



## **Knowledge and Attitude of Physical Therapists towards Sleep Quality Assessment**

**Ume-Aiman<sup>1</sup>, Natasha Nabi<sup>1</sup> and Sara Sadiq<sup>2\*</sup>**

<sup>1</sup>*Institute of Physiotherapy and Rehabilitation Sciences, Peoples University of Medical and Health Sciences, Nawabshah, Pakistan.*

<sup>2</sup>*Ziauddin University, Karachi, Pakistan.*

### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** The aims of the current study are to determine the knowledge of physical therapists towards sleep and to analyse attitude of physical therapists towards sleep quality assessment.

**Study Design:** This is a cross-sectional study.

**Place and Duration of Study:** The study was conducted among the physical therapists of government and private hospitals of Nawabshah, Hyderabad and Karachi between July 2017 and January 2018.

**Methodology:** Modified form of "Assessment of Sleep Knowledge in Medical Education (ASKME) Survey" questionnaire was distributed among 170 physical therapists of government and private hospitals of Nawabshah, Hyderabad and Karachi. Questionnaire consists of 4 parts, including demographics questions, assessment of patient's sleep, physical therapist's attitude towards sleep quality and assessing their basic sleep knowledge. Data was analysed on the basis frequency and percentages.

**Results:** The results of our study confirm that sleep medicine knowledge was generally low in physical therapists. Among all the physical therapists only 9.5% had higher score while remaining 90.5% had obtained low score in sleep knowledge. Majority of the physical therapists 57.6%

\*Corresponding author: E-mail: [dr.sarabhatti@gmail.com](mailto:dr.sarabhatti@gmail.com);

routinely assessed their patients sleep by asking subjective information about the quality of sleep and sleep habits. A small number of respondents 23.4% referred their patients to sleep specialists if they suspected any sleep issues. Moreover 49.4% routinely assessed the factors that disturb patients sleep. While only small population 18.4% agreed that they did not know how to assess sleep quality of the patients.

**Conclusions:** The current study concluded that the majority of physical therapists agreed that sleep is important to people's health and they routinely assessed their patients sleep by asking subjective information about the quality of sleep and sleep habits. On the other hand, sleep medicine knowledge was generally low among physical therapists.

*Keywords: Knowledge; attitude; physical therapists; sleep quality assessment.*

## 1. INTRODUCTION

Sleep is a vital indicator of overall health and well-being. Normally people spend up to one-third of their lives asleep [1]. Insufficient and disrupted sleep may contribute to various health consequences such as depression, cognitive impairment and deterioration in the quality of life [1,2]. Loss of sleep or poor quality of sleep lowers the pain threshold and the mental condition to manipulate pain [3]. Moreover sleep deprivation also exhibits worst outcomes e.g. risks of increased heart rate, blood pressure, sympathetic activity, cortisol level, psychological dysfunction, mental illness, fatigue and decreased glucose tolerance [4].

Sleep disorders are globally widespread and they are common medical problems [5]. Out of all sleep disorders Insomnia is extremely predominant condition, found 40% in western nations [6]. In Pakistan, insomnia was reported 31% in general population including urban and semi-urban centers of Karachi [7]. Whereas 40% medical students of Karachi were also noted as poor sleepers [8]. In spite of high prevalence of sleep disorders that too many doctors ignore majority of the individuals suffer from sleep disorders remain undiagnosed and untreated which ultimately results in creation of unnecessary public health and safety problems, as well as increased health care cost [9]. It is also believed that high rates of undiagnosed sleep disorders cases are due to limited knowledge of sleep medicine among health care providers [10].

The cognitive behaviour therapy, relaxation training, cognitive restructuring procedure and sleep hygiene education give fair outcomes to improve sleep in people with insomnia secondary to chronic pain [11,12]. Physiotherapy manifest beneficial impacts on sleep habits so that assessment and evaluation of basic sleep

pattern should be key element in physical therapy practice [4]. Some physical therapy programs such as brisk walking along with moderate resistance training, and walking along with manual therapy and exercises were also reported a notable improvement in elderly insomniac patients on their total sleep duration and sleep onset latency and improvement of sleep disturbances in chronic low back pain patients respectively [3,13]. Therefore, the sleep hygiene education, assessment and evaluation of sleep is one of the basic need for the physical therapists as they can provide basic sleep management program to their patients or can refer for further clinical investigation [13]. The objectives of the current study are to determine the knowledge of physical therapists towards sleep and to analyse attitude of physical therapists towards sleep quality assessment.

