ALEXITHYMIA, MOBILE PHONE ADDICTION AND QUALITY OF SLEEP AMONG UNIVERSITY STUDENTS

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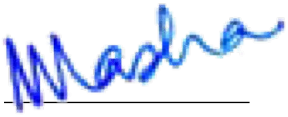
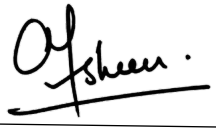
Supervisor: Prof. Dr. Masha Asad Khan Signature: 

Head of Department: Dr. Afsheen Gul Signature: 

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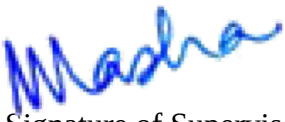

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Abstract

The present study examined the relationship of alexithymia, mobile phone addiction and quality of sleep among university students. Using correlational research design, a sample of 300 male and female university students (F= 180; M=120) was approached through purposive sampling strategy. Toronto Alexithymia Scale (TAS-20), Mobile Phone Addiction Scale- Short Version and Sleep Quality Scale were used for the assessment. The statistical software SPSS was used for data analysis on the dataset collected for the study. Reliability analysis, Correlational analysis, Regression analysis, and Independent t-test was done. The results showed that alexithymia and mobile phone addiction were positively correlated with the quality of sleep in the sample. Smartphone addiction and alexithymia emerged as significant positive predictor quality of sleep among university students. However, females have reported high alexithymia and have reduced quality of sleep than males while gender differences are not significant in terms of mobile phone addiction. These results highlight the significance of impact of alexithymia and mobile phone addiction on the quality of sleep in the students of university. These findings have clear implication as it is beneficial to consider alexithymia and smartphone addiction when addressing issues on the quality of sleep.

Keywords: Alexithymia, mobile phone addiction, quality of sleep.

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List of Abbreviations

Abbreviations	Full Form
CI	Confidence Interval
d	Cohen's *d*
LL	Lower Limit
MP	Mobile Phone
TAS-20	Toronto Alexithymia Scale
SAS-SV	Smartphone Addiction Scale- Short Version
SQS	Sleep Quality Scale
SPSS	Statistical Package for Social Science
UL	Upper Limit

List of Symbols

Symbols	Definitions
α	Cronbach's index of internal consistency
k	No of Items
M	Mean
N	No of Participants
SD	Standard Deviation
β	Beta
ΔR^2	R^2
%	Percentage
f	Frequency
p	Significant Value

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Chapter I

Introduction

The aim of the present research investigation is to examine the relationship of alexithymia, addiction of mobile phone with sleep quality among students of university in Pakistan. Based on the hypothesis, this study investigates that whether alexithymia and mobile phone addiction predicts and has an impact on sleep quality. It has already been apparent that poor sleep is a hazard for the general population. It is vital for daily existence for a number of factors. The mind replenishes its strength when an individual is sleeping and is able to rebuild the individual's immunity to combat disease and exhaustion. Getting enough sleep enables people to process information more logically and realistically. The development of cognition and work efficiency also depends on sleep (Sleep - Health Promotion, 2023). People who obtain satisfactory, continuous sleep tend to be happier during the course of the day. Research on the issue of poor sleep quality is essential for this reason. Students at colleges have been shown to be one category of people who have difficulty falling asleep (Hershner & Chervin, 2014).

There is evidence that a lack of sleep affects the ability to remember and recall, as well as concentration and attentiveness. In addition, it is also said that lack of sleep not only effects the performance of the student but also his ability to stay awake and attentive during the lecture (Sleep, Learning, and Memory | Healthy Sleep, 2007). While studying at university, students go through a number of significant changes. With more independence, self-reliance, an unorganized routine, erratic timetable, frequent deadlines, residing in a hostel, and educational and social responsibilities, university life comes with many additional difficult obstacles (Schlarb et al., 2017). One of the most significant of these difficulties is the quality of sleep, which students frequently adjust due to various causes. According to

recommendations from different organizations including National Sleep Foundation, adolescents and teenagers should get seven to nine hours of sleep per night (Hirshkowitz et al., 2015). Interestingly, just sixty percent of undergraduates get adequate rest, sleeping only a total of seven hours every night. According to earlier studies, 15 percent of students in college identified with consistently poor quality of sleep, whereas up to 75 percent of them occasionally experienced sleep problems (Sing & Wong, 2010).

Forquer et al. (2008) carried out a study on insufficient quality of sleep. In order to find issues with sleep patterns, challenges, and potential contributing variables, their study looked at college students' sleeping habits at a public institution. Of the 313 students assessed, the researchers discovered that more than 33 percent required more than 30 minutes to fall asleep, 43 percent were up more than once each night, and more than 33 percent said they felt fatigued throughout the day. According to this study, the researchers did not discover any differences between undergraduate and graduate students and concluded that a large number of college students struggle with issues that may impair their ability to learn and drive safely.

A quantitative study was done by Vail Smith et al. (2009) to identify symptoms indicating sleep issues in undergraduates. 191 college students were the sample of this and reported symptoms of sleep disorder. Overall, females reported more sleep problems than did males. The researchers came to the conclusion that, to reduce detrimental impact of sleep issues upon academic performance, university administrations should look at the sleeping habits of college students.

According to Nag and Pradhan (2012), sleep is a fundamental requirement that helps people recover from the exhaustion of their workday and relax so they are ready for the next one. For well-being and for the human body to operate at its best, an adequate amount of

sleep is just as crucial as the quantity. Poor-quality sleep of prolonged duration will not have the desired effect. A person's psychological and physical performance, including their ability to pay attention, perceive, and gain knowledge, as well as their overall quality of life, will all be improved by getting enough quality sleep. Lack of sleep, poor-quality sleep will make people drowsy during the day, delay their judgement, and make them more inattentive (Dewald et al. 2010). One of the most viral processes that significantly affect the physical and psychological well-being of an individual is sleep.

Quality of sleep is a general term that may be further broken down into both objective and subjective components. The duration and quality of sleep serve as indicators of the subjective component, whereas the latency of sleep, the frequency of awakenings, and sleep length serve as indicators of the objective component (Kline, 2013). A person's happiness with their sleep experience, which incorporates aspects of duration of sleep, awakening refresh and level of sleep maintenance is referred to as their sleep quality. Even though the current world overlooks it, sleep is considered an essential human requirement that takes up one-third of a person's life. Individuals need to sleep in order to maintain their psychological and physical well-being, and it is just as essential as eating, respiration, and urinating. Adults should get seven to nine hours of sleep, whereas adolescents should get almost 9 hours of sleep.

Young adults are more at risk for the negative effects of poor sleep quality due to psychosocial or external factors and their propensity towards staying up late at night. One of the most important health issues affecting youth or the teens is reduced quality of sleep. The researches that are currently accessible estimates that up to 31 to 65 percent of college students slept poorly (Li et al., 2020). Sleep issues in particular can have a number of negative effects, such as impaired school achievement, a higher probability of sleep deprivation, hypertension, cognitive dysfunction, diminished quality of life, poor mental

health conditions, and even suicidal thoughts. Risk factors for poor sleep quality were found to include scores anxiety, activity levels, consumption of alcohol, drug usage, and intensity of cell phone use. The main factors causing the decline in sleep quality and complicating therapy, however, are the student's respective ages and how they live. Because it has an impact on student's educational achievement, the factors affecting sleep quality must be defined (Waqas et al., 2015).

Alexithymia is a term used to characterize individuals who have trouble participating in insight-oriented psychological treatments, presently understood as the inability to detect and describe one's own feelings or other people's feelings (Kooiman et al., 2002). Despite the fact that alexithymia has not been labelled in DSM-5 as a mental illness (American Psychiatric Association, 2013), it has been identified as both an intellectual and a social attribute. Alexithymia can be identified by five main aspects including issues in (i) recognizing and expressing emotions (ii) differentiating emotions from bodily sensations, (iii) having a restricted emotive imaginative thinking, and (iv) having an externally-oriented way of thinking (Kooiman et al., 2002). Toronto Alexithymia Scale is frequently utilized for the diagnosis of alexithymia by the professionals (Bagby et al., 1994). Difficulty identifying emotions and describing emotions along with externally oriented thinking are the three sub-scales.

Likelihood of the inability to verbalize feelings and emotions is explained in a variety of groups throughout the body of scientific research. According to the latest research, alexithymia affects around ten percent of people in general. However, other research suggests that individuals may be more likely to acquire alexithymia if they are elderly, men, uneducated, or from low-income families (Mattila et al., 2006). People with disorders of eating, addiction disorders, OCD, psychosomatic illnesses, and ASD have been found to have a significant incidence of alexithymia (Ricciardi et al., 2015).

