



# Sleep Quality and Mental Disorders and Related Factors in Pakistan

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## Abstract

**Objective:** To explore the relationship between sleep quality and mental disorders and its related factors in Pakistani, and to provide a reference for the prevention and intervention of psychological disorders in various populations. **Methods:** The random cluster sampling method was used to stratify 15,000 healthy people in all provinces and cities. The Pakistani Sleep Disorder Scale and the Pakistani Mental Illness Prediction Scale were distributed. The data were analyzed by SPSS 18.0 and independent sample *t*-test, correlation analysis and regression analysis. **Findings:** The scores of personality introversion and personality shift factors in urban populations were significantly higher than those in rural populations ( $p < 0.05$  or  $0.01$ ). The urban–rural differences in other mental health factors were not significant ( $p > 0.05$ ). The scores of the single-child mental health factors were significantly lower for non-only children ( $p < 0.01$ ); the scores of various factors on the mental health of married people were significantly higher than those of unmarried people ( $p < 0.01$ ). There was a significant positive correlation between sleep quality and mental disorders in Pakistani ( $p < 0.01$ ,  $r = 0.339–0.541$ ). Daytime function (SD1), insomnia (SD2), drowsiness of the Pakistani Sleep Disorders Scale. The five factors (SD3), exercise paradoxical sleep (SD4) and non-exercise paradox sleep (SD5) all entered the regression equation of the total score of the Pakistani Mental Illness Prediction Scale ( $p = 0.005$ ), which could explain the variation of Pakistani mental disorders 38.8%. **Conclusion:** There

are some differences in sleep quality and mental disorders among different demographics, and sleep quality has a certain predictive effect on mental disorders.

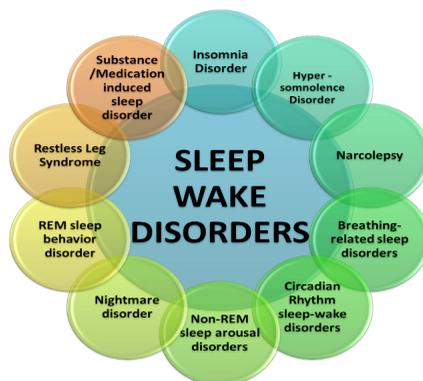
**Keywords:** Mental Disorders, Sleep Quality, Influencing Factors, Pakistani

## 1. Introduction

Symptoms of abnormal sleep and abnormal behavior during sleep are also manifestations of normal rhythmic alternation of sleep and awakening. It can be caused by a variety of factors, often related to physical illness, including sleep disorders and parasomnia. Sleep is closely related to human health. Surveys show that many people suffer from sleep disorders or sleep-related diseases, and the percentage of adults with sleep disorders is as high as 30%. Experts point out that sleep is an extremely important physiological function to maintain human life and is essential to the human body.

Sleep is divided into two periods based on changes in electroencephalographic recordings (EEG) and eye movement, namely non-rapid eye movement (HREM) and rapid eye movement (REM). During the non-rapid eye movement phase, muscle tone is reduced, and there is no obvious eye movement [1–4]. The EEG display is slow and synchronized. When awakened during this period, you feel tired and sleepy. During the fast eye movement period, muscle tension is significantly reduced, and rapid horizontal eye movements appear. The EEG shows a state similar to that during awakening. This period of arousal, clear consciousness, no sense of burnout, and colorful dreams appear during this period. Studies have found that the tail of the brainstem has a very important relationship with sleep and is considered to be the center of sleep. Various irritating lesions at this site cause excessive sleep, while destructive lesions cause reduced sleep. In addition, it was found that the central nervous medium is involved during sleep [5–10]. Stimulation of serotonergic neurons or injection of serotonin can produce non-rapid eye movement sleep, while serotonin antagonists give sleep reduction. With norepinephrine antagonists, sleep is reduced during fast eye movement, while sleep with norepinephrine agonists increases sleep during fast eye movement.