## 2. METHODS

A cross-sectional study was carried out among physical therapists working at various government and private medical universities and hospitals of Sindh including Karachi, Hyderabad and Nawabshah. The hospitals/universities included in the study were Peoples medical university and Hospital Nawabshah, Liaquat medical University and hospital Jamshoro, Isra medical university and Hospital Hyderabad, Dow University Hospital Karachi, Liaquat National Hospital Karachi, Agha Khan University and Hospital Karachi, Ziauddin University and Hospital Karachi, Institute of orthopedics Karachi, Darul sehat hospital Karachi, Jinnah postgraduate medical Centre, Memon Hospital Karachi. About 170 physical therapists were subjected to fill the questionnaire but after excluding the unfilled or partially filled proforma only 158 were finally included.

The questionnaire used was modified form of "Assessment of Sleep Knowledge in Medical

Education (ASKME) Survey” [14], used to identify behavior, attitudes and assessment of physical therapists towards sleep medicine. “ASKME” questionnaire demonstrated a high degree of internal consistency and reliability among survey items. Actual ASKME was a 30 items based validated questionnaire that included five separate areas of sleep knowledge: 1) basic sleep principles, 2) circadian sleep/wake control, 3) normal sleep architecture, 4) common sleep disorders and 5) the effects of drugs and alcohol on sleep.

But the modified form of ASKME survey consisted of 4 parts, Part I had demographic questions including age, gender, employment status, years of experience and current employment settings. Part II of questionnaire was about physical therapist’s assessment regarding patient’s sleep including if physical therapist routinely assessed patient’s sleep, what type of assessment was done and about factors that disturb patients sleep. Part III consisted of 26 questions regarding physical therapist’s attitude towards sleep. Responses were provided on a 5 point Likert scale from “strongly agree” to “strongly disagree”. Part IV of the questionnaire consist of 30 statements to measure the physical therapist’s knowledge about sleep. Overall score in knowledge in sleep was determined by adding up correct answers.

Data was analysed by using Statistical Package for the Social Sciences (SPSS), version-20. Qualitative data were presented as frequencies

and percentages while quantitative data as mean and standard deviation.

### 3. RESULTS

Total 158 physical therapists included in the analysis out of which majority were female that was 58.2% and 41.8% were male. The respondents were divided into three age groups; the majority participants were between the age of 25 to 35 as shown in Fig. 1.

The reported qualification of physical therapy among most of the participants was Doctor of physical therapy that was 44.9%. Looking over the years of experience majority of the respondents 91(57.6%) had 1 to 5 years of experience. Experience was based on their academic and clinical side performance by the numbers of years that have passed since the entry-level of physical therapy education. The majority of physical therapists 98.1% were not only practicing as a clinician but also working in other settings including faculty in physical therapy education, supervisor or administrator while few had their private clinic as well. Table 1 manifest the details of first part of ASKME questionnaire.

Looking over the 2<sup>nd</sup> part of ASKME questionnaire regarding assessment, majority of the physical therapists (57.6%) routinely assessed their patients sleep by asking subjective information about quality of sleep and sleep habits. Out of which 19% assessed sleep

