

Impact of Socio-Demographic Characteristics on Sleep Quality and Health of Insomnia Patients

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Abstract

Background: Socio-demographic characteristics has impact on the sleep quality and health among insomnia patients.

Objectives: The present research aimed to determine the effect of socio-demographic characteristics on sleep quality and health among insomnia patients.

Study design, settings and duration: This cross-sectional study was carried out at Gilgit, Pakistan from February 2016 to February 2017.

Patients and Methods: In the current study, data of 200 insomnia patients were collected by scales including Insomnia Severity Index, Pittsburgh Sleep Quality Index, and Health Status Questionnaire (SF-36) through purposive sampling technique. The data analysis was carried out by using SPSS (Version-22). Independent sample t test and one way ANOVA were used to test the assumptions.

Results: Results revealed that female insomnia patients had better sleep quality, $t(198) = 3.21$, p -value < 0.01 , as compared to males, while males had better overall physical and mental health $t(198) = 2.69$, p -value < 0.05 . Young adults had better sleep quality $t(198) = 2.34$, p -value < 0.05 , and physical functioning $t(198) = 2.02$, p -value < 0.05 as compared to late adolescents. More educated insomnia patients had better sleep quality $t(198) = 2.11$, p -value < 0.05 , physical functioning $t(198) = 2.14$, p -value < 0.05 and overall physical and mental health $t(198) = 2.77$, p -value < 0.05 whereas less educated patients had better vitality level $t(198) = 2.22$, p -value < 0.05 . Moreover the results revealed that insomnia patients with rural background had better physical functioning $t(198) = 2.55$, p -value < 0.05 whereas patients with urban background had better overall physical and mental health $t(198) = 4.12$, p -value < 0.05 .

Conclusion: Socio-demographic factors, like age, gender, education and residential status, greatly influence the level of sleep quality and health among insomnia patients.

Key words: Sleep quality, health, socio demographic characteristics.

Introduction

The health status of every individual is associated to his/her sleep quality; the patients of insomnia have distorted sleep quality, which has consequences on their health. Some of the studies

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MT & MAR conceptualized the project. MT, HY & MNR did the data collection. HY did the literature search. Statistical analysis was done by NB.

indicate that insomnia is more prevalent in females as compared to males. However, a study in 2001 revealed that no such gender specific differences exist regarding insomnia.¹ Many of the studies recognized that insomnia is predominant in women as compared to males.² Similarly, a report indicates that the monthly cycle of menses in females is the basic gender difference among men and women could be a reason for women to not able to maintain sleep or no restorative sleep symptom of insomnia.³ The higher correlation of insomnia with women is due to another factor, which is the psychiatric disorders that are more likely to be occur in women.⁴ According to the biomedical studies, men and women differ in their hormonal and psychological characteristics.⁴

Age related differences indicate that there are differences in the duration of sleep and health

across all age groups of people, with the passage of age the patterns and the duration also change. With the maturation of a child, they adopt the sleep patterns of adults. As the children grow mature, visible changes in their physical structure and sleep structure occurs as the quality of rapid eye movement sleep decreases from birth to early childhood (50%) through the early childhood to adulthood (25-30%). However, the slow wave sleep declines after puberty and continues through lifespan. Many researchers suggested that the average of the sleep of an adult is 7-8 hours per night, but the average of adolescent sleep duration is 9 hours and many of them get less than 8 hours sleep per night due to school. Many recent researchers reported that there is association between short self-reported sleep duration and increased risk for diabetes and heart disease.⁵

Researches reveal that there is a relationship between education level sleep, quality and health. Research findings also indicate that those persons who have a good academic background or education they are less likely to report any past diagnosis of acute or chronic diseases. The intensity of the association between the level of education and health differs across conditions. The more education decreases the risk of heart disease by 2.2% and diabetes by 1.3%. The four more years of formal education decreases the chances of reporting of being good and poor health by 6%. Those individuals who have more than four years of education also reported good level of sleep and health status.⁶

