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Research Paper

Personality Traits as a Correlates of Sleep Quality among Young Adults

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ABSTRACT

The purpose of the present study was to investigate the relationship between big five personality traits (extraversion, openness, agreeableness, conscientiousness, and neuroticism) and sleep quality among young adults. A survey was conducted using an assessment battery consisted of demographic information form, The Pittsburgh Sleep Quality Index (PSQI) and Brief Big-Five Personality Inventory-10 (BFI-10). Data were collected from a total of 160 participants, out of which 154 complete questionnaires were included for the study. The remaining were incomplete to the extent that they had to be rejected. The sample comprised of 75 male and 79 female students pursuing various undergraduate, postgraduate and professional courses from a multidisciplinary university in Jaipur. The age range of the sample was between 18 to 25 years. After the administration of assessment, battery scoring was done as per the manual and raw data was statistically analyzed using SPSS version 20. The results of Pearson correlation revealed a significant finding. Sleep quality showed significantly negative relation with agreeableness whereas it showed significantly positive relation with neuroticism personality traits among males, females and young adults (higher scores indicate poor sleep quality).

Keywords: *Big Five Personality Traits, Sleep Quality*

According to WHO (2018), in the year 2016, out of 57 million death, an estimated 41 million death occurred due to non-communicable disease and mental health problems. In 2018 National Health Profile (NHP) published by Government of India, stated that India has one among the large share of the burden of the world's disease burden. Looking at the health status of the world's population and Indian population, it's a high time to extend a hand towards the prevailing health problems in the society.

In every country, Youth serves as a precious human resource. That's why the present study has been conducted on young adults. Several authors use the terms, late adolescent or young adult, when discussing various issues like mental health concerning or other health determinant indicators between 18-25 years old (Gore et al., 2011; Sawyer et al., 2012). This study uses the terms of young adults or university students to refer to this age group.

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The main aim of the present study is to examine the relationship between big five personality traits and sleep quality among young adults. "Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristics behaviour and thought" (Allport, 1961). This is the most well-known definition of personality. Along with that American Psychological Association (APA) in 2017 defined personality as "individual differences in characteristic patterns of thinking, feeling and behaving." Evidence has suggested that adult personality remains stable over a longer period of time (Watten, Vassend, Syversen & Myhrer, 1995). This study has been focusing on the young adults, as sleep problems are also one of the most common issues facing by university students or young adults which may lead to many other problems such as, narcolepsy, insomnia, circadian rhythm disorder, hypersomnia, daytime sleepiness, sleepwalking, nightmares and so on. Improper sleep patterns and inadequate sleep quality may also be associated with reduced cognitive performance, decreased attention, stress, anxiety, depression, poor academic performance, drowsy driving, fatigue, in short, deterioration of overall health of an individual. To overcome this problem, one has to understand and assess the severity of the issue. Through this study evaluation of the association of big-five personality traits and sleep quality can be done, which can be further used in planning and implementing the sleep-related interventions.

REVIEW OF LITERATURE

The current study is aimed to present an extensive review of research studies, which are directly or indirectly related to the variables of the study. Since the present investigation was carried out to study the relationship between big five personality traits and sleep quality among young adults, the literature related to this topic was extensively reviewed.

In a study conducted by Gray and Watson (2002) on undergraduate students for assessing the relationship between big five personality traits and sleep. Along with big five personality traits, positive and negative affectivity was also assessed. Findings of the study revealed that there was no significance between sleep quantity and big five personality traits but positive affectivity was significantly associated with sleep quality. Neuroticism and negative affectivity were negatively associated with sleep quality. Extraversion and conscientiousness were modestly associated with sleep quality. On the basis of sleep schedule, only conscientiousness was associated. There was no significance found on any sleep measures by personality traits: agreeableness and openness to experiences.

A cross-sectional study was done on 1,406 young women (18-40 years) from the non-clinical population. The main objective of the study was to examine the association between personality traits and sleep quality. Tools used were the Pittsburgh Sleep Quality Index (PSQI) and the Revised NEO Personality Inventory. Behavioural and demographic variables were adjusted for analysis. Findings of the study revealed that neuroticism was strongly related to PSQI global scores. On the contrary, because most variances was shared with other personality traits, conscientiousness showed a near-zero beat weight in a linear regression model. On logistic regression model, conscientiousness was a strong predictor of poor sleep quality. It was also found that conscientiousness was also correlated with sleep quality i.e., high conscientiousness leads to good sleep quality. It was concluded that personality factors can be a predictor of sleep quality and it would be better to consider personality traits during sleep intervention among young women (Kim, Cho, Chang, Ryu, Shin & Kim, 2015).
Another longitudinal study was done on four samples of middle age and older adults (30-107 years) along with baseline and over 4 to 10 years later. From Wisconsin Longitudinal Study

(WLS), Health and Retirement Study (HRS), Midlife in the United States Study (MIDUS) and Midlife in Japan Study (MIDJA), more than 22,000 participants were involved in the study. Findings of the study revealed that during the baseline period lower neuroticism and higher extraversion were associated with better sleep quality. Over time it was found that low conscientiousness was associated with poor sleep quality. There was no significant effect found in agreeableness and openness. At the time of baseline, it was found that poor sleep quality was associated with a decline in agreeableness, extraversion, conscientiousness and a smaller decrease in neuroticism overtime. It was concluded that personality traits have an association with sleep quality (Stephan, Sutin, Bayard, Križan & Terracciano, 2018).