Figure 1 shows the detail comparison of symptoms of the disorder of sleeping. The prevention and treatment of mental disorders have become major public health issues and have received active attention from all walks of life. At present, the etiology and pathological mechanisms of mental disorders are not fully understood at home and abroad, but it is generally believed that mental disorders are the result of a combination of biological, psychological, and social factors. For example, researchers have found that schizophrenia has a clear genetic predisposition. Most patients have a family genetic history of the disease, or other personality and emotional disorders [11–13]; In addition, patients with depression, anxiety, pain, alcohol abuse, etc. Corresponding family history exists, and physiological and genetic factors play a role in it [14–17]; At the same time, individuals with family history of alcohol abuse have passivity HPA axis activity, have



**FIGURE 1.** Sleeping disorder main causes and relevant factors.

less reactivity to external stress, and have anti-social increasing tendency [18]. It is [19] found that social support is related to the negative symptoms and emotional problems of patients with mental illness; social support can also improve the depression symptoms of individuals, reduce the negative trauma cognition of PTSD patients, promote the recovery of PTSD, and reduce their recurrence [20–21]; And mental health is related to factors such as life events, socioeconomic development, self-efficacy, coping style, and bad personality traits [22–23].

Sleep disorder is a clinical psychosomatic disease that can be affected by a variety of factors and has a wide-ranging effect on an individual's physical and mental health. Studies have found that sleep disorder is associated with a variety of clinical mental illnesses, such as and found that 50.3% patients with eating disorders associated with sleep disorders [24] that most of the anxiety disorders are moderately related to decreased sleep quality. Compared with patients with simple anxiety disorders, the quality of life of individuals with anxiety disorders associated with sleep disorders is more obvious, and their psychosomatic functions are more severe [25]. The severity of the symptoms of impulsive disorder is related [26]; sleep at night in children with Williams's syndrome is reduced, and their sleep problems can predict the degree of language disorders in children with Williams's syndrome [27].

From the existing research, sleep quality can predict the physical and mental health of an individual to a certain extent. However, there is still no comprehensive research on the relationship between sleep quality and mental disorders and related factors at home and abroad. This study uses the Pakistani Sleep Disorder Scale and the Pakistani Mental Illness Prediction Scale as assessment tools to examine the relationship between sleep quality and mental disorders, which are reported below.

Sleep disorders are often caused by long-term ideological contradictions or mental overload, mental labor, long-term improper combination of work and rest, and weakness after illness. After suffering from this disease, the above reasons must first be lifted and work and life readjusted. Correctly understand the nature of the disease, the onset of which occurs slowly, the course of the disease is long, often repeated, but the prognosis is good. To relieve one's suspicion of "severe illness", participation in proper physical work and physical exercise can help recover from sleep disorders.

## 2. Material and Methods

### 2.1. Research Object

According to the data of the sixth national census (2011), according to the proportion of the population of the six administrative regions of Pakistan (1/100,000), the random cluster sampling method was used to sample 13,080 healthy people in 18 provinces and cities across the country. The Pakistani Sleep Disorder Scale and Pakistani Mental Illness Prediction Scale were issued. The test does not require filling in names to: 1) incomplete answer items; 2) continuous and random responses; 3) the cover-up scale score exceeds ( $\pm 1.96$  standard deviations) The invalid questionnaire was eliminated as a standard, and 12,260 valid samples were obtained, with an effective rate of 93.7%. Among them, 6265 are males (51.1%), 5995 are females (48.9%); 5129 are urban (41.8%), 7131 are rural (58.2%); only children 6028 (49.17%), and non-only children 6232 (50.83%).

### 2.2. Research Tools

#### 2.2.1. The Pakistani Sleep Disorder Scale

The Pakistani Sleep Disorder Scale was developed by Professor Zhang Liyi, etc. The scale includes daytime function (SD1), insomnia (SD2), drowsiness (SD3), exercise-related abnormal sleep (SD4), and non-motor-related abnormal sleep (SD5). Each of the five factors is scored at 4 levels, “never” at 0, “occasionally” at 1, “often” at 2 and “always” at 3. The higher the score, the worse the sleep quality. The Cronbach’s  $\alpha$  coefficient of the scale is 0.822, and the Cronbach’s  $\alpha$  coefficients of the five factors are 0.678, 0.658, 0.696, 0.674, and 0.395, respectively. The retest reliability is 0.865, and the retest correlation coefficients of each factor are 0.872, 0.834, 0.691, 0.664, and 0.635 ( $p < 0.01$ ) [28].