Among men and women, the effects of education are almost same but yet it is not clear that the differences among them are caused by any biological sex differences or the differences based on their behavior patterns.⁷ The epidemiological studies have consistent findings that the quality of sleep is predicted by the social position. Especially those people having a low socio-economic status have difficulty falling and staying a sleep. They wake-up early in the morning and have sleeplessness during the day time as compared to those with higher socio-economic status.⁸ The health status is also correlated with the sleeping hours. The health related outcomes are positively correlated with the more sleeping hours.⁹ Researches indicate that less amount of sleep hours influence the health related outcomes of individual. Patient with distorted sleep and sleep disturbance is associated with their poor well-being.¹⁰

Socio demographic factors directly and indirectly affects the level of sleep quality and health of insomnia patients. Previous research also

highlights the importance of these factors.¹¹ However, it has been consistently seen that importance of these factors with respect to sleep quality has been ignored by insomnia patients. The availability of research on the importance of socio demographic factors for sleep quality as well as for health is also limited especially in indigenous context. Therefore, current research is an effort to highlight the importance of socio demographic factors for the improvement of sleep quality and health among insomnia patients in the context of Pakistan.

Patients and Methods

In the present study, insomnia patients with age range 16-40 years were included. Young adults were selected and research indicates that the late adolescence (i.e., 16-18) and young adulthood (i.e., 18-40) is the period of strength and physical performance. The age cutoff for the current sample was young adulthood i.e. 16 to 32 years.^{12,13}

Late adolescents and young adults were compared on education levels of 2 years of formal education i.e., 11-12 years of formal education, 13-14 years of formal education. Late adolescents and young adults were selected and research indicates that the late adolescence and young adulthood (i.e., 18-39) is the period of strength and physical performance. A previously developed socioeconomic status measuring questionnaire was used as instrument of the study. It was comprised of ten factors of socio-economic status. The factors included parental education, monthly income, parents' occupation, family size, residence, facilities, transportation and property.¹⁴ Other medical causes of insomnia like drug history, stress, pain etc. were not evaluated.

The criteria for inclusion was a) males and females aged 16-40 years, b) able to give informed written consent, c) having symptoms of insomnia disorder as per the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders for Insomnia Disorder, and d) Insomnia Severity Index scale scores of 15 or more. However, a) pregnant or lactating females, b) history of significant aggression or violence or exhibits homicidal ideation, c) shift workers who rotate to night shift, d) drug addicts or alcohol drinkers, and e) patients above the age of 41 were excluded from the study.

Data was collected from Gilgit through purposive sampling strategy and analyzed by SPSS (Version-20). The sample was sufficient and was estimated by G Power software. G Power statistics estimated that for the effect size of 0.45, the

minimum total sample size required is 100 for independent sample t test and one way ANOVA. The power of the study was investigated by putting the effect size of 0.45. It was found that the sampling power of the current study was 0.8027 which was acceptable. For data analysis, parametric statistics were used for all study variables. The data was collected by 3 likert type scales including Insomnia Severity Index, Pittsburgh Sleep Quality Index, and Health Status Questionnaire (SF-36).

Level of insomnia was measured by Insomnia Severity Index. The scale was designed to assess the nature, severity, and impact of insomnia and monitor treatment response in adults. It was a 5 point Likert scale (0=no problem, 4=very severe problem). Its reliability was 0.90 and 0.91. Sleep quality was measured by using the Pittsburgh Sleep Quality Index. It differentiates "poor" from "good" sleep by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction over the last month. A total score of "5" or greater was indicative of poor sleep quality among adults. Health was measured by RAND Health Status Questionnaire (SF-36). RAND developed the 36-Item Short Form Health Survey (SF-36). SF-36 is a set of generic, coherent, and easily administered quality-of-life measures. Physical functioning (items: 3 4 5 6 7 8 9 10 11 12), general health (items: 1 33 34 35 36), vitality (items: 21, 23, 29, 31) were measured by this questionnaire on the given item numbers. Higher scores on these subscales indicate higher level of Physical functioning, general health, and vitality. All the scales used in the study are reliable and valid.¹⁵⁻¹⁷