The connection between alexithymia and sleep issues is a crucial topic of investigation. Alexithymia and poor sleep quality, as determined by both objective and subjective measures, have been linked in studies. This implies that those who have trouble understanding and expressing their emotions can also have trouble falling asleep. More research into this connection may help guide strategies to enhance both emotional control and sleep quality (Yasar et., 2021; Bauermann et al., 2008; Murphy et al., 2018). While some researchers have hypothesized that anxiety and sadness could be the root of the link between alexithymia and restless sleep, earlier research has previously shown that these conditions are related. However, a recent study found that alexithymia is linked to poor sleep quality regardless of the presence of sadness or anxiety (Murphy et al., 2018). This shows that alexithymia is a substantial contributor to a lack of quality sleep on its own. Therefore, healthcare professionals have to think about creating suitable therapies to deal with sleep issues in alexithymia sufferers. They may see a difference in their general well-being and life quality as a result.

Despite the substantial frequency of alexithymia in the public, there is currently no comprehensive synthesis of the research linking its relationship with sleep problems. Understanding this information is essential for healthcare professionals since it can help with the early detection and treatment of sleep disturbances in individuals suffering from alexithymia. It is crucial for healthcare professionals to have a better knowledge of the connection between alexithymia and sleep problems given the possible harmful effects of insufficient sleep on a person's general health and well-being. As a result, they may offer prompt and suitable therapies to persons with alexithymia who are experiencing sleep issues, eventually enhancing their living standards. However, some researches from the literature examined the relation of alexithymia with quality of sleep using a sufficiently homogenous sample of students from universities, for whom sleep quality is particularly crucial owing to

the demands of academic and social commitments (Ma et al., 2020). As a result, it's critical to concentrate on comprehending how alexithymia and sleep quality relate to one another in this particular group.

However, the usage of technology is a crucial issue that also has an impact on how well an individual sleeps. With an increased reliance on technology, students often stay up late using their phones rather than sleeping, which can impair the quality of their overall sleep. Because of this, it's critical to acknowledge how much technology influences student's sleep quality. A great majority of students in the world now use mobile phones, and excessive usage of these devices can cause disturbances in daily routines, especially sleep. Even though poor smartphone use isn't an illness that can be diagnosed, experts have come up with a number of indicators that can point to it (Merlo et al., 2013). Although some specialists advocate categorizing it as an addiction, others disagree, arguing that problematic smartphone use does not meet the criteria for addiction.

The complicated phenomena of smart phone addiction is marked by tolerance, dependency, withdrawal symptoms, and societal issues (Kwon et al., 2013). Others have found little evidence to support the existence of smartphone addiction, despite some experts' suggestions that poor technology use or techno-dependence may qualify as addiction. Regardless of the controversy, research has shown that excessive smartphone use can have a number of negative effects, including social ones like a diminished sense of community and strained relationships, physical ones like accidents and posture problems, and psychological ones like poor judgement, procrastination, anxiety, and sleep disturbance (Velthoven et al., 2018).

The amount and quality of student’s sleep may be significantly impacted by mobile phone addiction. According to studies, using a smartphone too much right before bed might

interfere with sleep cycles and shorten the amount and quality of sleep. Students may have trouble falling asleep and staying asleep as a result of the blue light projected from smartphone screens, which can inhibit the production of melatonin, a hormone that controls sleep (Rafique et al., 2020).

Additionally, the continual alerts for notifications and the requirement to be connected to social media and other online platforms can lead to FOMO, or the fear of missing out, which can worsen anxiety and affect sleep (Newsom, 2020). In consequence, sleep deprivation can have an impact on learning, memory, and general wellbeing. Another research suggests university students get a satisfactory amount of sleep, but the students who before going to bed or while attempting to sleep uses their cell phones may have less restorative sleep and wake up more frequently. Smartphone use at night is linked with worse sleeping habits, earlier wakeup intervals, and longer sleep gaps.

Limited availability of the data regarding the relation of alexithymia, addiction of mobile phone addiction and sleep quality in the students of university in Pakistan compelled to conduct the current study. The current study hypothesized that a positive association exists between alexithymia, addiction of smartphone and reduced quality of sleep. However, the current research investigation aimed to determine predictors of sleep along with the gender differences. It is utmost important to consider that, no prior research have been reported that emphasize significant findings for all of these variables altogether in a study in the setting of Pakistan.

1.2 Theoretical Framework

Interoceptive sensibility

To distinguish between the impact of negative emotion and alexithymia, interoceptive sensitivity is very useful. It addresses the propensity for internalization in addition to the perception of and manipulation of one's own state of mind (Pollatos & Herbert, 2018). According to a cross cultural research, somatization has shown significant correlation with the participants who have high alexithymia (Le et al., 2002). These participants were from Asian American and Malaysian cultures. However, the people from European American culture who reported to have low alexithymia showed no significant relation with somatization (Kleinman, 1977). Researches from literature suggests that people prefer to recognize and transmit discomfort somatically instead of emotionally in Asian cultures, particularly the Chinese. Le et al. (2002) suggested that compared to European or American cultures, Asian cultures had a stronger association between alexithymia and affect issues. In a nutshell, when stimuli that are emotionally charged trigger responses in the body but are not recognized as emotional, these responses may exacerbate arousal-related issues through alexithymia. Instead, these responses may cause sensations-related issues through these negative emotions, when they are interpreted as emotional responses. As a result, it is probable that interoceptive sensibility influences mechanisms associated with hyperarousal (Huang et al., 2022).

1.3 Literature Review

The following section will review the literature related to the study variables: Alexithymia, smartphone addiction and quality of sleep, in diverse population.

Ma et al. (2020) have delved into the correlation between alexithymia and sleep disturbances, as well as the nexus connecting schizophrenia and alexithymia. The purpose of the study was to examined the relationships between the university student's schizotypal traits and alexithymia with sleep disturbances, however schizotypal traits have a crucial role in causing sleep problems while alexithymia act as mediator. This study was conducted in China, in the province of Guangdong, in Guangzhou, using a cross-sectional research methodology. The sample included the 2626 first year students at medical universities. The participant's age, on average, ranged from were 18.34 years and out of all the participants, 1025 participants were boys while others were girls. In order to collect information about these participants, the researcher utilized the questionnaires including Toronto Alexithymia Scale (TAS-20), Schizotypal Personality Questionnaire (SPQ) and Insomnia Severity Index (ISI). The results demonstrated that a significant proportion of the university students have mild sleep disturbances while few of them had moderate to severe sleep problems. According to the study, alexithymia mediates the link between schizotypal traits and issues of sleep among students of university suggesting that it may play a significant role in understanding the relation between schizotypal characteristics and sleep issues. The results, according to the authors, may have significant consequences for the early detection and management of sleep disorders in college students who exhibit schizotypal features. Overall, the study emphasizes the need of taking into account alexithymia as well as schizotypal features when diagnosing and treating sleep issues in college students.

Researchers Yasar and Gundogmus (2021) conducted a study on university students and investigated that alexithymia influences and predicts sleep quality, and it seeks to understand the link between alexithymia and sleep quality. One thousand one hundred and ninety-two university students who volunteered to participate in the research make up the sample for the current cross-sectional study during the months of February and March 2021. The study included participants from the University of Health Sciences in Istanbul and the University of Gelisim. The instruments used for assessment included a sociodemographic data form, TAS-20 and PSQI. SPSS 22.0 was used to statistically analyze the study's data. The most significant finding of this research on the association between alexithymia and the quality of sleep is that there is a link between the two variables for the study participants. BMI and alexithymia were discovered as significant predictors of reduced quality of sleep, which is another important result. It is also investigated that there is significant positive relation among both the variables and the students who have a high score of alexithymia predict a poor quality of sleep. The study has limitations as well including that the results of the study cannot be generalized because it consists of university students and also this study was conducted online during the pandemic.

Another study compared the alexithymic traits, anger, and angry manifestations of those who had been diagnosed with insomnia and with those who were in good health (Engin et al., 2010). The study's cross-sectional methodology allowed it to compare the traits of anger, including trait anger, and the ways in which people show their anger in people with and without insomnia. The study included 96 individuals who had insomnia along with 96 individuals with good health who had neither a mental illness nor sleep problems. Patients with insomnia who had received treatment at the Sleep Disorders Department of the Medical Faculty Hospital during the months of March and June 2007 and who agreed to take part in the study made up the research sample. Random sampling is used to select the control group.

The application SPSS 11.0 was used for the analysis of data. The research measure includes Trait Anger-Anger Expression Scale, sociodemographic characteristics form, and Toronto Alexithymia Scale (TAS-20). For non-parametric comparisons between two groups, chi-squared analyses were employed, however, Student's t-tests were utilized for parametric comparisons. According to the study's findings, the participants who had insomnia scored higher on the alexithymia scale in comparison with the healthy participants. The study also concluded that the patients who suffers from sleep problems have the problem of expressing of their emotions and feelings. Another important finding suggests that insomniac participants had a high tendency of displaying traits like expression of anger and have no control on their anger as compare to the healthy participants.

