

Predictors of Sleep Disturbances among College Students: Interplay of Media Exposure and Health Related Quality of Life

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This study ascertains the association between media exposure, health related quality of life, and sleep disturbance among college students. The sample consisted of 300 private and public college students with equal number of men and women. The age range of participants was between 18 to 22 years. The cross-sectional research strategy following purposive sampling technique was used for sample selection. The Pittsburgh Sleep Quality Index, (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) and SF-36v2 Health Survey (Ware, Snow, Kosinski, & Gandek, 1993) along with self-constructed demographic sheet including questions about media exposure was used to gather the data. Findings indicated that media exposure was positively associated with sleep disturbance; whereas, health related quality of life (physical health and mental health) were negatively associated with sleep disturbance. Furthermore, the outcomes showed that aging, increased sleep hours during afternoon, sleep hours during night, media exposure, and declined health related quality of life were found to be significant predictors of sleep disturbance. Gender differences towards sleep disturbances were nonsignificant. This study would be the stepping stone for the future researches to identify sleep related complications experienced by the students.

Keywords. Media exposure, health related quality of life, sleep disturbance, college students.

Sleep is considered as an important and significant element of human life, more than food and exercise in order to maintain good health. Those who do not have disturbed sleep considered to be more active and mentally strong than those who have disturbed sleep patterns (Dimatteo & Martin, 2007). Sleep is described as an essential

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element for the mental as well as physical functioning of college students (Steptoe, O'Donnell, Marmot, & Wardle 2008).

Phenomenology of sleep disturbances can be defined in many ways such as it could be a lack of sleep, increase or decrease in the duration of sleep, sleep latency, and irregular sleep patterns. Sleep disturbance is faced by many people during different phases of their life (Barrett & McNamara, 2012). Sleep can be disturbed by different factors, but in this modern world the impact of media is also increasing in disturbing sleep (Brockmann et al., 2015). It can be said that the modern generation of the world spend a lot of time in watching television as well as movies and other programs. Since the growth of cable network increased in Pakistan, people are more exposed to media and have easy access to watch different television channels. General public especially youngsters, college or university students are more prone to watch television for their entertainment (Zia, 2007). Moreover, sleep also contributes to overall health of the individual and related with both mental and physical satisfaction (Chokroverty, 2009).

However, media is establishing new trends by showing horror and thrilling programs causing stress and anxiety in the people which may contributes towards mental or psychological stress. Among late-sleepers, Television watching is considered to be the most common cause of late-night awakening or poor sleep quality in Pakistani students (Nusrat, 2012). Several assumptions defined the relationship between sleep problems and exposure to the media. Though contact with bright light prior to sleep might trigger a neurological process that may affect the sleeping patterns of the human being and cause sleeplessness or disturbed sleep (Higuchi, Motohashi, Liu, Ahara, & Kaneko, 2003; Higuchi, Motohashi, Maeda, & Ishibashi, 2005). Moreover, excessive use of media may also cause alertness and biological arousal because of which it became hard for people to sleep more appropriately (Higuchi et al., 2005). The use of different media devices at late night can lead to several problems such as sleep disturbances and different health related problems. Similarly, insufficient sleep can also lead them to different health matters and troubles (Buxton et al., 2015; Zisapel, 2007).

Different assumptions have been suggested upon the association between media exposure and health related quality of life. Furthermore, there is an adverse impact of the electronic media on the physical actions of the individuals and the excessive use of media play an important role in minimizing the bodily functioning of people (Mathers et al., 2009). Sleep of college students can be disturbed by different factors among which the use of excessive internet is very

fundamental and noteworthy (Cain & Gradisar, 2010; Cheng et al., 2012). According to Martin and Schumacher (2000), unnecessary use of internet is very high in college students, whereas, Brunborg et al. (2011) examined the habit of using media devices in the bedroom and its associations with sleeping behaviors and insomnia. This study indicates that the use of media devices in the bedroom are linked with poor or bad sleep habits and proved that media devices are important predictors of deprived or bad sleep among students. People especially college students lay down on couches and spend more time in watching and using different means of media devices because of which they limit their physical activities (Brockmann et al., 2015). Nowadays, youngsters prefer internet use over many physical oriented games. Hence, excessive use of media devices leads to lesser physical movements (Mathers et al., 2009). Use of different technologies especially at bed time can limit the appropriate sleep cycle of students and cause disturbances in sleep. In the same line a significant cross sectional study by Arora, Broglia, Thomas, and Taheri (2014) anticipated that sleep problems are associated with the use of different technologies such as (mobile phones, TV, internet use, MP3 and PCs). The sleep hours or duration is affected by the excessive use of different media devices in young adults. The use of media technology devices especially in week days can limit the amount of sleep and cause disturbance. The association between the media exposure and sleepiness can also be grasp in the study conducted by Fossum, Nordnes, and Storemark (2014) revealing that connection between the use of media (television, internet, laptops) and sleeplessness was found in 532 male and female students aged less than 18 years. The findings revealed that the usage of electronic devices such as internet is positively associated with loss of sleep or disturbed sleep among students. Moreover, the use of media devices is negatively connected with the alertness of day time. So these findings also support the link between the use of the computers and sleeplessness.