The data was collected from the hospitals of Gilgit. DHQ Hospital, CMH Hospital and City Hospital were selected for data collection. First of all, the researcher approached the hospital management to take permission to collect the data from the participants. Permission was also taken from the participants themselves. After taking the permission from the institution and from the participants, the researcher collected the data from the participants. The ethical consideration including confidentiality of the information was handled by the

researcher. The ethical declaration was provided by the Department of Behavioral Sciences, Karakoram International University, Gilgit-Baltistan.

Results

Results of the Table-1 indicated that female insomnia patients exhibit better sleep quality (26.45 ± 7.32 , $p < .01$) whereas male insomnia patients exhibit better overall physical and mental health (11.21 ± 1.98 , $p < .05$).

Results of the Table-2 indicated that young adults (age range 18-40 years) exhibit better sleep quality and physical functioning (24.72 ± 6.58 , $p < .05$) as compared to late adolescents (age range 16-18 years).

Results of the Table-3 indicated that insomnia patients with 18 years of formal education (i.e., M.Phil.) exhibits better sleep quality (28.23 ± 7.12 , $p < .05$) and physical functioning (23.78 ± 4.10 , $p < .05$). Insomnia patients with 12 years of formal education (i.e., Intermediate) exhibits better vitality (14.00 ± 3.12 , $p < .05$). Moreover results indicated that insomnia patients with 16 years of formal education (i.e., Masters) exhibits better overall physical and mental health (12.00 ± 3.12 , $p < .05$).

Results of the Table-4 indicated that insomnia patients having rural background exhibits better physical functioning (30.32 ± 8.78 , $p < .05$) whereas insomnia patients having urban background exhibits better overall physical and mental health (12.36 ± 2.20 , $p < .05$).

Discussion

Findings of the current study indicated that females experienced better sleep quality as compared to males. The current findings are supported by the past evidences.^{2,18} Researches related to the biomedical studies also agreed that there are psychological and hormonal variations exist for both sexes and there is greater pervasiveness in females to exhibits longer sleep.¹⁹ Majority of the research findings suggest that females experienced longer sleep compared to males. Moreover current findings

Table 1: Role of gender in sleep quality, physical functioning, vitality, and overall physical and mental health.

Study Variables	Males (n=100)	Females (n=100)	t(198)	p-value	Cohen's d
	M (SD)	M (SD)			
Sleep quality	26.45 (7.32)	26.89 (4.41)	3.21	0.00	1.66
Physical functioning	20.24 (3.21)	21.31 (3.01)	0.51	0.78	0.45
Vitality	11.24 (2.51)	12.32 (2.62)	1.14	0.61	0.72
Overall physical and mental health	11.21 (1.98)	10.02 (1.82)	2.69	0.03	0.78

Table 2: Role of age in sleep quality, physical functioning, vitality, and overall physical and mental health.

Study Variables	Age Range (16-18 years)	Age Range (18-40 years)	t (198)	p-value	Cohen's d
	(n = 100)	(n = 100)			
	M (SD)	M (SD)			
Sleep quality	24.72 (6.58)	27.02 (7.32)	2.34	.02	.70
Physical functioning	20.69 (3.78)	22.99 (2.67)	2.02	.03	1.10
Vitality	12.56 (2.45)	11.34 (2.34)	.92	.56	.80
Overall physical and mental health	11.45 (2.36)	11.36 (2.22)	.78	.45	.45

Table 3: Role of education level in sleep quality, physical functioning, vitality and, overall physical and mental health.