The goal of the research by Rehman et al. (2018), was to explore the relationship between sleep and paranoia in addition to several other negative emotional states, relying on alexithymia as a potential mediator. Another important goal of this study was to look at the two independent variables with mediating effect of perceptual irregularities. To achieve these goals, the researchers conducted two separate studies. Participants of the study completed a questionnaire to assess the problem of sleep, negative emotional states, paranoia and alexithymia. Data was gathered through an online survey, and the researcher employed a cross-sectional methodology. The research design, survey method, questionnaires and data analysis process were same for both studies. For study 1, the sample size was 401, this sample mostly consist of females, however only 93 males were included. The study 2, consisted of 402 participants, out of all the participants 288 were women while rest were men. The average age range of the sample for both the studies was 24. The results of study 1 showed association of sleep quality and paranoia has a significant mediating effect on alexithymia, perceptual abnormalities, and detrimental effects. However, the result of Study 2

revealed that negative emotion, alexithymia, and perceptual abnormalities fully mediated the relationship between both the independent variables.

Bauermann et al. (2008) investigated the link between alexithymia and self-rated sleep related issues in a large sample of adults. This research broadens the literature by employing a more complete measure that evaluates sleep symptoms of insomnia, excessive drowsiness, sleepwalking, and nightmares. Also, they looked at how sleep hygiene (behaviors and lifestyle decisions that are known to cause sleep disturbances) affects the links between alexithymia and self-reported sleep issues. The sample for this research was 2045 young adults from the university in central Ontario. Out of the total sample 441 were women while 1604 were men. The age range of the participants included in the research was 20 on average. To gather information about the participants, the researcher utilized SDI and TAS-20. The results revealed, participants who have high alexithymia score significantly high on the sleep problems inventory scale than the participants who reported no alexithymia. These disparities could not be attributable to differences in overall disposition or poor sleep hygiene routines. The correlation between alexithymia and the symptoms of sleep disorders could be the result of either the prevalence of perceived sleep issues or a concern with the symptom severity of sleep disorders.

A study by Chan et al. (2021) looked at the everyday, within- person relationships between anxiety, the quality and the length of sleep in the young adults who live in their communities, as well as the moderating effects of alexithymia. Everyday anxiety and sleep characteristics were thought to have a bidirectional correlation, and alexithymia was thought to mitigate these associations. Participants kept early and nightly diaries for 1 month straight, recording their everyday levels of anxiety and sleep. Furthermore, they answered questions about their basic sleep patterns, anxiety, and alexithymia. To determine within-person variations among everyday anxiety and sleep characteristics and if within-person variations in

alexithymia has a moderating effect, multilevel modelling was employed. The results of this research suggests that over the course of the trial, decreased nighttime sleep duration was related to greater anxiety levels related to subjective averages. Greater upcoming- day anxiety was linked to lower sleep efficiency and reduced duration of sleep compared to individual averages. Among participants who had elevated levels of alexithymia, a definite correlation between lower sleep quality and greater the next day worry was seen. However, it can be concluded that elevated level of alexithymia may make people more susceptible to the negative consequences of inadequate sleep and the following day's anxiety.

Another set of two separate studies conducted by the researchers Murphy et al. (2018) has two aims. First aim is to verify that there is a correlation between alexithymia and reduced sleep quality. The second is to investigate that if this correlation is influenced by depression and anxiety, by using instruments that do not assess the quality of sleep. For study 1, the sample size was 80 out of which 70 participants fully completed the survey and for study 2, the sample size was 108, however only 73 individuals participated. Data collection was done online. For study 1 the researcher implemented TAS-20 and PSQI scale, while in study 2 along with these two questionnaires DASS-21 was also used. The results indicate that alexithymia independently predicts the decreased quality of sleep, however it is also predicted that it may be an important factor seen in different psychological conditions.

Since cellphones have become so widely used in recent years, addiction has resulted. A study by Demirci et al. sought to determine the association between university student's smartphone use and their ability to sleep well, experience melancholy, and experience anxiety. The study's intended sample was the students of Suleyman Demirel University. The candidates for this study were 400 randomly chosen university students. All 319 students of university who took part in the study including 203 women and 116 men, were assessed using BDI, PSQI, SAS-SV and BAI. For the analysis of data, SPSS was used. The study results

depict high scores for females on the Smartphone Addiction Scale. The group who used mobile phone frequently as compare to nonusers have high scores on the scale of BDI and BAI. However, the study variables were correlated positively and addiction of mobile phone was the predictor of reduced sleep quality, depression along with anxiety (Demirci et al., 2015).

Another search also suggests that our smartphones are becoming a vital piece of technology, yet many people are developing smartphone addictions. The use of smartphones after midnight and addiction to them have been shown to reduce sleep quality. Indian nurses already struggle with significant depression, and their current employment status is precarious. The fact that so few studies have been done on nursing students is what prompted the researchers to choose this subject for their study. The primary objective was to evaluate sleep quality of the undergraduate nursing students and to determine how much addiction of smartphone is prevalent in them. It also seeks to identify that if any association exists between study variables and the participants socioeconomic situations. This study was a cross-sectional study. The sample size was 91 and the questionnaires applied to them was sociodemographic form, SAS and PSQI. The data analysis was done using MS-Excel. However, SPSS was also used to check different relationship between variables. The finding revealed that students who have better sleep quality do not use mobile phones frequently. The poor quality of sleep is strongly predicted by mobile phone addiction. According to the study's findings, mobile phone addiction is more common in the younger generation and is a very serious issue that cannot be disregarded. (Dalai et al., 2021).

According to a research investigation by Alzhrani et al. (2023) mobile phone usage has increased a lot, particularly in normal community and medical professionals. The research aimed to explore the linkage between addiction of smart phone and reduced sleep quality, loneliness and psychological problems in the students and employes of Saudi Arabia.

Cross-sectional research design was employed and data collection was done online using convenience sampling. The sample size was 773 and these participants belong to thirty three different cities of the country. To gather information about the participants, the researcher utilizes a demographic form, SABAS, Kessler Scale (K10), SQS and DeJong Gierveld loneliness scale (DGLS). MS-Excel was used for the data entry and data coding. For the analysis of the data SPSS was used. The findings showed that the variables, smart-phone addiction, loneliness, and emotional distress had a positive association. However, according to this study addiction of smartphone and sleep issues were negatively correlated. Most importantly, the result reveals that there is no correlation between addiction of mobile phone and loneliness.

Prevalence of smartphones is expanding globally. It has completely transformed the way of life in ways that were unthinkable even prior the outbreak of COVID-19. Dhamija et al. (2021) conducted the research among the students of medical college to assess the prevalence of mobile phone addiction and its link to sleep difficulties and poor self-esteem during the COVID-19 outbreak. This study was cross-sectional and the data was collected using convenience sampling. The sample size was 500 medical students from Maharashtra. To gather information about the participants, the researcher utilizes a sociodemographic form, RSES, PSQI and Smartphone addiction scale short version. The small size of the sample and the data collected from the same university is one of the limitations of this research. However, the results reveal that out of all the sample, occurrence of mobile phone addiction was fifty two percent. Male students were more inclined than female students to have addiction of mobile phone. Disturbance of sleep and addiction of mobile phone were significantly correlated, while the low self-esteem shows no correlation with the addiction of mobile phone. The researchers concluded that among the university students of Maharashtra reduced sleep was significantly impacted by their high level of mobile phone addiction.

Today, people use smartphones like a necessity rather than a recreational activity. Undergraduate university students in particular perceive smartphones as primary requirement. They are finding it acceptable to sacrifice their sleep because of this dependency on their mobile phone, which really is detrimental to both their bodily and emotional wellbeing. Uniyal & Tiwari. (2020) conducted the present study to investigate the association among the smartphone problematic usage and the quality of sleep. The sample size of this research was 210 students from a university of Dehradun. Data was gathered utilizing online Google forms for this cross-sectional study. Instruments used to collect information about the participants includes MPPUS-10 and PSQI. For data analysis, Pearson correlation coefficient was used. The outcome of the research revealed that the quality of sleep was directly related to the problematic mobile phone usage. However, it showed no effect on the duration of sleep. The most important finding of this research was that the reduced sleep quality in students of university students is impacted by the problematic usage of smart phone.

For internet users everywhere, a cellphone is a necessary piece of technology. Students studying medical who are already overloaded and are suffering from issues related to the sleep because of academic commitments may suffer significant health consequences caused by further sleep loss due to excessive cellphone usage, which might affect how well they perform in their roles as clinical practitioners. Chatterjee and Kar. (2021) conducted this research with a main goal to determine the association between smartphone addiction and poor sleep across all semesters in the study sample in addition to predictor variables. This study used a cross-sectional research design and the sample size was 224 students from India. The tools that were employed to gather information from the participants includes a socio-demographic form, GHQ-12, SAS-SV and PSQI. The results revealed that the male students had more ubiquitous influence of mobile phone addiction than the female students. Another important finding of this research was that sleep and the length of mobile phone usage in a

day were related positively the scores of the general health questionnaire also positively correlate with the scores of smartphone addiction scale.

