

Original Article

Manifestation of Sleep Paralysis among Clinical and Non-Clinical Population; A Comparative Study

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ABSTRACT

Background: Sleep paralysis is a transient and often distressing condition characterized by an inability to move or speak during the transition between wakefulness and sleep. Previous studies have highlighted a higher prevalence of sleep paralysis in psychiatric populations compared to the general population, yet comprehensive comparative studies remain scarce. Understanding the nuances of sleep paralysis across different populations is crucial for developing targeted interventions.

Objective: This study aims to compare the manifestation of sleep paralysis among clinical (neurotic and psychotic disorders) and non-clinical populations, with a specific focus on the prevalence of intruder, incubus, and vestibular-motor experiences.

Methods: A comparative cross-sectional design was employed, with a sample size of 90 participants, equally divided among clinical (neurotic and psychotic) and non-clinical groups from Rawalpindi and Islamabad. The study utilized purposive sampling for participant selection. Individuals aged 14 years and above, diagnosed with neurotic disorders, brief psychotic disorder, early psychosis, or those experiencing sleep paralysis without a mental disorder diagnosis were included. The Waterloo Unusual Sleep Experiences Questionnaire-IX (WQ) along with diagnostic scales for depression, anxiety, panic attacks, and psychotic disorders were administered. Data analysis was conducted using IBM SPSS Statistics version 25, employing descriptive statistics, ANOVA, and Chi-Square tests.

Results: The mean age of participants was 22.21 (SD = 4.318). Gender distribution was 54.4% male and 45.6% female. The ANOVA results indicated no significant differences in the intruder and incubus experiences across groups. However, a significant difference was found in the intensity and frequency of vestibular-motor experiences, with F values of 6.684 ($p < .01$) and 9.231 ($p < .01$), respectively. Chi-square analysis further highlighted significant differences in the manifestation of sleep paralysis, with vestibular-motor experiences being notably higher among the psychotic group.

Conclusion: The study confirms the higher prevalence of vestibular-motor experiences of sleep paralysis among clinical populations, particularly those with psychotic disorders, compared to non-clinical populations. Intruder and incubus experiences were commonly reported across all groups, indicating a widespread presence of these phenomena regardless of psychiatric diagnosis.

Keywords: Sleep Paralysis, Clinical Population, Non-Clinical Population, Vestibular-Motor Experiences, Psychotic Disorders, Neurotic Disorders.

INTRODUCTION

Sleep is a vital physiological process, characterized by an altered state of consciousness, diminished sensory and motor activity, and reduced interaction with surroundings. It plays a critical role in maintaining overall health, with adequate sleep being essential for psychological well-being and stress reduction (1). Disruptions in the quality, timing, or quantity of sleep, known as sleep disturbances (2), can have significant adverse effects on an individual's health. One particular type of sleep disturbance, sleep paralysis, is characterized by a temporary inability to move or speak while falling asleep or upon awakening. Episodes can last from a few seconds to several minutes, with some cases extending up to an hour or more (4-7). This condition is often associated with the rapid eye movement (REM) phase of sleep and is characterized by three main phenomena: the 'Intruder', involving visual and auditory hallucinations and a sense of fear; the 'Incubus', which includes feelings of pressure on the chest and difficulty breathing; and 'Vestibular-Motor experiences', characterized by sensations of floating, flying, or feelings of bliss (8-10).

The manifestation of sleep paralysis has been of particular interest in both clinical and non-clinical populations, yet its systematic measurement and analysis remain relatively unexplored. Understanding the occurrence and characteristics of sleep paralysis among different populations is crucial, especially considering its potential impact on individuals with psychiatric conditions. Research suggests that sleep paralysis can exacerbate the prognosis of mental illnesses, as the distress and cognitive dysfunction associated with episodes can further sensitise individuals to distress (10). The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) acknowledges sleep paralysis as a condition that can cause significant distress and is not attributable to other medical, psychological, or substance-induced conditions.

Given the potential clinical implications of sleep paralysis, particularly among individuals with psychotic or neurotic disorders, there is a pressing need to assess its manifestation across various populations. This study aims to fill the gap in the literature by systematically evaluating the presence and associated factors of sleep paralysis among clinical and non-clinical groups. By doing so, we seek to provide a deeper understanding of this phenomenon and its impact on mental health, thereby informing future research and clinical practices.

MATERIAL AND METHODS

This study employed a comparative cross-sectional design to investigate the occurrence of sleep paralysis across clinical and non-clinical populations. A calculated sample size of 90 individuals (11), encompassing equal numbers of males and females from both public and private hospitals and the general population within the regions of Rawalpindi and Islamabad, was determined using Rao Software. Participants aged 14 years and above were selected through purposive sampling to ensure a comprehensive comparison based on sleep paralysis episodes and demographic variables. The study focused on individuals diagnosed with neurotic disorders, such as depression, anxiety disorder, panic disorder, and those experiencing emotional trauma, reassessed using DSM-5TR assessment checklists. Additionally, it included participants diagnosed with brief psychotic disorder or early psychosis, those under medication for more than a year, and individuals without a mental disorder diagnosis but experiencing sleep paralysis. Exclusion criteria were set to omit individuals with any comorbid physical or psychological illness.

