptible to response bias like social desirability and inaccurate self-evaluation. Third, the sample included particular cities of Khyber Pakhtunkhwa (Mardan, Peshawar, and Abbottabad), which can restrict the validity of the findings to other areas or the population. The research was also restricted in examining many variables, as it only investigated few variables, and other variables like screen time duration, mental health condition, lifestyle habits, and academic stress were not compared, which too could affect the quality of sleep.

RECOMMENDATIONS

Based on the findings of the current study, several recommendations are made to enhance the well-being of Generation Z and inform the future research.

1. To start with, schools and parents' ought to encourage healthy digital culture among the youth. Sensitization and awareness activities can make students realize the negative effect of the excessive utilization of social media and Fear of Missing Out (FOMO) on the quality of sleep and overall well-being. Balanced use of technology can be encouraged to lessen sleep disturbances amongst the youth.

2. Secondly, colleges and universities must implement sleep hygiene training education programs and online wellness programs. Giving instructions on how to reduce the use of screens at night, have a regular sleep schedule, and how to engage on-line can help students have a better sleep and mental wellness.

3. Thirdly, the sample size and geographic area of future studies on the same topic should involve more participants in the research to enable the research to be generalized to most parts of Pakistan. The participants who are in rural and urban areas and the various educational institutions can be involved in order to offer a more in-depth insight into FOMO and sleep patterns in Generation z.

4. The other useful suggestion is that more variables can be incorporated in future research, including screen time duration, psychological well-being, academic stress, and social media addiction to have a clearer picture of the complex phenomenon that affects the quality of sleep in young people.

5. Lastly, it is suggested to include longitudinal research designs to future researchers instead of cross-sectional ones. Furthermore, longitudinal research can present a better visualization of the extent of the influence of FOMO and digital media on the quality of sleep in the long-run.

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