Mobile phones offer both benefits and drawbacks, similar to any other significant technology advancement. Addiction of mobile phone has been characterized as excessive usage of cellphones. Students of medicals are particularly susceptible to sleep deprivation, and addiction of mobile phone may make the issue worse. Nowreen and Ahad (2018) conducted this research, was to determine how addiction of the mobile influence the sleep. This research investigation was conducted with a sample from SKIMS Medical College in Srinagar and the total participants were 236 and employed a cross-sectional research design. However, the questionnaires to evaluate the individuals included a demographic form, SAS-SV and PSQI. Results revealed a positive relationship of phone addiction with reduced sleep. It is especially true for the male participants and participants who were living in hostels, and the participants of first year. The researchers concluded that among students of medical, problematic mobile phone usage is very common and it reduced their quality of sleep.

A study conducted by Mei et al. (2018) investigates the probable mechanism behind the among the two very significant variables alexithymia and addiction of cellphone. The researchers focused to explore that how alexithymia has a direct impact on the problematic mobile phone usage via mental health and different variations among these two variables between a single child and a child who have siblings. This research was conducted in 2015 in the months of April to May. This study employed convenience sampling and a cross-sectional design. The sample size included 1034 participants from the university of China. The questionnaires used include TAS-20, GHQ-12 and MPAI. For data analysis, SPSS was used. The results of this research reveal that is the variable alexithymia is directly correlated to mental health and problematic mobile phone usage. Not only alexithymia is the reason of

addiction of cell phone but it negatively effect participant's mental health. The individuals who were the only child reported to have less alexithymia than the students who have siblings.

Gundogmuş et al. (2021) conducted a study that explores the relationship among the smartphone addiction with alexithymia as well as the use of social media. The research aimed to examine that smart phone addiction is related to alexithymia and alexithymia predicts the problematic mobile phone usage. This research was conducted in 2017 for 7 months starting from the month of march. The sample size for this cross-sectional study was 935 students from several institutions in Istanbul. Out of the total sample, 426 students were males and the rest were females. To gather information from the participants, the researcher employed the tools TAS and SAS-SV and they were asked some questions related to their social media use. According to the findings, alexithymia and smartphone addiction are positively correlated in college students. More specifically, the study found a link between smartphone addiction and alexithymia. This shows that university students who have trouble verbalizing their feelings and telling them apart from physical sensations may be more susceptible to developing a smartphone addiction.

Students that are experiencing burnout have a lethargic state of mind. It is a widespread occurrence with complicated root factors that can lead to numerous negative results in the medical students of China, including issues related to the mental health. Zhang et al. (2021) carried out this research to examine the correlation among the experience of burnout and alexithymia, along with the mediation effect of problematic mobile phone use. It is cross-sectional study and convenience sampling was used. The sample size was 1062 participants from different medical universities of China. To evaluate the sample, TAS-20, MPATS and LBQ was used. To analyze the effect of the independent variables on dependent variable hierarchical regression was used. The mediation was evaluated using a structural

equation model. The significant findings included that the experience of burnout was influenced by both the independent variables. However, the relation between alexithymia and mobile phone addiction was significant, and this relationship indirectly influences burnout through mobile phone addiction.

Rafeeq et al. (2021) conducted a research study to examine the relationship between prolonged mobile phone usage on the length of the sleep along with the daily sleepiness and exhaustion. This research was conducted on the students at CMH Lahore, Pakistan. The sample size of the research was 295 and the sampling method used was convenience sampling. For data collection, the researchers used self-made survey form to obtain information about the duration of sleep, mobile phone usage and other personal information. For data analysis, SPSS was used. The significant findings revealed that sleep quality is directly influenced by the excessive use of mobile before the bed time but the day time use has no effect on the sleep. However, the daytime drowsiness and exhaustion was linked with the excessive usage of mobile phone and even checking up of the phones. It can also disturb the sleep quality during night. The researchers concluded that sleep duration is only correlated with the excessive mobile phone usage before bedtime, but daytime exhaustion and sleepiness is linked with overall problematic mobile phone usage.

The utilization of smartphones, a portable electronic gadget, is currently on the rise worldwide, including developing countries such as Pakistan. Insomnia, is the medical term for problems with falling asleep and disrupted sleep patterns, and binge eating is a psychiatric condition marked by excessive eating. Aslam et al. (2021) conducted the research to investigate the association of binge eating and insomnia with problematic cell-phone use. This cross-sectional study used was purposive sampling technique. The sample size was 100 and all the participants were from the universities of Lahore. For the purpose of data collection, a self-constructed questionnaire was used which includes questions regarding the

sleep quality, weight, age, gender and eating while using phone. The result of this research revealed that majority of the participants have trouble while sleeping due to excessive use of mobile phone. However, more snacking while using phone is also a significant finding of this research. They came to the conclusion that students who are addicted to their phones are more prone to overeat and have sleep issues.

1.4 Summary of Findings

The results of the articles on alexithymia, smartphone addiction, and sleep issues point to a strong positive link which suggests that when someone scores highly on the alexithymia and smartphone addiction scales, it may also indicate that they have poor sleep. The literature does, however, show a strong connection between problematic mobile phone use and alexithymia.

1.5 Rationale

Young adults, particularly the university students are susceptible to the negative effects of poor quality of sleep. It is very important to get adequate amount of sleep, especially for the university students as it can have a direct negative influence, for example higher chance to develop insomnia, decreased academic conduct as well as achievements, increase blood pressure, memory deficits, detrimental mental health and suicidal thoughts. Reduced sleep quality among students can be due to their tendency to suppress their emotion or unable to explain their feelings (Huang et al., 2022) and their propensity to stay up late because of problematic mobile phone usage (Sohn et al., 2021). Reduced quality of sleep is a very serious health problem that is affecting the students greatly. According to the literature, 31 to 65 percent of university students have poor sleep quality (Sohn et al., 2021; Lund et al., 2010; Zhang et al., 2022).

It is important to note that the relationship between alexithymia (not able to describe your emotions and feelings), problematic mobile phone usage and the quality of sleep should be studied. Most of the literature studies suggest that the problematic mobile phone usage plays an important role in the reduced quality of sleep among the university students. However, the association between alexithymia and sleep quality among students of university is not well understood. There is lack of literature that studies the relationship of both the variables together, with the quality of sleep. Most of the studies either study mobile phone addiction in relation to quality of sleep or different psychological problems, anxiety, depression, anger trait. None of them have looked at the direct connection between alexithymia and sleep quality. However, no indigenous studies are available to examine the association between these variables together and the available literature on these variables is limited to western cultural which cannot be generalized to Pakistani culture due to differences in social and cultural norms. This study will be effective to investigate the link between the

variables i.e., alexithymia, mobile phone addiction and the quality of sleep in context of Pakistan and will allow the Pakistani researcher to better understand the variables and raise awareness in society about how they affect the quality of sleep in the students of university.

This topic has a broad scope and requires more work to be done specially in context of Pakistan. The current study will highlight a new factor alexithymia in relationship to the quality of sleep. It can be helpful for other researchers who want to study these variables on large scale. As the prevalence of alexithymia is increasing, it may be added to DSM-6. Many different variables have been studied in relationship to the quality of sleep, this study will help to add to the advancing body of literature that identify the predictors of sleep quality. The current study would likely benefit social and clinical aspects, especially the educational psychologists and counselors because figuring out these relationships would make it easier to create efficient and appropriate preventative and treatment approaches in order to assist students to address alexithymia and be more aware of problematic mobile phone usage, which effects their quality of sleep. Different seminars can be held in universities about the importance of quality of sleep and how it is correlated to alexithymia and mobile phone addiction.

1.6 Objectives

- To examine the relationship between alexithymia and quality of sleep among university students.
- To assess the relationship between mobile phone addiction and quality of sleep among university students.
- To identify the predictors of sleep quality among university students.
- To check gender differences between alexithymia, mobile phone addiction, and quality of sleep among university students.