Upon recruitment, informed consent was obtained, outlining the study's purpose, duration, and procedures, while ensuring the anonymity and confidentiality of participant information. Ethical approval for the research was granted by the Departmental Research Committee, incorporating suggestions from external examiners. Permissions were acquired from the original authors of the utilized measures and the psychiatric settings for data collection. A pilot study was conducted to refine the research methodology before initiating the main study. The Waterloo Unusual Sleep Experiences Questionnaire-IX (WQ; 12), along with diagnostic scales for depression, anxiety, panic attacks, psychotic disorders (2), and the Brief Trauma Questionnaire (13), were administered in Urdu to accommodate the native language of the participants. The administration time varied between 8-10 minutes for the general population and 20-25 minutes for clinical participants.

The study adhered to ethical standards in line with the Declaration of Helsinki, ensuring structured translation procedures, confidentiality, debriefing, and anonymity of data. Questionnaires were verbally administered by the researcher, following a set sequence, and included a demographic sheet capturing data on age, gender, ethnicity, psychiatric symptoms, and sleep paralysis experiences. The occurrence of sleep paralysis was assessed using the Waterloo Unusual Sleep Experiences Questionnaire (WQ; 12), originally proposed by Cheyne in 2002.

Data analysis was conducted using IBM SPSS Statistics version 25. Descriptive statistics were generated for demographic variables, and Analysis of Variance (ANOVA) was utilized to compare the types of sleep paralysis across the neurotics, psychotics, and general population. Additionally, Chi-Square analysis measured the manifestation of sleep paralysis among these populations, providing a comprehensive understanding of its prevalence and characteristics within the study's scope.

RESULTS

In the current study, a comparative cross-sectional approach was employed to explore the manifestation of sleep paralysis among clinical and non-clinical populations, encompassing a diverse sample from the regions of Rawalpindi and Islamabad. The demographic and clinical characteristics of the participants, as presented in Table 1, reveal an average age of 22.21 years with a standard deviation of 4.318. The gender distribution within the sample was relatively balanced, with males constituting 54.4% (n=49) and females 45.6% (n=41). Participants were almost equally divided between those attending government hospitals (50.2%, n=46) and private hospitals (49.8%, n=44), ensuring a broad representation of healthcare settings. The primary diagnosis categories were evenly split among neurotics, psychotics, and the general population, each accounting for 33.3% (n=30) of the sample. Regarding ethnicity, the majority were Punjabi (55.6%, n=50), followed by Pushto speakers (36.7%, n=33), with smaller representations from Saraiki (1.1%, n=1), Urdu speaking (4.4%, n=4), and Gilgiti (2.2%, n=2) communities.

The analysis of sleep paralysis experiences, as detailed in Table 2, utilized ANOVA to compare the intensity and frequency of intruder, incubus, and vestibular-motor (VM) experiences across neurotic, psychotic, and general population groups. Intruder intensity and frequency showed no significant differences among the groups, with F values of .056 (p=.94) and .232 (p=.79) respectively, indicating a uniformity in the perception of intruder experiences across the study population. Similarly, incubus intensity and frequency analyses yielded F values of .399 (p=.60) and 1.620 (p=.20), suggesting no significant variance in these experiences among the different diagnostic categories.

In contrast, the vestibular-motor experiences revealed significant differences in both intensity and frequency across groups, with F values of 6.684 (p<.01) for intensity and 9.231 (p<.01) for frequency. These results indicate a notable distinction in vestibular-motor experiences among neurotic, psychotic, and general populations, suggesting varying degrees of susceptibility or perception of such experiences across these groups.

Table 1: Demographic and Clinical Characteristics

Variable	Frequency	Percentage (%)
Age (Years), Mean± Standard Deviation	22.21±4.318	
Gender		
Males	49	54.4
Females	41	45.6
Hospital Type		
Government Hospital	46	50.2
Private Hospital	44	49.8
Primary Diagnosis		
Neurotics	30	33.3
Psychotics	30	33.3
General Population	30	33.3
Ethnicity		
Punjabi	50	55.6
Pushto	33	36.7
Saraiki	1	1.1
Urdu Speaking	4	4.4
Gilgiti	2	2.2

Table 2: ANOVA Results for Sleep Paralysis Experiences

Variable	F (2,87)	p-value	Neurotics M (SD)	p-value	Psychotics M (SD)	p-value	General Population M(SD)	p-value
Intruder Intensity	.056	.94	1.57 (.504)	1.00	1.67 (.479)	1.00	1.60 (.498)	1.00
Intruder Frequency	.232	.79	1.13 (.346)	1.00	1.30 (.466)	1.00	1.20 (.407)	.355
Incubus Intensity	.399	.60	1.57 (2.55)	1.00	1.20 (.407)	1.00	1.23 (.430)	1.00
Incubus Frequency	1.620	.20	1.00 (.000)	1.00	1.93 (3.55)	.246	1.03 (.183)	.280
VM Experience Intensity	6.684	.00	1.87 (.034)	.07	1.50 (.509)	.013	1.63 (.490)	.007
VM Experience Frequency	9.231	.00	1.43 (0.00)	1.00	1.10 (.305)	.000	1.63 (.490)	.000