#### 2.2.2. The Pakistani Mental Illness Prediction Scale

The Pakistani Mental Illness Prediction Scale was developed by Professor Zhang Liyi and others. The scale family and past history (SH1), growth experience (SH2), personality introversion (SH3), stressors (SH4), and poor mental defense (SH5) 11 factors including lack of social support (SH6), personality shift (SH7), depression (SH8), mania (SH9), neurosis (SH10), and psychosis (SH11). Two levels of scoring are used. One point is answered for “yes” and 0 points for “no”. The higher the total score and the scores of the factors, the worse the mental health status and the higher the risk of mental illness. The retest correlation coefficient of the total table is 0.803, and the retest correlation coefficient of each factor is 0.601–0.737 ( $p < 0.01$ ). There was a significant correlation between the various factors of the Pakistani Mental Illness Prediction Scale, with a correlation coefficient of 0.512–0.948 ( $p < 0.01$ ), a significant correlation between the total score and each factor, and a correlation coefficient of 0.673–0.961 ( $p < 0.01$ ). Except for neurosis and stressor factors, the Pakistani Mental Illness Prediction Scale was significantly positively correlated with each factor score of the Pakistani Military Mental Health Scale, with correlation coefficients ranging from 0.362 to 0.618 ( $p < 0.05$  or  $p < 0.01$ ) [29]. The reliability and validity of the above two scales are consistent with the principles of psychometrics.

### 2.3. Test Method

The test methods are group-tested by trained professionals. All tests are informed and approved by the hospital ethics committee. Uniform guidelines were used during the test. In order to protect the privacy of the participants, the name is not required. Participants are required to fill in carefully according to their actual situation and complete it within the prescribed test time.

### 2.4. Statistical Methods

All data were statistically processed using SPSS 17.0. Descriptive statistical analysis, independent sample *t*-test, correlation analysis, and regression analysis were performed.  $p < 0.05$  was considered statistically significant.

## 3. Results

### 3.1. Analysis of Mental Disorders in Different Population Groups in Pakistan

Take urban and rural areas, only children and marital status as grouping variables, family and past history (SH1), growth experience (SH2), personality introversion (SH3), Stressors (SH4), Poor Mental Defense (SH5), Lack of Social Support (SH6), Personality Deviation (SH7), Depression (SH8), Mania (SH9), Neurosis (SH10), Psychosis (SH11) Wait for independent sample *t*-test for test variables. The results showed that the scores of personality introversion and personality shift factors were significantly higher in urban populations than in rural populations ( $p < 0.05$  or  $0.01$ ), and there were no significant differences in other mental health factor scores between urban and rural areas ( $p > 0.05$ ); It was significantly lower than that of non-only children ( $p < 0.01$ ); the scores of various factors on the mental health of married persons were significantly higher than those of unmarried persons ( $p < 0.01$ ). The results are shown in Table 1.

### 3.2. Correlation Analysis of Sleep Quality and Mental Disorders in Pakistani

The correlation analysis of Pearson's product difference between each factor of sleep disorders and each factor of mental disorders in Pakistan as shown in Figure 2. It was found that the sleep quality of Pakistani people was significantly positively related to mental disorders ( $p < 0.01$ ),  $r = 0.339-0.541$ . Shown in Table 2.

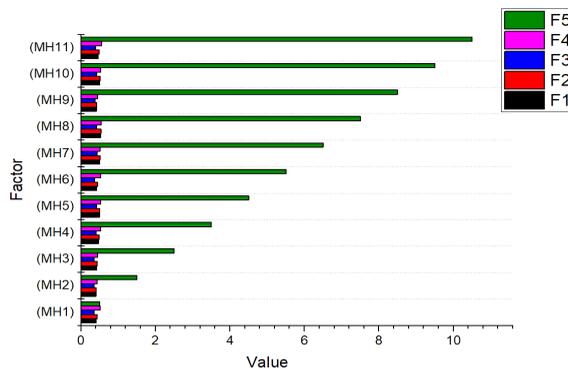
### 3.3. Multiple Regression Analysis of Factors Affecting Pakistani Mental Disorders

The multiple regression analysis was performed using the Pakistani Mental Illness Prediction Scale as a total of dependent variables, and each factor of sleep disorders as