METHODOLOGY

Inclusion Criteria:

1. College-going students age ranging from 18-25 years will be considered.
2. Non-professional regular college going adults will be considered**.**

Exclusion Criteria:

1. Married adults will not be considered.
2. Professional or working adults will not be considered.

Objectives:

Based on the research gaps identified in the literature review, the objectives of the study can be stated as follows:

1. To study the relationship of big five personality traits with sleep quality among young adult males.
2. To examine the relationship of big five personality traits with sleep quality among young adult females.
3. To examine the relationship between big five personality traits with sleep quality among young adults.

Hypotheses:

In order to achieve these objectives, the following hypotheses were formulated:

1. There will be a significant relationship between the big five personality traits and sleep quality among young adult males.
2. There will be a significant relationship between the big five personality traits and sleep quality among young adult females.
3. There will be a significant relationship between the big five personality traits and sleep quality among young adults.

Sample Design and Sample Size:

The sample size for the study is 154. The sample comprises of college students between the age of 18-25 year at Jaipur. The sampling method used is convenience sampling. Data was collected from the formal and known sources of college students. Out of 160 samples, 154 complete questionnaires (males= 75 and females= 79) were considered as the remaining were incomplete to the extent that they had to be rejected.

Table 1: Demographic Distribution of Study Sample (N=154)

Demographic Info.	Male		Female		Total	
	n (75)	n%	n (79)	n%	N (154)	N%
Age (years)						
22-25	18	24%	19	24.05%	37	24.02%
18-21	58	77.33%	59	74.68%	117	75.97%
Education						
Undergraduate	37	49.33%	53	67.08%	90	58.44%
Postgraduate	6	8%	14	17.72%	20	12.98%
Professional course	33	44%	11	13.92%	44	28.57%

Instruments

Two measures were used in this study,

1) **The Pittsburgh Sleep Quality Index (PSQI)- (Buysse et.al., 1988):** Sleep is an important aspect of maintaining the body's circadian rhythm. The PSQI is an effective tool to measure the quality and patterns of sleep among older adults. It was developed in 1988 by Buysse and his colleagues at the University of Pittsburgh and is intended to be a standardized sleep questionnaire for clinicians and researchers to use with ease. The scale consists of 19 individual items, creating 7 components that produce one global score, and takes 5–10 minutes to complete. It differentiates "poor" from "good" sleep by measuring seven domains or components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction over the last month. The client self-rates each of these seven areas of sleep.
   Scoring: Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the Likert Scale. A global sum of "5" or greater indicates a "poor" sleeper. The global PSQI score is then calculated by totaling the seven component scores, providing an overall score ranging from 0 to 21, where lower scores denote a healthier sleep quality (Buysse, Reynolds III, Monk, Berman & Kupfer, 1989).

2) **Brief Big Five Personality Inventory-10 (BFI-10)- (John, Donahue & Kentle, 1991):** The BFI-10 is a 10-item scale measuring the Big Five personality traits Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. The scale was developed based on the 44-item Big Five Inventory and designed for contexts in which respondents' time is severely limited. Items were selected that they (1) measure core, but not redundant aspects of the Big Five factors, (2) show simple-structure of factor loadings, (3) represent each factor with one positively and one negatively keyed item, and (4) have an identical meaning in English and German.
   Scoring: The scoring of the 10 item responses was recorded on a 5-point Likert scale ranging from 'Disagree Strongly' to 'Agree Strongly'. Scores for each domain has been recorded in which one item out of two is recorded (Rammstedt & John, 2007).

Procedure

A survey study was done using an assessment battery consisted of demographic information form, The Pittsburgh Sleep Quality Index and Brief Big-Five Personality Inventory-10 (BFI-10). All participants in the survey study were involved voluntarily. A rapport formation was done before the conduction of the study. The purpose of the study and instructions were provided to them during the brief session. Also, assurance of the maintenance of confidentiality was given to them. As there was no privacy hindrance information or any harm to human subjects involved in the study that's why there was no requirement of taking permission from the ethical committee for conduction of the survey study. But to maintain ethical grounds, written consent was given to the subjects and they were told that they are allowed to leave the study at any point in time.