Sleep deprivation is also associated with not only physical issues but also with mood and behavior. Health hazard behaviors are also related with inadequate or disturbed sleep (Eily et al., 2011); therefore, many researches proved that conflicting sleep problems are associated with the individual's deprived or bad quality of life and determined the affiliation between health and disturbances of sleep (Zisapel, 2007). Moreover inappropriate physical and emotional functioning of people can interrupt in normal amount of sleep and affect not only health but also life quality of the people (Redeker, Rugiero, & Hedges, 2004; Tynjala, Kannas, Levalahti, & Valimaa, 1999).

Lund, Reider, Whiting, and Prichard (2010) investigated the phenomena of sleep and predictors of poor sleep in college students. The findings exhibited that 60% of the college students showed sleep allied problems and it was also revealed that sleep disturbances are associated with physical health. According to Shochat, Zion, and Tzischinsky (2012), disturbed sleep is considered to be related with poor quality of health. The results showed that disturbed sleep is positively affiliated with the use of internet. Therefore, many studies not only examine but also proved the association and connection between sleep problems, health related quality of life, and physical wellbeing and evidenced that inappropriate or less sleep is affiliated with poor physical wellbeing of the participants such physical pain, distress or tiredness (Haack & Mullington, 2005; Shochat, et al., 2012). The core aim of this study is to investigate the association between media exposure, health related quality of life, and sleep disturbance in Pakistani college students. However, in Pakistan the data for the present study is quite inadequate and very few studies have been conducted on this topic; therefore, the main purpose of this particular study is to fill this research gap. The major objectives of the study asserted to find the association between media exposure, health related quality of life, and sleep disturbance. It is also intended to determine the predictors of sleep disturbance among college students and to investigate the gender differences in sleep disturbance among college students.

Hypotheses

1. Sleep disturbances are positively related to media exposure and negatively associated with health related quality of Life.
2. Media exposure, health related quality of life (physical health, mental health), and demographic variables (age, gender, education, sleep hours during night, sleep hours during afternoon) are significant predictors of sleep disturbance in college students.
3. Female college students are more likely to suffer sleep disturbance as compared to male students.

Method

Sample

Sample comprised of three hundred ($N = 300$) college students with equal number of men and women were recruited for the study.

The data was taken in equal number from different public and private colleges of Lahore ($n = 150$ each). Non probability purposive sampling technique was used to collect the data because only students who had been exposed to media and social networking sites were comprised in the sample. This was determined by asking a first question in demographics about their exposure to media and use of social networking site. Anyone not fitting into criteria was not asked to fulfill the questionnaires.

The sample consisted of 300 equal number of men (50%) and women (50%); while, age of the participants ranged between 18 to 22 years with mean age of 19.97 years ($SD = 1.40$). Undergraduates students included 125 (41.7%) from BS/BA (first year), 81 (27.0%) from BS/ BA (second year), 54 (18.0%) from BS/ BA (third year), and 40 (13.3%) from (fourth year). Furthermore, birth order of the participants constituted 77 (25.7%) first born, 139 (46.3%) second born, and 84 (28%) third born. The sleep time of the participants was mean 6.3 hours ($SD = 6.0$) and average sleep time at afternoon was 1.41 hours ($SD = 1.24$). The overall sleep time of the participants ranged from 3-11 hours; whereas, range for sleeping in afternoon was 0.5 to 3 hours.

Measures

The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989). The PSQI comprised of 19 questions which was used to measure sleep disturbances and other domains of sleep among college students. The PSQI measures seven areas that contain: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and day time dysfunction. The final score of PSQI ranged between 0-21, where 0 shows no difficulty and 21 displays severe difficulty regarding sleep. For the purpose of the current study, only the question number 10 (*Do you have a bed partner?*) of PSQI (Buysse et al., 1989) was omitted because it was not required for the present study. Various studies shows high reliability and validity of PSQI (Grandner, Kripke, Yoon, & Youngstedt, 2006); while, Cronbach alpha of .78 was achieved for the current sample.