Table 3: Sleep Paralysis Experience by Population

Experience	General Population f (%)	Neurotic f (%)	Psychotic f (%)
Intruder	24 (80)	26 (86.7)	21 (70)
Non-Intruder	6 (20)	4 (13.3)	9 (30)
Incubus	29 (96.7)	30 (100)	28 (93.3)
Non-Incubus	1 (3.3)	0 (0)	2 (6.7)
VM	11 (36.7)	17 (56.7)	27 (90)

Experience	General Population f (%)	Neurotic f (%)	Psychotic f (%)
Non-VM	19 (63.3)	13 (43.3)	3 (10)

Table 3 provides a detailed breakdown of sleep paralysis experiences by population. A high prevalence of incubus experiences was observed across all groups, with the general population reporting a 96.7% (n=29) occurrence rate, neurotics at 100% (n=30), and psychotics at 93.3% (n=28). Intruder experiences were also commonly reported, with 80% (n=24) in the general population, 86.7% (n=26) among neurotics, and 70% (n=21) in psychotics. Vestibular-motor experiences, however, varied significantly, with 36.7% (n=11) in the general population, 56.7% (n=17) among neurotics, and a notably higher rate of 90% (n=27) among psychotics.

These findings underscore the complex nature of sleep paralysis experiences, highlighting significant differences in vestibular-motor experiences across clinical and non-clinical populations. The detailed analysis enhances our understanding of the prevalence and characteristics of sleep paralysis, providing valuable insights into its manifestation across different demographic and clinical groups.

DISCUSSION

The findings of the present study align with prior research, indicating a higher prevalence of sleep paralysis among psychiatric populations compared to the general populace. This observation corroborates existing literature, which posits a heightened frequency of sleep paralysis episodes within clinical settings (14). Interestingly, while previous studies have reported varied prevalence rates across different populations, with sleep paralysis incidence among the Asian psychiatric population noted at 24.1% and 31% within the general population (15), our research identified significant disparities in the manifestation of sleep paralysis between clinical and non-clinical groups, particularly in terms of vestibular-motor experiences.

Despite the prevalence of intruder and incubus types of sleep paralysis reported across both clinical and non-clinical populations, our analysis revealed no statistically significant differences in these experiences. This finding is consistent with earlier studies that also reported a widespread occurrence of these sleep paralysis types among both groups (16,17). The literature further supports the notion that intruder experiences are notably prevalent among neurotics and the general population alike (18), a trend that was mirrored in our research outcomes. Similarly, our study's chi-square analysis and cross-tabulation data underscored the commonality of incubus experiences among participants, irrespective of their clinical status, aligning with previous research that found no significant differences in incubus sleep paralysis across varied demographic groups (19).

A pivotal aspect of our findings was the statistically significant difference in the intensity and frequency of vestibular-motor experiences between clinical and non-clinical populations, as underscored by the chi-square analysis ($\chi^2(2, n=90) = 18.32, p < 0.001$). This distinction resonates with the existing body of research, which suggests a more frequent reporting of vestibular-motor experiences among clinical populations, particularly those with psychotic disorders (20,21). Cheyne's (9) assertion that 39% of psychiatric patients experiencing sleep paralysis report vestibular-motor experiences was further substantiated by our study, especially among individuals diagnosed with brief psychotic disorder and schizophrenia without hallucinations.

The implications of these findings are multifold, offering crucial insights for clinical mental health practitioners and researchers. The biomedical conceptualization of sleep paralysis, as derived from this study, paves the way for preventing catastrophic interpretations of such experiences, thereby potentially reducing comorbid pathologies associated with sleep paralysis. Furthermore, the nuanced understanding of sleep paralysis manifestation across various populations aids in the accurate diagnosis and treatment of affected individuals.

While the study contributes significantly to the understanding of sleep paralysis and its varied manifestations, it is not without limitations. The sample size, although calculated through Rao Software, represents a specific geographic and demographic context, which may limit the generalizability of the findings. Moreover, the reliance on self-reported measures for diagnosing sleep paralysis episodes could introduce bias or inaccuracies in reporting. Future research should consider expanding the sample size and geographic scope to enhance the generalizability of findings. Additionally, employing objective measures or corroborating self-reports with clinical assessments could provide a more accurate depiction of sleep paralysis experiences.

CONCLUSION

In conclusion, the study elucidates the differential manifestation of sleep paralysis among clinical and non-clinical populations, with a notable distinction in the prevalence of vestibular-motor experiences. Although intruder and incubus experiences were commonly reported across both groups, the significant variance in vestibular-motor experiences highlights the need for tailored clinical approaches in managing sleep paralysis. The study's insights into the complex nature of sleep paralysis contribute valuable knowledge to the field, offering a foundation for future research and clinical practice aimed at understanding and addressing this condition more effectively.

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