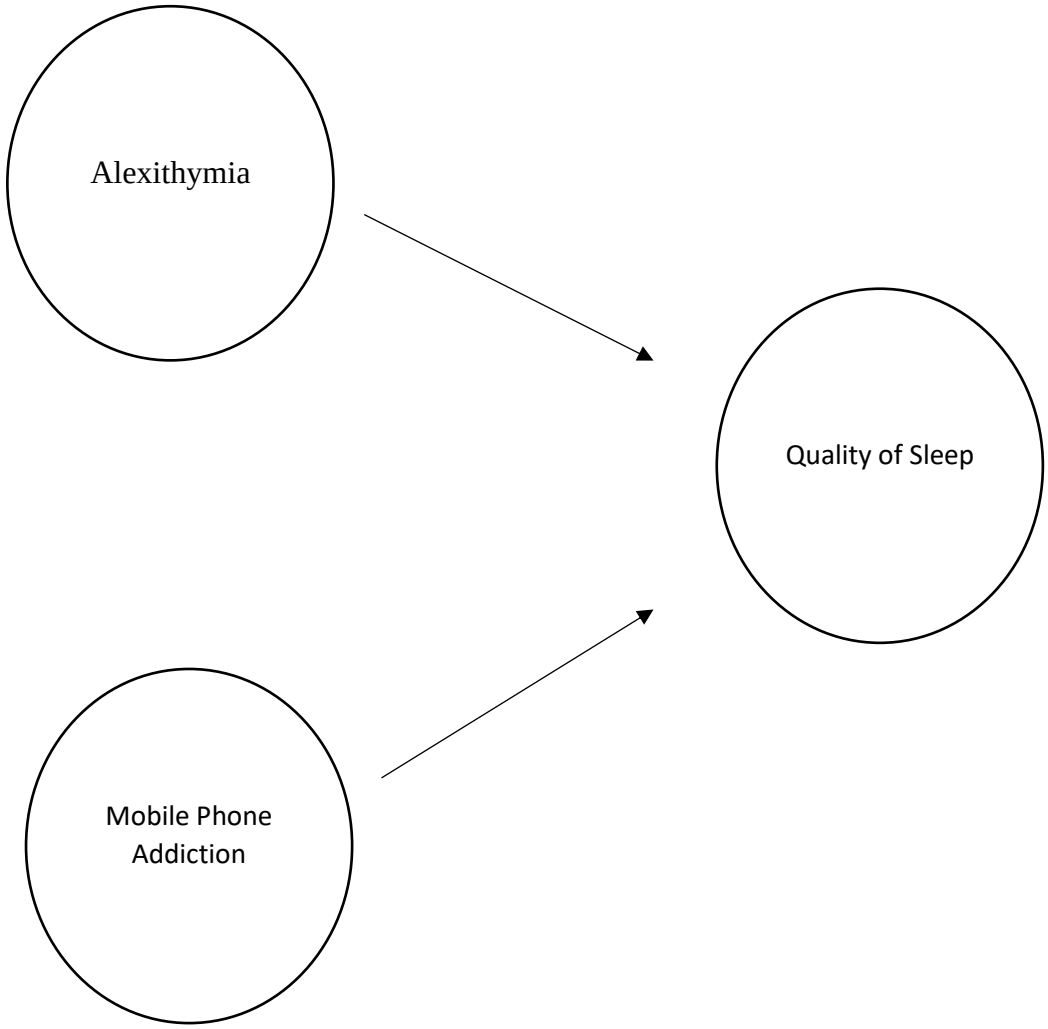
1.7 Hypotheses

- High Alexithymia is likely to be related with poor quality of sleep among university students.
- Mobile phone addiction is likely to be related with poor quality of sleep among university students.
- Mobile phone addiction and alexithymia are likely to predict the quality of sleep among university students.
- Male and female university students are likely to differ in the scores of alexithymia, mobile phone addiction, and quality of sleep.

1.8 Proposed Theoretical Model

Figure 1.1

Proposed Model of Alexithymia, mobile phone addiction and quality of sleep among university students



Chapter II

Methodology

2.1 Research Design

The current study employs a correlational research design. It explores the association between two or more variables (Hassan, 2022). However, it is important to remember that this research design is only use to investigate the relationship between variables, not to identify the factors that cause one another.

2.2 Sampling Strategy

Purposive sampling was used in the current study. It is defined as a non-probability sampling technique in which the researcher uses his/her own judgement, knowledge to recruit specific sample from the population who meet specific criteria of age, gender or other relevant characteristics (Vijayamohan, 2022).

2.3 Sample

The present study used G-Power to evaluate the sample size. Sample of 300 participants (males= 120; females=180) with age limit of 18 to 26 (M= 21.65; SD=1.92) was obtained. The sample was taken from different universities of Pakistan. It included – undergraduates (85%) and - post-graduates (15%). (See table 2.1)

Table 2.1

Mean, Standard Deviation, Frequencies and percentages of Demographic Characteristics of the participants included in the study (N=300)

Demographic Variables	M(SD)	*f (%)*
Participant's age	21.65 (1.92)	
Gender		
Male		120(40%)
Female		180(60%)
Level of Education		
Undergraduate		255(85%)
Postgraduate		45(15%)
Do you own a smartphone?		
Yes		300 (100%)
No		
Average use of MP per hour?	7.83(4.22)	
Do you have trouble in sleeping?		
Yes		111(37%)
No		189(63%)
Average hours of sleep?	6.18(1.61)	

2.4 Inclusion Criteria:

- Students that can easily comprehend English are included.
- Students aged between 18-26 years.
- Students who have a smartphone are included.
- Students currently enrolled in any university of Pakistan.
- University students, both undergraduates and postgraduates are included.
- Students who are not doing any part-time job with their studies are included.

2.5 Exclusion Criteria

- The students who work as freelancers, have night shifts or have any home-based online jobs are not required for this research.
- The students who have any medical condition or are taking medications that could affect their quality of sleep are not required for this research.
- Students below BSc level are not required for the research.
- The students with any psychological or physical disability are excluded from this research.
- Students that were not able to understand the questionnaire due to language barrier are excluded.

2.6 Operational and Conceptual Definitions

The variables selected for the research are alexithymia, sleep quality and mobile phone addiction.

Alexithymia:

Alexithymia, measured by Toronto Alexithymia Scale (TAS-20) is a construct conceptually defined as trouble defining emotions, difficulty separating sentiments from physiological sensations, absence of insight, societal pressure, and poor dream recall, and an impoverished virtual life developed by Bagby et al (1994). It will be operationally defined as participant's high score of 61 or above obtained on the Toronto Alexithymia Scale.

Problematic Mobile Phone Usage

Kwon et al. (2013) characterized problematic mobile phone usage as the frequent use of mobile phone with unchecked utilization, tolerance, cravings, problems of withdrawal, leaning towards online relationships, disinterest in the everyday tasks, and continual phone monitoring. It will be operationally defined as participant's high score on The Smart phone addiction scale short version Sleep Quality Scale suggesting addiction of mobile phone.

Quality of Sleep:

Yi et al. (2006) conceptually explained this construct as the general quality of sleep an individual is acquiring. However, it is operationally defined as a high score of the participant obtained on the Sleep Quality Scale.

2.7 Measures

The present study will use the following assessment tools:

Demographic Information Questionnaire:

A demographic form was self-developed to gather personal information like gender, age, level of education, mobile phone possession, nationality, etc. Some other questions like the number of hours of average sleep and mobile phone use are also included.

Toronto Alexithymia Scale (TAS-20):

Bagby et al. (1994) constructed the Toronto Alexithymia Scale. They developed it to measure alexithymia in adults. This scale has three main factors which includes difficulties to identify one's feelings, trouble explaining feelings and external orientate thinking pattern. It has 20 items, each of which is rated on a Likert scale of 1 to 5. The Likert scale gives individuals 5 options (1= strongly disagree to 5= strongly agree). Range of score is from 0 to 100, where score 61 or above indicates the presence of alexithymia, scores between 52 to 60 indicates the possibility of alexithymia and score below 51 indicates no alexithymia. This scale is internally consistent with the alpha value of .81 and reliable as test-value was .77.

The Smart Phone Addiction Scale Short Version (SAS-SV):

Kwon et al. (2013) constructed this scale for the evaluation of mobile phone addiction. SAS-SV has six main components that explains the addictive and problematic smartphone use including disturbance in daily life, level of tolerance, mobile phone overuse, positive anticipation, discontinuation and online relationships. These components that reflects problematic and addictive use of mobile phone are measured by 10 items, on the basis of a self-rating six-point Likert type scale. The options of the Likert scale indicate how frequently the individual use mobile (1-6 where 1 indicates strongly disagree while 6 indicates strongly

agree). High rating of 34 or above depicts cell phone addiction while a score less than 22 or 22 depicts no addiction. Initial psychometric evaluation revealed that the scale has .91 value of alpha, while mean score of internal consistency reliability was 25.26. As the findings suggest that the SAS-SV have a good reliability and validity, it is a frequently used for the assessment and identification of mobile phone addiction.

Sleep Quality Scale (SQS):

Yi et al. (2006) developed the above mentioned scale for the evaluation of sleep quality, in variety of populations for the purpose of research. The testing of this scale is validated for the population of age between 18 to 59 years. It has six main components including symptoms during day, restorative sleep, issues falling asleep and staying asleep, difficulty in waking up and satisfaction about sleep. SQS is a 28-items, four-point Likert type self-reporting scale. The individual using this 4-point Likert scale identify the frequency of their sleep pattern (0 = rarely to 3 =almost always). A high score on this scale indicates more severe sleep related problems, however the total score can lie between 0 to 84. Psychometric evaluation revealed that the internal consistency was found to be .92 and value of .81 for the test-retest reliability. These findings indicates that the SQS have a good construct reliability and validity.

2.8 Procedure

Institution approval was sought in order to collect the data from the participants who met the inclusion criteria. Afterwards, the sample was approached and informed consent was obtained. The participants were asked to read the inform consent carefully, the aim and procedures were explained. These participants were approached in cafeterias, classrooms and grounds of the universities. A google form was created to collect some data online, inform consent, purpose and procedure was explained. Data was collected through different ways, online, in person and in the form of groups.

A self-made demographic form, Toronto Alexithymia Scale, Smart Phone Addiction Scale Short Version, and Sleep Quality Scale were each given to the participants to complete. The participants were informed initially that overall, 5-7 minutes are required to solve this questionnaire.