SF-36v 2 Health Survey. To assess health related quality of life among the college students, SF-36v2 Health survey (Ware et al., 1993) was used. The SF-36v2 consists of 36 items; with response options of 0-3 where 0 stands for no problem in sleep. The scores were obtained in two components, that is, physical component

summary and mental component summary. The scores of the scale ranged from 0-100, where 0 shows poor health related quality of life and 100 shows perfect health related quality of life. The internal consistency of SF-36v2 was reported as .80 for physical summary components and .86 for mental summary components (Ware et al., 1994) and eight scales reliability coefficient range from .80 and above (Ware et al., 1993). Moreover, Cronbach alpha of .80 was found in the present study.

Demographic information sheet. Self-constructed demographic sheet was constructed and used to gather information regarding demographic variables (age, gender, education, birth order, study hours per day and hours of sleep at afternoon and hours of sleep at night) that play a significant role in the present study. It also includes questions that assess electronic and social media exposure among college students (television watching hours, television programs preferences, duration of the use of social media network) as well as its effect on sleeping habits

Procedure

The researcher visited selected colleges of Lahore and acquired permission from the authorities in order to gather data from the students. Participants were asked to fill questionnaires that include scales and demographic sheet. Furthermore, after acquiring willingness of the participants a set of questionnaires were given to them and the researcher also described research objectives to them. In addition, participants were assured about the confidentiality of their identity and responses.

Results

Pearson Correlation, Independent sample *t*-test, and multiple linear regression was used in order to explore the role and association between media exposure, health related quality of life, and sleep disturbance among the college students. The correlational analysis presents very interesting findings showing significant positive association between media exposure and sleep disturbance that indicates that increase in sleep disturbance is linked with increase in media exposure ($r = .19, p < .01$.) Furthermore there is inverse association between sleep disturbance and health related quality of life that is, physical health ($r = -.22, p < .01$) and mental health ($r = -.17, p < .01$); thereby indicating that sleep disturbance is increased when

health related quality of life (physical health and mental health) decrease. However, there is nonsignificant association between media exposure and health related quality of life that is physical health ($r = -.04, p > .01$) and mental health ($r = -.08, p > .01$). Conversely, the results also depicted that there is a significant positive relation between physical and mental health ($r = .22, p < .01$).

Table 1

Multiple Linear Regression Analysis Showing Predictors of Sleep Disturbance (N=300)

Predictors	<i>B</i>	<i>SE</i>	β
Age	.37	.14	.20**
Gender	-.13	.26	-.03
Education	-.34	.18	-.14
Sleep at Afternoon	.28	.10	.14**
Sleep at Night	-.82	.09	-.47**
Media Exposure	.06	.02	.14**
Physical Health	-.05	.02	-.16**
Mental Health	-.07	.03	-.11*
<i>R</i>			.59
<i>R</i> ²			.35
ΔR^2			.33
<i>F</i>			19.63**

* $p < .05$. ** $p < .01$.

The findings indicated the predictors of disturbed sleep and showed that there is 35% variability among the variables. The major findings proposed that increase in age can predict sleep disturbance, whereas, the increase in hours of sleep at afternoon can likewise cause sleep problems. It was also exhibited that decrease in the hours of sleep at night and declined health related quality of life also predict sleep disturbance. Furthermore, media exposure is also the substantial predictor of sleep disturbance among the targeted population.

For seeking differences in score of sleep disturbances across gender, independent sample *t*-test was used and results showed nonsignificant difference between the scores of male ($M = 9.07, SD = 2.63$) and female ($M = 8.88, SD = 2.51$) participants in sleep disturbance $t(298) = .63, p = .53$.

Discussion

The current paper aimed to explore the association between media exposure, health related quality of life, and sleep disturbance. The importance of sleep cannot be denied since it is very essential for the welfare and wellbeing of the humans (Stores, 2009). Different factors are related with sleep and sleep related problems (Delaney et al., 2015). College students certainly experience disturbed sleep during their college life because of different causes such as excessive use of media exposure devices and different social networking sites at night (Arora et al., 2014) and also due to sleeping habits (Brockmann et al., 2015). Media exposure and health related quality of life is contributing towards sleep disturbances and found to be very significant factors related with sleep disturbances among students. This study showed that how these variables of interest were connected with each other. Numerous Western studies support the idea of this research paper according to their own cultural ethics and pattern of lifestyles but, the association between these variables was not assessed directly (Cheng et al., 2012; Fossum et al, 2013; Pilcher & Ott, 1998; Steptoe et al., 2006).

The existing study established a significant association between sleep problems and media exposure. Moreover, this phenomena has been demonstrated by many previous researches and provided evidence that the use of media exposure is linked with sleep problems in people and especially in college students (Arora et al., 2014; Cheng et al., 2012; Fossum et al., 2013). The results of previous researches are consistent with the present research and support the recent findings. Brunborg et al. (2011) also explored the interconnection between media exposure and sleep related problems and proposed that the consumption of media exposure during the sleep timings and bedroom is related with poor or distressed sleep.