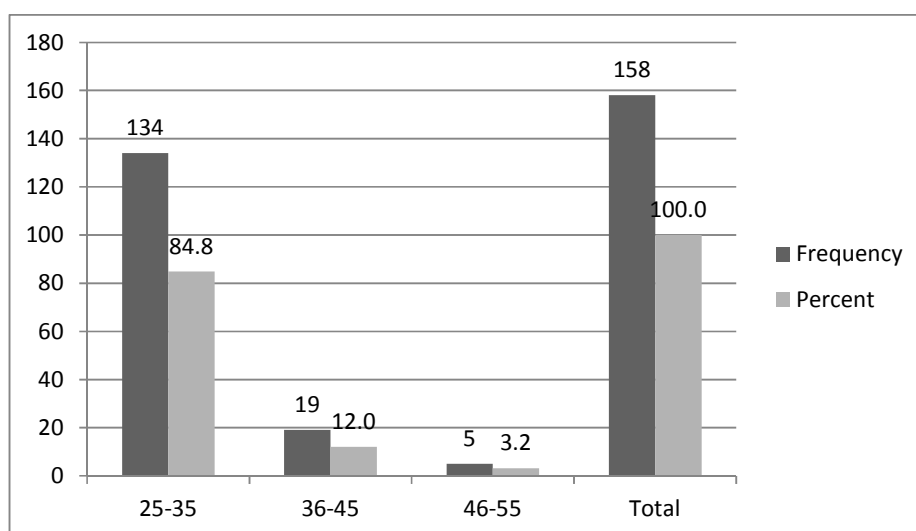


Fig. 1. Participant’s age groups

quality by using sleep questionnaires. A small number of respondents (23.4%) referred their patients to sleep specialists if they suspected any sleep issues. Moreover (49.4%) routinely assessed the factors that disturb patients sleep. However, 42.4% of physiotherapist did not

assess sleep quality of their patients. The most common reason for this attitude was that they think it's beyond physical therapy scope. While 18.4% agreed that they did not know how to assess sleep quality of the patients.

**Table 1. Demographic data of study participants**

	Frequency	Percent
<b>Gender</b>		
Male	66	41.8
Female	92	58.2
<b>Physiotherapy qualification</b>		
Bachelors	18	11.4
DPT	71	44.9
Masters	69	43.7
<b>Years of experience</b>		
1-5 years	91	57.6
6-10 years	53	33.5
11-15 years	9	5.7
16-20 years	2	1.3
>20	3	1.9
<b>Current work setting</b>		
Hospital	91	57.6
Inpatient/ward	51	32.3
Outpatient department	100	63.3
Faculty in PT/PTA program	37	23.4
Not currently practicing as a clinician	3	1.9
Supervisor or administrator	22	13.9
Private clinic	37	23.4

*PT; Physiotherapy, PTA; Physical therapy assistant*

**Table 2. General perception of physical therapists regarding sleep**

Physical therapists' attitude regarding sleep	Strongly agree n(%)	Agree n(%)	Neither n(%)	Disagree n(%)	Strongly disagree n(%)	Unsure n(%)
Sleep is important to people's health	122(77.2)	32(20.3)	3(1.9)	-	-	-
In general, people get enough sleep	34(21.5)	58(36.7)	29(18.4)	28(17.7)	4(2.5)	5(3.2)
Poor sleep is associated with impaired function?	57(36.1)	76(48.1)	16(10.1)	6(3.8)	-	3(1.9)
Most people don't pay much attention to sleep	52(32.9)	74(46.8)	15(9.5)	12(7.6)	4(2.5)	1(6)
Excessive sleepiness is a public health problem	54(34.2)	64(40.5)	23(14.6)	8(5.1)	7(4.4)	2(1.3)
Insomnia is a common health problem	58(36.7)	78(49.4)	13(8.2)	5(3.2)	-	4(2.5)
I should routinely ask patients about sleep problems	42(26.6)	75(47.5)	28(17.7)	7(4.4)	1(0.6)	5(3.2)
Most people seek medical help for their sleep disorders	40(25.3)	74(46.8)	17(10.8)	13(8.2)	11(7)	3(1.9)
Sleeping medication is over-prescribed	38(24.1)	61(38.6)	26(16.5)	22(13.9)	3(1.9)	8(5.1)