2.9 Ethical Consideration:

The following guidelines were followed to ensure that the research was ethical.

- Informed consent was provided and participation was voluntary.
- The participants were given the right to withdraw at any time.
- The participant’s confidentiality and anonymity were prioritized.
- The students who participated were not subjected to any harm in any case.
- The students ensured that the collected data was kept confidential and no personal information was disclosed.

2.10 Statistical Analyses

For the analysis of data, the present study used IBM Statistical Package for the Social Sciences, version 25 (Pallant, 2020). To determine the demographic information of the study sample, descriptive statistics like mean, standard deviation, frequencies, and percentages are computed. Reliability analysis was done to examine the psychometric properties of major study variables. To assess the relationship between the specified study variables, Pearson's Product Moment Correlation was applied to the data. Regression analysis was applied to identify the predictor of quality of the sleep. To find the gender differences in the research variables, t-test was performed.

Chapter III

Results

The present research has intended to inquire the relationship between alexithymia, smartphone addiction, and sleep quality among Pakistani university students. It also aims to investigate the predictors of quality of sleep along with the gender differences. The findings of the study are explained in this chapter, Table 3.1 Psychometric properties of the variables, Table 3.2 demonstrates the Correlation coefficient between the variables, Table 3.3 presents the finding of regression analysis and Table 3.4 shows the output to identify differences in gender using the Independent t-test.

Reliability Analysis

Table 3.1

Psychometric Characteristics of the Variables used in the study with the Sample (N=300)

Measures	*k*	M	SD	α	Range
1. TAS	20	63.07	11.68	0.83	20-100
2. SAS-SV	10	36.32	11.32	0.89	10-60
3. SQS	28	67.38	11.82	0.82	28-112

A fundamental idea known as the central limit theorem (CLT) argues that as sample sizes grow, the distribution of the sample variable tends to resemble a normal distribution, which is sometimes shown as a "bell shaped curve" (Ganti, n.d.). Soo, if the population size is large (**$n \geq 30$**) mean of the samples will be distributed normally, this remains true regardless of the actual population distribution. As the sample size is 300, the central limit theorem was appliable to the current study and a normal distribution approximately be followed. Reliability analysis was done to ensure the internal consistency of the scales as shown by the Cronbach alpha values of the scale in the table 3.1. The Cronbach alpha values demonstrate good reliability among scales. However, the mean of alexithymia is 63.07 which falls under the category of having alexithymia and it is consistent with literature that studied the same variable in the context of Pakistan (Khan & Shabbir, 2019).

Pearson Product Moment Correlation

Table 3.2

Descriptive Statistics and Pearson Product Moment Correlation Coefficient among Alexithymia, Mobile Phone Addiction and Sleep Quality in Students of University.

Variables	N	M	SD	1	2	3
1. TAS	300	3.15	0.58	-----		
2. SAS- SV	300	3.63	1.13	0.45**	-----	
3. SQS	300	2.40	0.42	0.40**	0.40**	-----

**p<.01.

Pearson Product Moment Correlation was employed to determine the association between Alexithymia, mobile phone addiction and sleep quality in university students. Correlational analysis showed that alexithymia has a significant, positive and moderate relationship with smartphone addiction and quality of sleep. This suggest that university students who had high alexithymia were more likely to be addicted to their smartphones and have more sleep related issues. The smartphone addiction was found to have a significant, positive and moderate relationship with the sleep quality. This suggests that the students who had smartphone addiction were more likely to have report poor sleep quality.

Regression Analysis

Table 3.3

Multiple Hierarchical Linear Regression showing Toronto Alexithymia scale and Smartphone addiction as the predictor variables of Quality of sleep.

Predictors	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Step 1						.16***	.16***
Constant	1.87	1.72	2.02	.08	---		
SAS-SV	.15	.11	.19	.02	.40***		
Step 2						.22***	.06***
Constant	1.40	1.16	1.63	.12	---		
SAS-SV	.10	.06	.14	.02	.27***		
TAS	.20	.12	.28	.04	.28***		

*******p<.001

Multiple Hierarchical Linear regression was run to identify the predictors of quality of sleep among the students of university. The predictor variable in this regression model included SAS-SV and TAS while sleep quality was entered as dependent variable.

The data set did not contain any influential case since none of the cases had a mahalanobis value greater than 15. The assumptions were met as the Durbin Watson value was within the permissible range of 1-3 and all the tolerance values were above .2. Additionally, the conditions of linearity, homoscedasticity, and normally distributed errors were also fulfilled.

In model I, smartphone addiction was entered as the predictor variable and the model was significant, R^2= .15, F (1, 298) = 55.57, p < .001. In model II, Toronto Alexithymia scale was used as the predictor variables along with smartphone addiction and again the regression model turned out to be significant, R^2= .22, F (2, 297) = 41.85, p < .001. Model II remained significant even after model I's impact was taken out of it, ΔR^2= .06, F (1, 297) = 23.87, p < .001. Among university students, alexithymia and smartphone addiction were found to be significant positive predictors of sleep quality. This implies that university students who had high alexithymia and have mobile phone addiction were more likely to have reduced quality of sleep.

Independent Sample t-test

Table 3.4

Independent Sample t-test showing Gender Differences

	Male Participants		Female Participants				95% *CI*		
Variables	*M*	*SD*	*M*	*SD*	*t(df)*	*p*	*LL*	*UL*	*d*
TAS	3.02	0.62	3.24	0.54	-3.32(298)	.001	-.36	-.09	-0.39
SAS-SV	3.50	1.19	3.72	1.08	-1.62(298)	.107	-.47	.05	-0.19
SQS	2.33	0.45	2.45	0.39	-2.30(298)	.022	-.21	-.02	-0.28

The output indicates that significant gender differences are present among males and females in terms of alexithymia and sleep quality. However, the results indicated that females have reported high alexithymia and have reduced quality of sleep than males. Gender differences are not significant in terms of mobile phone addiction.

Chapter IV

Discussion

Hypothesis I

High Alexithymia is likely to be related with poor quality of sleep among university students.

In the current study, it was observed that there is a significant positive correlation between alexithymia and reduced quality of sleep, the students who have high scores of alexithymia were more likely to report poor quality of sleep. The above mentioned hypotheses is accepted. The results of the present investigation correlate with those of earlier studies available in the literature (Bauermann et al., 2008; Ma et al., 2020; Yasar et al., 2021; Murphy et al., 2018). The results observed can be due to various reasons. In the line of the current finding, Yasar et al. (2021) conducted a study to examine association of alexithymia and quality of sleep in the students of university. Their study's findings revealed that alexithymia and poor sleep shows significant positive correlation. The students who had high scores of alexithymia tends to have reduced quality of sleep. Another research by Engin at al. (2010) suggests that the inability to identify and describe what a person feels, tendency of a person to suppress emotions can significantly contribute to the problems related to reduced quality of sleep. The exhibition of schizotypal features can also be associated with the reduced quality of sleep, since schizotypal traits are mediated by alexithymia (Ma et al., 2020). Bauermann et al. (2008) conducted an investigation to examine sleep quality in relation to those who have alexithymia. The results suggested a significant correlation among alexithymia and poor quality of sleep and this relation can be explained due to different sleep related issues i.e., nightmares. However, there is some literature associating alexithymia with sleep, but some other psychological issues mediate this relationship. For instances, reduced

quality of sleep may be due to psychiatric issues like anxiety and depression, instead of the alexithymic traits (Murphy et al., 2018). But there are also studies that suggest that alexithymia independently shows correlation with poor quality of sleep (Engin et al., 2010). As the current study do not aim to evaluate the all the possible variables that has an effect on the relationship of the quality of university student's sleep and alexithymia, so it is important to keep in mind that individuals who displays alexithymia may also have an effect on their quality of sleep (Ricciardi et al., 2015). It is inferred that overall, alexithymia is significantly correlated with the reduced quality of the sleep, keeping in view the theoretical view IS via alexithymia influences the processes related to somatization i.e., sleep related issues. This could be a possible explanation of link between two variables.

Hypothesis II

Mobile phone addiction is likely to be related with poor quality of sleep among university students.

In the current study, a significant positive correlation was observed between mobile phone addiction and quality of sleep which suggests that the students who has mobile phone addiction also have poor quality of sleep. The hypotheses mentioned above is accepted. Results of the current study are in accordance with many research investigations in literature that have found an association between mobile phones and sleep quality (Demirci et al., 2015; Dhamija et al., 2021; Uniyal & Tiwari, n.d; Sahin et al., 2013; Liu et al., 2017; Newsom, 2020; Aslam et al., 2021). In the line of the current findings, Liu et al, (2017) suggested that long-term usage of technological gadgets like cellphones has been linked to disruptions in everyday life, poor health, and disruptions in sleep and waking hours. Another research that suggests the reason of correlation of smartphone with quality of smartphone concludes that blue light from a smart phone disrupts the biological cycle of the human

system. This is because smartphone's blue light inhibits the brain from generating melatonin, a hormone that promotes sleep. (Newsom, 2020). Similar, finding from literature suggests that the mobile phone addiction does not impact the duration of sleep, however, has a direct impact on the reduced quality of sleep (Uniyal & Tiwari, n.d). One of the research from past also concludes that the young generation or the upcoming generation is more likely to be addicted to mobile phone addiction causing serious problems like sleep quality (Dalai et al., 2021). Aslam et al. (2021) conducted the study on 100 students from different universities of Pakistan to assess the association sleep quality and binge eating with mobile phone addiction. Results of their study suggested that those who have mobile phone addiction are more likely to binge eating at night and have poor quality of sleep. Increasing mobile phone use by young students will result in inadequate or reduced quality of sleep (Sahin et al., 2013). Thus, it can be inferred that a person's addiction to smartphone will have an impact on the quality of their sleep. The similar results can be explained by blue light from the cellphones that put down the level of melatonin, disturbing the natural circadian cycle of the human body. Melatonin is commonly described as the hormone of sleep and when high level of melatonin is produced the quality of sleep improves.