The relationship between sleep disturbances and health related quality of life has been investigated by many researchers (Pilcher, Ginter, & Sadowsky, 1997; Pilcher & Ott, 1998; Steptoe et al., 2006). The results of the prevailing study also showed an affiliation between sleep and health related quality of life. In addition, increase in sleep disturbances results in deteriorated health related quality of life (Groeger, Zijlstra, & Dijk, 2004; Shochat et al., 2012; Steptoe et al., 2006). The findings of this study are consistent with previous studies that insufficient or less sleep is related to inappropriate physical wellbeing or health of the people such as bodily discomfort, distress, or tiredness (Haack & Mullington, 2005). Consequently, it can be said that disturbed sleep and the health hazardous behaviors may also linked and influence each other as depicted in the current study. Similarly, distress, emotional or mental health difficulties increased

sleep problems among the individuals (Morin, Rodrigue, & Ivers, 2003).

Health related quality of life (physical as well as mental health) also exhibited an association with media exposure in the findings of this study. The previous researchers also exhibited support for these findings by declaring that exposure of media is significantly associated with health related quality of life (Mathers et al., 2009). Gemmill and Peterson (2006) also gave evidence that increase in the use of media exposure devices elevates distress or troubled the emotional conditions of the people and cause different mental health problems.

This study brings informative findings about the college students. It was found that participant's demographic information that increase in age, sleeping in the afternoon, and decreased sleep at night hours are significant predictors of sleep disturbance. There is a gap to find out the literature supporting this issue among the present population. Apart from the existing literature there is lack of literature that shows these variables as predictors of sleep disturbances. However, it is also evidenced that increase in the age is linked with reduced sleep duration (Moffitt et al., 1991; Yang, Kim, Patel, & Lee, 2005). Moreover, day time sleep and the constant tension are also considered as a predictors of sleep problems (Chung & Cheung, 2008).

Media exposure is also depicted as a contributing factor in the sleep related problems of people (Arora et al., 2014; Ban & Lee, 2001). Furthermore, health related quality of life also projected as a significant predictor of sleep problems in this study. Lund, Reider, Whiting, and Prichard (2010) supported this evidence by discovering different factors related to sleep and finding the predictors' related to the disturbed sleep. The study also investigated and discovered that health status (physical or mental) and especially physical health as an important predictor contributing to the sleep complications.

The present study also reports that there is no significant difference between the sleep disturbances across gender. The assumptions of the present study are not consistent with previous researches and current study hypothesis. Some studies support that there are gender difference (Buboltz, Brown, & Soper, 2001) while, others exhibited no gender difference in sleep disturbance (Tan, 2011) that may be because of the cultural differences and values of different scenarios. The study also exposed that majority of the participants watched television, use face book, and other media related devices at night time in the Pakistani population. Several previous surveys also gave evidence of the excessive use of the social networking sites and

excessive watching of television at night among young Pakistani students (Nasir, 2013; Nusrat et al., 2012).

Limitations and Recommendations

It was a tough and challenging task at some phases of data collection. The students exhibited non serious attitude and showed reluctance in filling lengthy questionnaires because they were very time consuming. However, the study was conducted in some colleges of Lahore with small sample; therefore, limiting the generalization of the results to the larger population.

Few recommendations can be considered for the further implementations. For instance, there are various factors in our culture that may be contributing to the sleep problems of college students of Pakistan. Hence, the future researchers should explore further constructs, such as family dynamics, social circle, and nature of studies in order to determine more persuasive factors associated with sleep. Furthermore, Pakistan is a vast country exhibiting different cultures and norms; thus, future studies should be executed in different regions of the country in order to determine the true nature of the sleep difficulties among dissimilar students of the country.

Implications

In Pakistan the use of media is increasing day by day (Nusrat, 2012). Therefore, this research can be useful for parents and new researchers in order to determine that whether media exposure is associated with sleeping issues in young college students or not and what kind of measures should be taken in order to balance the sleep of college students to ensure better mental and physical health. Moreover, sleep is also important for our wellbeing and lack of sleep is also associated with several health related issues. Findings of the present study would be beneficial for the students to recognize the influence of disturbed sleep upon their health status.

Conclusion

It was concluded that media exposure and health related quality of life are significantly related with sleep disturbances among young college students of Pakistan. It was also revealed that demographic variables such as (age, sleep after noon, and sleep at night hours) as well as media exposure and health related quality of life (physical and

mental health) is significant predictors of sleep disturbances. In addition, the study also revealed nonsignificant gender differences among the present population.

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