Study Variables	12 Years of	14 Years of	16 Years of	18 Years of	F	p-value
	Formal	Formal	Formal	Formal		
	Education	Education	Education	Education		
	(n = 70)	(n = 50)	(n = 45)	(n = 35)		
	M (SD)	M (SD)	M (SD)	M (SD)		
Sleep quality	26.45 (6.48)	27.12 (6.60)	26.22 (6.51)	28.23 (7.12)	2.11	.04
Physical functioning	19.99 (3.12)	20.45 (3.67)	22.67 (3.45)	23.78 (4.10)	2.14	.03
Vitality	14.00 (3.12)	12.33 (2.29)	12.45 (2.11)	13.23 (2.98)	2.22	.03
Overall physical and mental health	10.27 (1.14)	11.12 (2.22)	12.00 (3.12)	9.11 (1.56)	2.77	.02

Table 4: Role of residential status in sleep quality, physical functioning, vitality and, overall physical and mental health.

Study Variables	Rural	Urban	t (198)	p-value	Cohen's d
	(n = 120)	(n = 80)			
	M(SD)	M(SD)			
Sleep quality	20.12 (3.89)	20.02 (3.39)	.22	.67	.02
Physical functioning	30.32 (8.78)	28.12 (7.22)	2.55	.03	.27
Vitality	12.12 (3.12)	11.01 (1.89)	.89	.54	.43
Overall physical and mental health	11.12 (2.01)	12.24 (2.20)	4.12	.01	.53

indicated that males have better overall physical and mental health.²⁰ Researches on insomnia and other associated psychological disorders which are prevalent among women showed that women are more vulnerable to depression, and anxiety which are integrated with their deprived sleep quality.²¹

Age differences were also investigated in the current study. The current findings revealed that the sleep quality and physical functioning was higher among young adults. The common usual duration of sleep hours and sleep patterns vary with age. A past research showed the differences in sleep duration and health status across all age groups. As the children grow up, their sleep pattern changes like adults. The investigation suggests that with aging and growing up the sleep structure, sleep quality and sleep timing are being changed.²² A study revealed that better sleep quality is associated with young age as compared to older age.²³

Findings of the current research indicated more sleep quality in highly educated adults. Some findings also show that to some extent health status is affected by the education.²³ Some studies recognize that self-reported health status increases

with the education, whereas some investigations revealed that there is no effect of education on health status.^{24,25} Researches provide clear evidence of the correlation between education, health status and sleep but it is not completely defined by the indicators of socio economic status, employment, or family background. Another research also showed that those individuals who have higher level of education reported less amount of any acute or chronic disease.²⁶ They also reported that they have fewer chances to die from the most common acute or chronic diseases and they reported less depression and anxiety.²⁷ However less educated were higher on vitality level. This might be due to the younger individuals might have better nutrition level than older which effects on vitality level. In another study, it was found that 98% of young children and 97% of school going children had better nutrition level.²⁸

Findings of the current study also revealed the difference based on the residential status in study variables. The current research findings also showed that insomnia patients with having rural background exhibits better physical functioning

whereas insomnia patients having urban background exhibits better overall physical and mental health. There is lack of research work available in this context and most of studies conducted among older adults.^{29,30} In another study, it was found that environmental problems are also associated with the physical functioning of insomnia patients.³⁰ In the current study, insomnia patients in urban area had better physical and mental health which may be due to the fact that availability of treatment is better in cities and urban areas and sometimes many insomnia patients do not reported their problems. In a study, it was found that current smokers and drinkers were less likely to report any type of insomnia in the rural sample.³¹

Socio demographic factors also play an important role in the development of sleep quality and health. Findings of the current study indicated that insomnia patients exhibits better sleep quality who were females, young adults with age range of 18 to 40 years, and having 18 years of formal education (i.e., MPhil level). Insomnia patients exhibit better physical functioning who were young adults, having 18 years of formal education (i.e., MPhil level) and having urban background. Insomnia patients exhibit better vitality that have 12 years of formal education (i.e., intermediate level). Insomnia patients that exhibit better overall physical and mental health were males, having 16 years of formal education (i.e., master's level) and urban background.

Conflict of interest: None declared by any co-authors.

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