Hypothesis III

Mobile phone addiction and alexithymia are likely to predict the quality of sleep among university students.

The findings of the current study suggests that mobile phone addiction and alexithymia are significant positive predictors of sleep. The hypotheses mentioned above for the current study is accepted. The results of the current study are consistent with the findings of past literature (Huang et al.,2022; Rehman et al., 2018; Ma et al., 2020). In the line with current study, Huang et al. (2022) conducted an investigation to assess the predictors of sleep. The

results suggested alexithymia as the predictor of reduced sleep quality and it is reported that alexithymia caused sleep issues in people who chose to ignore or use body feelings in an introspective way. Similarly, Rehman et al. (2020) conducted the research to explore different predictors of sleep quality and the findings of their study reported alexithymia to be the predictor of poor sleep quality. Ma et al. (2020) explored the relationship of alexithymia with issues related to sleep and schizotypal features and the results of their study suggests that via the effect of alexithymia the young adults can suffer sleep issues.

However, literature also support the results as mobile phone addiction significantly predicts reduced sleep quality (Demirci et al., 2015; Qingqi et al., 2017). Demirci et al. (2015) conducted an investigation among university students to explore the association of mobile phone addiction with different variable including sleep quality. Results of their study suggested mobile phone addiction as predictor of reduced quality of sleep. In the line of the findings of current study, Qingqi et al. (2017) investigated the association between adolescent mobile phone addiction and quality of sleep. According to the study, cell phone addiction has a mediating and moderating influence on sleep quality. Results of the study suggested that smartphone addiction is the predictor of sleep. In line to the findings of current study and literature review, it is suggested that alexithymia and smartphone addiction are the predictors of sleep quality.

Hypothesis IV

Male and female university students are likely to differ in the scores of alexithymia, mobile phone addiction, and quality of sleep.

The current study results suggest that gender difference exist in term of alexithymia and sleep quality as females tends to score higher than males. The above mentioned hypothesis is partially accepted. In line with the present finding there are significant differences among

alexithymia but males tend to show more alexithymia (Khan, 2017), however, the results of the study demonstrate that females have high alexithymia. Khan (2017) conducted the research on young adults in context of Pakistan to assess the prevalence of alexithymia and the results suggested that men tend to have more alexithymia than women. Similarly, Levant et al. (2009) conducted a study on gender differences in alexithymia and reported the results that males have score higher than females on the scale of alexithymia. The discrepancy observed can be possible because of cultural differences, different sample, and age range used in previous researches.

However, the literature supports the findings of the current study as female university students report higher poor quality of sleep than males. Fatima et al. (2016) conducted the research on quality of sleep among young adults and the results suggested that females report to have poor sleep quality than males. On the similar lines, Sanchez-Romera et al. (2017) suggests that poor sleep quality was nearly twice as prevalent in women as in men.

The results of the current study also suggested that gender differences are not significant in terms of mobile phone addiction. This finding is aligned with the body of literature as previous studies report similar findings. Chen et al. (2016) conducted the cross-sectional research about gender differences in mobile phone addictions among college students and the results indicated that there are no significant gender differences among both the gender. However, many research studies suggest that there are significant gender differences among the problematic use of mobile phone. Demirci et al. (2015) conducted the research on university students to assess the association of problematic phone usage with sleep issues. The results of their study suggested that females score more than the males. Similarly, Lee et al. (2016) conducted an investigation on students of South Korea to explore their dependence on mobile phone and its relation with anxiety. The results suggested that females are more dependent on mobile phone than males.

In the line to the findings of the study, it can be inferred that both male and female students are prone to smartphone addictions as the male student use their smartphones for playing different online games, listening to music and watching videos online. However, the females use mobile phone to socialize online with their friends and family, spending more time on calls and messages and doing online shopping (Chen et., 2017).

Conclusion:

The current study revealed that all the three study variables i.e., alexithymia, mobile phone addiction and the quality of sleep were positively correlated. The significant predictors of the quality of sleep are alexithymia and addiction of the mobile-phone and there are significant gender differences among the variable except the variable mobile phone addiction. However, the strengths, weaknesses and future implications of the present study's findings should be taken into consideration.

Strengths

- The study comprised a large sample size of 300 participants.
- The research included both males and females.
- The current study addresses current issues of smart phone addiction and alexithymia in context of Pakistan.
- Alexithymia is highly prevalent so this topic needed to be studied.

Limitations

- As the sample consist of university students only, the results can not be generalized to the entire population.
- The scales were not converted in Urdu, that’s why only bilingual students were included in the study.
- The design of the study was correlational which does not predict causation.

Implications

- Alexithymia has broad scope and it may be included in DSM-6 because it of its high prevalence, which requires more work to be done.
- This study will increase awareness about alexithymia in students as it is not known commonly, which help them to regulate its development.
- Seminars can be held in universities to address the importance of quality of sleep in students keeping in view their mobile phone usage and alexithymia.
- While developing treatment programs for good quality of sleep it is important for the psychologist to consider alexithymia and mobile phone addictions.
- Beneficial for health and educational psychologist to consider alexithymia and smartphone addiction when addressing issues on the quality of sleep.

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APPENDIX A

KINNAIRD COLLEGE FOR WOMEN

Dated: 28-Feb-23

PERMISSION LETTER

To,

University of South Asia

Our student, Ms. Fatima Sajjad (017) of BSc Honors Applied Psychology program of Kinnaird College for Women, is conducting her research on:

Alexithymia, Mobile Phone Addiction and Quality of Sleep among university students.

She has to collect primary data for fulfillment of her research project with the use of her research questionnaire. You are requested, therefore, to please allow her access to females in your institution. Your co-operation in this regard will be highly appreciated and would help promote research in Pakistan.
Thanking you in anticipation.

Dr. Afsheen Gul

Head of the Applied Psychology Department

Kinnaird College for Women, Lahore

93, Jail Road, Lahore-54000 Pakistan. Tel: 92-42-99203781-84 Fax: 92-42-99203788 Email: rukhsana.david@kinnaird.edu.pk

KINNAIRD COLLEGE FOR WOMEN

Dated: 2 March 23

PERMISSION LETTER

To,

University of Management & Technology

Our student, Ms. Fatima Sajjad (017) of BSc Honors Applied Psychology program of Kinnaird College for Women, is conducting her research on:

Alexithymia, Mobile Phone Addiction and Quality of Sleep among university students.

She has to collect primary data for fulfillment of her research project with the use of her research questionnaire. You are requested, therefore, to please allow her access to females in your institution. Your co-operation in this regard will be highly appreciated and would help promote research in Pakistan.
Thanking you in anticipation.

Dr. Afsheen Gul

Head of the Applied Psychology Department

Kinnaird College for Women, Lahore

93, Jail Road, Lahore-54000 Pakistan. Tel: 92-42-99203781-84 Fax: 92-42-99203788 Email: rukhsana.david@kinnaird.edu.pk

KINNAIRD COLLEGE FOR WOMEN

Dated: 3-March-23

PERMISSION LETTER

To,

University of Central Punjab

Our student, Ms. Fatima Sajjad (017) of BSc Honors Applied Psychology program of Kinnaird College for Women, is conducting her research on:

Alexithymia, Mobile Phone Addiction and Quality of Sleep among university students.

She has to collect primary data for fulfillment of her research project with the use of her research questionnaire. You are requested, therefore, to please allow her access to females in your institution. Your co-operation in this regard will be highly appreciated and would help promote research in Pakistan.
Thanking you in anticipation.

Dr. Afsheen Gul

Head of the Applied Psychology Department

Kinnaird College for Women, Lahore

93, Jail Road, Lahore-54000 Pakistan. Tel: 92-42-99203781-84 Fax: 92-42-99203788 Email: rukhsana.david@kinnaird.edu.pk

KINNAIRD COLLEGE FOR WOMEN

Dated: 6 March 23

PERMISSION LETTER

To,

Punjab University, Lahore

Our student, Ms. Fatima Sajjad (017) of BSc Honors Applied Psychology program of Kinnaird College for Women, is conducting her research on:

Alexithymia, Mobile Phone Addiction and Quality of Sleep among university students.