After the completion of the battery assessment, all responses were checked and debriefing was given to the subjects. And those who asked for their report were assured to get them as soon as possible.

Data Analysis:

The data collected with the help of the questionnaire was analysed with the help of the statistical package SPSS 20. Descriptive statistics like mean and standard deviation were used. Pearson correlation was also calculated to examine the relationship between the variables (big five personality traits and sleep quality).

RESULTS

Descriptive Statistics of the Mean and Standard Deviation of Variables of the Study

Table No. 2: Descriptive Statistics of the Mean and Standard Deviation of Variables Among Males, Females and Total Sample.

Variables	Domains	Total males (n=75)		Total Females (n=79)		Total Sample (N=154)	
		M	SD	M	SD	M	SD
	Sleep Quality	5.51	3.19	5.73	2.83	5.62	3.00
	Extraversion	6.35	2.12	6.54	1.92	6.45	2.02
Personality	Agreeableness	6.88	1.49	7.84	1.46	7.37	1.55
Traits	Conscientiousness	6.21	1.85	6.43	1.57	6.32	1.71
	Neuroticism	5.16	2.03	5.72	1.97	5.45	2.01
	Openness	6.59	1.26	6.42	1.26	6.50	1.26

Table 2 represents the mean and standard deviation of big five personality traits and sleep quality among males, females and total adult sample of the study.

The descriptive statistics also revealed the mean values of sleep quality scores i.e., male participants (M=5.51, SD= 3.19), female participants (M=5.73, SD=2.83) and total sample (M=5.62, SD= 3.00) in the study. Here, mean scores of females are greater than males and the total sample.

Descriptive statistics results also showed the mean values of personality traits scores presented in the study. Mean values of male participants in the study were- extraversion (M= 6.35, SD = 2.12), agreeableness (M= 6.88, SD= 1.49), conscientiousness (M= 6.21, SD= 1.85), neuroticism (M= 5.16, SD= 2.03) and openness to experience (M= 6.59, SD= 1.26). Out of all, mean scores of agreeableness and openness to experience are higher as compare to others among males. Mean values of female participants in the study were- extraversion (M=

6.54, SD = 1.92), agreeableness (M= 7.84, SD= 1.46), conscientiousness (M= 6.43, SD= 1.57), neuroticism (M= 5.72, SD= 1.97) and openness to experience (M= 6.42, SD= 1.26). Out of all personality traits, agreeableness and extraversion showed higher mean scores as compared to other personality traits among females. Mean values of male participants in the study were- extraversion (M= 6.45, SD = 2.02), agreeableness (M= 7.37, SD= 1.55), conscientiousness (M= 6.32, SD= 1.71), neuroticism (M= 5.45, SD= 2.01) and openness to experience (M= 6.50, SD= 1.26). Out of all personality traits, agreeableness and openness to experience showed higher mean values as compared to other personality traits. In addition, agreeableness consistently showed higher mean scores as compared to other personality traits among males, females and young adults.

Hypotheses:

1.1 There will be a significant relationship between big five personality traits and sleep quality among young adult males.

Table 3: Bivariate Correlation Between Sleep Quality and Big Five Personality Traits among Young Males

Variables	Sleep Quality
Extraversion	-.17
Agreeableness	-.27*
Conscientiousness	-.20
Neuroticism	.48**
Openness to experience	-.03

Note: * Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Table 3 represents the bivariate correlation between big five personality traits and physical health-related quality of life on the basis of sleep quality among young adult males. In the present study, higher scores indicate poor sleep quality. By the result analysis, it can be observed that except agreeableness and neuroticism, there are no other personality traits (Viz. extraversion, conscientiousness and openness to experience) significantly related to sleep quality. Agreeableness ($r = -.27$, $p<0.05$) is negatively significant to poor sleep quality in the present study. In addition to that, neuroticism ($r = .48$, $p<0.01$) is positively significant related to poor sleep quality among young male sample presented in the study. Results indicate that the above hypothesis has been proved in the present study.

Gray and Watson (2002) conducted a study on undergraduate students with an aim to assess the relationship between personality traits and sleep. Tools used were PSQI, SPAS, and NEO-PI which are also relatable with the present study. Findings of the study revealed that neuroticism and negative affectivity were negatively associated with sleep quality. Extraversion and conscientiousness were modestly associated with sleep quality. There was no significance found on any sleep measures by personality traits: agreeableness and openness to experiences. Similar to that, in the present study neuroticism is negatively significant with poor sleep quality. In addition, extraversion and conscientiousness are moderately associated with sleep quality but not significant. Openness to experiences showed lower scores like the above mentioned study. On the contrary, agreeableness is negatively associated with poor sleep quality in the present study. Probable reasons for the discrepancies between present study and above-mentioned study can be the difference in mean values of the sample, sample size (sample size of undergraduate students was not mentioned in the above

study quoted), age range, use of different tools for assessment, and no description of male and female ratio involved in the study.