**TABLE 1.** Comparison of mental disorders among different populations in Pakistan

Project	Urban and ruler		t value	Only child		t value	Marriage		t value
	City	Rural		Yes	No		Married	Unmar-ried	
(SH1)	1.88 ± 2.26	1.89 ± 2.25	-1.16	1.67 ± 1.96	1.19 ± 2.55	-9.87 <sup>b</sup>	1.58 ± 2.88	1.56 ± 1.77	-22.32 <sup>b</sup>
(SH2)	2.75 ± 2.82	2.75 ± 2.81	1.15	2.65 ± 2.61	2.85 ± 2.97	-5.53 <sup>b</sup>	2.19 ± 2.33	2.59 ± 2.67	-22.55 <sup>b</sup>
(SH3)	3.75 ± 3.52	3.61 ± 3.37	2.19 <sup>a</sup>	3.39 ± 3.15	3.92 ± 3.68	-7.95 <sup>b</sup>	5.77 ± 5.18	3.29 ± 2.95	-26.78 <sup>b</sup>
(SH5)	3.75 ± 5.76	3.66 ± 5.59	1.78	3.31 ± 5.96	5.12 ± 6.29	-6.65 <sup>b</sup>	5.12 ± 7.55	3.12 ± 5.52	-27.28 <sup>b</sup>
(SH5)	2.91 ± 5.22	2.92 ± 5.15	-1.23	2.71 ± 3.72	3.21 ± 5.36	-5.22 <sup>b</sup>	3.78 ± 5.21	2.59 ± 3.52	-25.22 <sup>b</sup>
(SH6)	2.52 ± 3.28	2.59 ± 3.26	-2.11	2.22 ± 2.89	2.88 ± 3.55	-21.77 <sup>b</sup>	2.58 ± 5.22	2.17 ± 2.65	-22.32 <sup>b</sup>
(SH7)	3.55 ± 3.81	3.32 ± 3.69	3.26 <sup>b</sup>	3.31 ± 3.27	3.59 ± 5.22	-2.71 <sup>b</sup>	3.95 ± 5.76	3.22 ± 3.18	-21.71 <sup>b</sup>
(SH8)	3.97 ± 5.59	3.92 ± 5.52	1.51	3.62 ± 5.93	5.23 ± 5.85	-5.95 <sup>b</sup>	5.25 ± 6.86	3.35 ± 5.52	-25.77 <sup>b</sup>
(SH9)	3.65 ± 3.72	3.52 ± 3.67	2.71	3.37 ± 3.23	3.72 ± 5.15	-5.21 <sup>b</sup>	5.26 ± 5.65	3.25 ± 3.15	-22.87 <sup>b</sup>
(SH21)	5.29 ± 5.52	5.21 ± 5.53	1.89	3.92 ± 5.95	5.32 ± 5.88	-5.11 <sup>b</sup>	5.27 ± 6.96	3.62 ± 5.52	-23.52 <sup>b</sup>
(SH22)	3.22 ± 5.89	3.19 ± 5.75	1.27	2.63 ± 5.25	3.52 ± 6.31	-7.98 <sup>b</sup>	5.75 ± 7.59	2.32 ± 5.61	-21.35 <sup>b</sup>

Note: <sup>a</sup> means  $p < 0.05$ , <sup>b</sup> means  $p < 0.01$ .



**FIGURE 2.** Correlation analysis of sleep quality and mental disorders in Pakistan (r).

independent variables. The results showed that the daytime function (SD1), insomnia (SD2), drowsiness (SD3), exercise abnormal sleep (SD4), and non-exercise abnormal sleep (SD5) all entered the Pakistani spirit. The regression equation of the disease prediction scale ( $p = 0.000$ ) can explain 38.8% of the variation of mental disorders in Pakistani, see Table 3.

**TABLE 2.** Correlation analysis of sleep quality and mental disorders in Pakistan (r)

Factor	F1	F2	F3	F4	F5
(SH1)	0.404	0.435	0.35	0.509	0.501
(SH2)	0.401	0.408	0.348	0.434	1.501
(SH3)	0.418	0.437	0.344	0.449	2.501
(SH4)	0.471	0.487	0.399	0.527	3.501
(SH5)	0.496	0.503	0.42	0.526	4.501
(SH6)	0.419	0.45	0.36	0.52	5.501
(SH7)	0.501	0.507	0.434	0.507	6.501
(SH8)	0.522	0.535	0.424	0.546	7.501
(SH9)	0.411	0.423	0.378	0.452	8.501
(SH10)	0.501	0.513	0.415	0.526	9.501
(SH11)	0.464	0.486	0.391	0.547	10.501