She has to collect primary data for fulfillment of her research project with the use of her research questionnaire. You are requested, therefore, to please allow her access to females in your institution. Your co-operation in this regard will be highly appreciated and would help promote research in Pakistan.
Thanking you in anticipation.

Dr. Afsheen Gul

Head of the Applied Psychology Department

Kinnaird College for Women, Lahore

93, Jail Road, Lahore-54000 Pakistan. Tel: 92-42-99203781-84 Fax: 92-42-99203788 Email: rukhsana.david@kinnaird.edu.pk

APPENDIX B

INFORMED CONSENT

I am Fatima Sajjad, a bachelor's student of Applied Psychology at Kinnaird College for Women. I am conducting the research on university students to assess the quality of sleep. This research aims to investigate the role of Alexithymia and Mobile Phone Addiction on the Quality of Sleep among the students of university.
If you fulfill the following criteria, kindly proceed with the form:

- Currently enrolled in any universitiy of Pakistan
- Between 18-26 years.

The students below BSc level, the students who do not own a smartphone, the students who work as freelancers, have night shifts or have any home-based online jobs are not required for this research. The students who have a medical condition or are taking medications that could effect their quality of sleep are not required for this research.
Privacy of information will be maintained throughout. The participant has the right to withdraw from the research at any moment he/she wishes to. The participant is permitted to end any ambiguity through queries. The time duration that will be required to fill surveys will be fifteen minutes
approximately.
For any query during or after the research, you can contact me at the email given below:
fatimasajjad7890@gmail.com

I have read the informed consent carefully and I willing consent to participate in the study.

- ☐ Agree

APPENDIX C

DEMOGRAPHIC INFORMATION SHEET

1. Age (In Years)

_____

2. Gender

- Male
- Female

3. Level of Education

- Undergraduate
- Postgraduate

4. Do you have smartphone?

- Yes
- No

5. 5. If "Yes" then how many hours on average you use smart phone?

_____

6. Do you have trouble sleeping?

- Yes
- No

7. How many hours on average you sleep per night?

_____

TORONTO ALEXITHYMIA SCALE (TAS-20)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am often confused about what emotion I am feeling.					
It is difficult for me to find the right words for my feelings.					
I have physical sensations that even doctors don't understand.					
I am able to describe my feelings easily					
I prefer to analyze problems rather than just describe them.					
When I am upset, I don't know if I am Sad, frightened, or angry.					
I am often puzzled by the sensations in my body.					
I prefer to just let things happen rather than to understand why they turned out that way.					
I have feelings that I can't quite identify.					
Being in touch with emotions is essential.					
I find it hard to describe how I feel about people					
People tell me to describe my feelings more					
I don't know what's going inside me					
I often don't know why I am angry.					
I prefer talking to people about their daily activities rather than their feelings.					
I prefer to watch "light" entertainment shows rather than psychological dramas.					
It is difficult for me to reveal my innermost feelings, even to close friends.					
I can feel close to someone, even in moments of silence					
I find examinations of my feelings useful in solving personal problems.					
I look for hidden meanings in movies or plays.					

SMARTPHONE ADDICTION SCALE-SHORT VERSION

	Strongly Disagree	Disagree	Weakly Disagree	Weakly Agree	Agree	Strongly Agree
Missing planned work due to smartphone use						
Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use.						
Feeling pain in the wrists or at the back of the neck while using a smartphone.						
Will not be able to stand not having a smartphone.						
Feeling impatient and fretful when I am not holding my smartphone						
Having my smartphone in my mind even when I am not using it.						
I will never give up using my smartphone even when my daily life is already greatly affected by it.						
Constantly checking my smartphone so as not to miss conversations between other people on Twitter or Facebook.						
Using my smartphone longer than i had intended						
The people around me tell me that I use my smartphone too much.						

SLEEP QUALITY SCALE

	Rarely	Sometimes	Often	Almost Always
I have difficulty falling asleep				
I fall into a deep sleep				
I wake up while sleeping				
I have difficulty getting back to sleep once I wakeup in the middle of night				
I wake up easily because of noise				
I toss and turn				
I never go back to sleep after awakening during sleep				
I feel refreshed after sleep				
I feel unlikely to sleep after sleep.				
Poor sleep gives me headaches.				
Poor sleep makes me irritated				
I would like to sleep more after waking up				
My sleep hours are enough.				
Poor sleep makes me lose my appetite				
Poor sleep makes hard for me to think				
I feel vigorous after sleep.				
Poor sleep makes me lose interest in work or others.				
My fatigue is relieved after sleep				
Poor sleep cause me to make mistakes at work				
I am satisfied with my sleep				
Poor sleep makes me forget things more easily.				
Poor sleep makes it hard to concentrate at work.				
Sleepiness interferes with my daily life.				
Poor sleep makes me lose desire in all things				
I have difficulty getting out of bed				
Poor sleep makes me tired easily at work				
I have a clear head after work				
Poor sleep makes my life painful.				

APPENDIX D

SPSS OUTPUT

Cronbach Alpha

TAS-20

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.834	.828	20

SAS-SV

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.887	.887	10

SQS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.824	.825	28

Pearson Product Moment Correlation

Correlations

		MEANOFTAS	MEANOFSAS	MEANOFSQS
MEANOFTAS	Pearson Correlation	1	.448**	.401**
	Sig. (1-tailed)		<.001	<.001
	N	300	300	300
MEANOFSAS	Pearson Correlation	.448**	1	.396**
	Sig. (1-tailed)	<.001		<.001
	N	300	300	300
MEANOFSQS	Pearson Correlation	.401**	.396**	1
	Sig. (1-tailed)	<.001	<.001	
	N	300	300	300

**. Correlation is significant at the 0.01 level (1-tailed).

Regression Analysis

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.396[a]	.157	.154	.38834	.157	55.566	1	298	<.001	
2	.469[b]	.220	.215	.37424	.063	23.873	1	297	<.001	2.034

a. Predictors: (Constant), MEANOFSAS

b. Predictors: (Constant), MEANOFSAS, MEANOFTAS

c. Dependent Variable: MEANOFSQS

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.380	1	8.380	55.566	<.001[b]
	Residual	44.940	298	.151		
	Total	53.320	299			
2	Regression	11.723	2	5.862	41.852	<.001[c]
	Residual	41.597	297	.140		
	Total	53.320	299			

a. Dependent Variable: MEANOFSQS

b. Predictors: (Constant), MEANOFSAS

c. Predictors: (Constant), MEANOFSAS, MEANOFTAS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.869	.075		24.769	<.001	1.721	2.018					
	MEANOFSAS	.148	.020	.396	7.454	<.001	.109	.187	.396	.396	.396	1.000	1.000
2	(Constant)	1.401	.120		11.638	<.001	1.164	1.638					
	MEANOFSAS	.101	.021	.271	4.730	<.001	.059	.143	.396	.265	.242	.800	1.251
	MEANOFTAS	.202	.041	.280	4.886	<.001	.121	.284	.401	.273	.250	.800	1.251

a. Dependent Variable: MEANOFSQS

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7043	3.0197	2.4064	.19801	300
Std. Predicted Value	-3.546	3.097	.000	1.000	300
Standard Error of Predicted Value	.022	.084	.036	.012	300
Adjusted Predicted Value	1.6885	3.0061	2.4064	.19785	300
Residual	-1.08690	.89864	.00000	.37299	300
Std. Residual	-2.904	2.401	.000	.997	300
Stud. Residual	-2.921	2.417	.000	1.002	300
Deleted Residual	-1.10778	.91021	.00001	.37732	300
Stud. Deleted Residual	-2.959	2.437	.000	1.006	300
Mahal. Distance	.001	14.162	1.993	2.323	300
Cook's Distance	.000	.078	.004	.008	300
Centered Leverage Value	.000	.047	.007	.008	300

a. Dependent Variable: MEANOFSQS

Independent Sample T-test

Group Statistics

	gender of students	N	Mean	Std. Deviation	Std. Error Mean
meantas	Male	120	3.0188	.62578	.05713
	Female	180	3.2433	.53788	.04009
meansas	Male	120	3.5033	1.19508	.10910
	Female	180	3.7183	1.08285	.08071
meansqs	Male	120	2.3381	.45270	.04133
	Female	180	2.4520	.39549	.02948

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
meantas	Equal variances assumed	.104	.747	-3.317	298	<.001	.001	-.22458	.06772	-.35785	-.09132
	Equal variances not assumed			-3.218	228.276	<.001	.001	-.22458	.06979	-.36210	-.08707
meansas	Equal variances assumed	.822	.365	-1.616	298	.054	.107	-.21500	.13305	-.47685	.04685
	Equal variances not assumed			-1.584	237.595	.057	.114	-.21500	.13571	-.48234	.05234
meansqs	Equal variances assumed	2.632	.106	-2.305	298	.011	.022	-.11389	.04941	-.21113	-.01665
	Equal variances not assumed			-2.244	231.127	.013	.026	-.11389	.05076	-.21390	-.01387

APPENDIX E

Plagiarism Report

Second Chance June Defense 2023

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