1.2 There will be a significant relationship between big five personality traits and sleep quality among young adult females.

Table 4: Bivariate Correlation Between Sleep Quality and Big Five Personality Traits among Young Females

Variables	Sleep Quality
Extraversion	-.11
Agreeableness	-.28*
Conscientiousness	-.09
Neuroticism	.35**
Openness to experience	-.12

Note: * Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Table 4 represents the bivariate correlation between big five personality traits and physical health-related quality of life on the basis of sleep quality among young adult females. In the present study, higher scores indicate poorer sleep quality. The results showed that, except agreeableness and neuroticism, no other personality trait is significantly related to sleep quality. Hence, agreeableness is negatively related to poor sleep quality ($r = -.28$, $p<0.05$) among females in a present study. In addition, neuroticism also showed a significantly positive relation with poor sleep quality ($r= .35$, $p<0.01$) among female sample presented in the study. Results indicate that the above hypothesis has been proved in the present study.

Similar to that of an above-mentioned study conducted by Gray and Watson (2002) on undergraduate students, the present study also showed a significantly positive relation of neuroticism and poor sleep quality. There is no significant relationship between openness to experience and sleep quality. On the contrary, unlike above-mentioned study agreeableness showed significantly negative relation with poor sleep quality and extraversion and conscientiousness are not moderately associated with sleep quality. Few discrepancies are present between above-mentioned studies and the present study, probable reasons can be the sample size, age range and difference in assessment tools.

1.3 There will be a significant relationship between the big five personality traits and sleep quality among young adults.

Table 5: Bivariate Correlation Between Sleep Quality and Big Five Personality Traits among Young Adults

Variables	Sleep Quality
Extraversion	-.14
Agreeableness	-.25**
Conscientiousness	-.15
Neuroticism	.42**
Openness to experience	-.08

Note: * Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Table 5 represents the bivariate correlation between big five personality traits and physical health-related quality of life on the basis of sleep quality among young adults. The results showed that, except agreeableness and neuroticism, no other personality trait is significantly related to sleep quality. Hence, agreeableness is negatively related to poor sleep quality ($r = -.25$, $p<0.01$) among adults in a present study. In addition, neuroticism also showed a

significantly positive relation with poor sleep quality (r= .42, p<0.01) among adult sample presented in the study. Results indicate that the above hypothesis has been proved in the present study.

Similar to that ofan above-mentioned study conducted by Gray and Watson (2002) on undergraduate student neuroticism showed a significantly positive relationship with poor sleep quality. Extraversion and conscientiousness showed a modest but not significant relationship with sleep quality. Openness to experience also showed no significant relation with sleep quality. On the contrary, unlike above-mentioned study agreeableness showed a significantly negative association with sleep quality. Probable reasons for the discrepancies present have already been discussed above.

DISCUSSION & CONCLUSION

Major Finding:

- Sleep quality has indicated significantly negative relation with agreeableness whereas it showed significantly positive relation with neuroticism personality traits among males, females and young adults (higher scores indicate poor sleep quality).

Conclusion:

On the basis of obtained results, it may be concluded that big five personality traits have an association with sleep quality among young adults in the present study. Hence, the major finding of the study indicated that it is supporting the formulated hypotheses of the study.

Limitations of the study:

This study has the following limitations:

- All data collected was self-reported by the subjects. Self-reported assessments have certain limitations i.e., subject biases, social desirability, introspective ability and so on.
- All data were collected through a convenience sampling method because of which generalization of the study become limited.
- Sample size taken for the study was a small representative sample of the population due to which generalization becomes limited.
- The present study was based on the quantitative method due to which qualitative analysis of the subjects was not done.
- The limited heterogeneity in the respondent's demographic characteristics could have affected both the nature and the extent of the predictor variables attached to the study.
- Data collection of the present study was time-consuming process as the majority of data was collected in a classroom setting.

Further Recommendations and Future Implications:

- This study can be helpful while planning and implementing prevention and interventions strategies related to young adults.
- With the help of this study, it can use to consider big five personality traits while implementing prevention and intervention techniques among young adults.
- This study can also be useful for professionals working in multidisciplinary approaches like clinicians, psychologists, counselors, health-care service providers, program implementer, college administrators, student welfare program developers and so on.

- Based on the research gaps identified in the review of literature it has been suggested that future researches should focus more on the non-clinical population as well especially while considering health.
- This type of study can also be conducted on a group of adolescence as they have rapid changes in their lifestyle factors (sleep quality, eating behavior, health related-quality of life) and modulation in the personality traits can also be done with the help of planning intervention techniques for maladaptive behavior.

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Conflict of Interest
The authors carefully declare this paper to bear not a conflict of interests

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