**TABLE 3.** Multiple regression analysis of factors affecting mental disorders in Pakistan

Dependent variable	Independent variable	B	Standard error	t value	p value	R <sup>2</sup>
Mental disorders	Day function	1.621	0.184	8.790	0.000	0.356
	Insomnia	0.955	0.141	6.778	0.000	
	Lethargy	0.747	0.172	4.330	0.000	
	Exercise paradoxical sleep	3.356	0.250	13.352	0.000	
	Non-exercise sleep	3.687	0.204	18.076	0.000	

## 4. Discussion

### 4.1. Analysis of Sleep Quality and Mental Disorders

In different demographic groups, sleep disorders can induce mental disorders such as depression and anxiety, and can affect the rehabilitation process and recurrence of mental disorders, which in turn affects the quality of life of individuals, and has received great attention from scholars from various countries [30–33]. Therefore, this study explores the relationship between Pakistani sleep quality and mental disorders and demographic variables, which is of great significance for revealing the psychopathological mechanism of mental disorders and constructing mental disorder prevention programs for different populations. At present, there is still no research on the differences in sleep status between only-children and non-only-children [34]. This study found that the only child's motor abnormal sleep and non-motor abnormal sleep factor scores were significantly lower than those of non-only children, that is, only children rarely occur. Motor and non-motor abnormal sleep disorders, motor sleep disorders (including night terrors, sleep paralysis, sleepwalking, restless leg symptoms, sleep-related eating behaviors, etc.) and non-motor abnormal sleep disorders (including moaning, molar, Dream talk, etc.) is a

neuro motor dysfunction, which is closely related to the types of neurodevelopment and nervous system activity. It may suggest that only-child families may pay more attention to eugenics and better parenting, and are superior to non-only children in terms of nutrition intake, lifestyle training, and parenting styles. Only children can reduce some of their sleep disturbances. In addition, this study found that the scores of sleepiness factors for only children are significantly higher than those of non-only children, that is, only children have more sleepiness than non-only children. Drowsiness manifests as excessive sleep, which is often related to psychological factors. At present, it is difficult to explain the reasons for the above differences, and further research is needed. Mental disorders for different demographic groups the analysis of the situation found that the introverted personality and personality shift factors of the urban population were significantly higher than those of the rural population that is, the urban population had more problems with personality. Related research shows that the environment Shaping personality traits. The urban–rural differences in personality traits are mainly related to the different cultural and economic environments in urban and rural areas. The intensified social competition and increased living pressure in cities can induce anxiety and depression, increase aggression and lack of self-confidence May lead to social fraud, sexual crime, and induce personality mutation [35–36]; People’s life circles are relatively narrow, which is likely to cause individuals to lack social support, avoid reality, and eventually induce personality problems. The scores of various factors of the only child’s mental disorders are significantly lower than those of the non-single child, indicating that the only child’s mental health is better, which may be related to the family environment of the only child, the educational level of the parents, and the parenting style. Married people’s mental disorder scores are significantly higher than those who are unmarried, that is, married people have a poorer mental health. Married people are generally older and their mental and physical functions are in a decline period; It is often the backbone of various industries that bear more work burdens and pressures, and at the same time bear the tasks of supporting the elderly, handling husband-wife relationships, and raising children, which easily puts married people in a chronic stress state and induces various mental problems.

## 4.2. Relationship Between Sleep Quality and Mental Disorders in Pakistani

This study found that there was a significant positive correlation between sleep quality and mental disorders in Pakistani. A regression analysis of the factors affecting mental disorders in Pakistan shows that factors of sleep problems can explain 38.8 %, Has a significant predictive effect on mental disorders, and the results are similar to a large number of existing studies. Previous studies have suggested that long-term sleep disorders can damage cognitive and social functions, increase behavioral problems and alcohol abuse, and cause individuals to feel despair and suicidal thoughts; increased susceptibility to adverse stimuli, and easier Damage from external stress can greatly increase an individual’s risk of suffering from various mental disorders.

## 5. Conclusion

In summary, this study found that there are some differences in sleep quality and mental disorders in different demographics, and sleep quality has a certain predictive effect on mental disorders. Therefore, the prevention of mental disorders must take into account different demographic groups and targeted development; at the same time, pay attention to the intervention of sleep problems, improve sleep quality, and reduce the occurrence of mental disorders.

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