<b>Physical therapists' attitude regarding sleep</b>	<b>Strongly agree n(%)</b>	<b>Agree n(%)</b>	<b>Neither n(%)</b>	<b>Disagree n(%)</b>	<b>Strongly disagree n(%)</b>	<b>Unsure n(%)</b>
Sleep apnea is under diagnosed	33(20.9)	68(43)	28(17.7)	19(12.0)	2(1.3)	8(5.1)
Daytime sleepiness is an important medical symptom	34(21.5)	65(41.1)	30(19.0)	24(15.2)	-	5(3.2)
Sleep disorders may contribute to medical problems	63(39.9)	79(50)	11(7)	4(2.5)	-	1(0.6)
Sleepiness is an important factor in many motor vehicle accidents	50(31.6)	83(52.5)	10(6.3)	10(6.3)	1(0.6)	4(2.5)
Consultation with a sleep medicine specialist is useful for patients with sleep problems	47(29.7)	90(57.2)	14(8.9)	3(1.9)	-	4(2.5)
Overnight sleep studies provide useful diagnostic information	36(22.8)	70(44.3)	25(15.8)	10(6.3)	3(1.9)	14(8.9)
Most sleep disorders are treatable	38(24.1)	84(53.2)	17(10.8)	10(6.3)	2(1.3)	7(4.4)
CPAP* is an effective treatment for sleep apnea	37(23.4)	56(35.4)	30(19)	9(5.7)	5(3.2)	21(13.3)
Primary care doctors should counsel patients regarding sleep hygiene	44(27.8)	72(45.6)	22(13.9)	14(8.9)	1(0.6)	5(3.2)
Sleep disorders are less important than other medical disorders	21(13.3)	40(25.3)	31(19.6)	34(27.8)	19(12)	3(1.9)
Most sleep problems are psychiatric	41(25.9)	76(48.1)	16(10.1)	8(5.1)	8(5.1)	8(5.1)
PT's should ask their patients' about their sleep habits and sleep quality	64(40.5)	73(46.2)	12(7.6)	5(3.2)	1(0.6)	3(1.9)
PT's should perform objective assessments(such as use questionnaires) to assess their client's sleep habits and sleep quality	51(32.3)	70(44.3)	20(12.7)	12(7.6)	2(1.3)	3(1.9)
PT's should counsel patients regarding methods to improve sleep quality	48(30.4)	90(57)	9(5.7)	7(4.4)	3(1.9)	1(0.6)
PT's should counsel patients on positioning to improve sleep	63(39.9)	81(51.3)	8(5.1)	4(2.5)	1(0.6)	-
Assessing my patients' sleep habits and quality is important	50(31.6)	86(54.4)	16(10.1)	4(2.5)	-	2(1.3)
Addressing sleep issues may impact physical therapy outcomes	47(29.7)	89(56.3)	10(6.3)	8(5.1)	-	3(1.9)

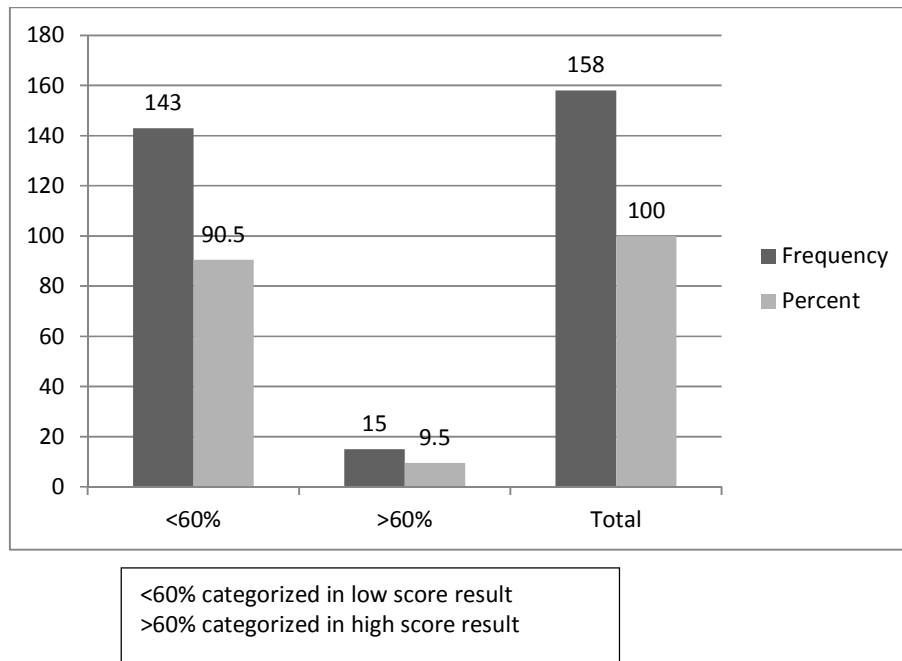
Considering the 3<sup>rd</sup> part of ASKME questionnaire, overall physical therapists showed positive attitude towards sleep. Generally, majority of physical therapists agreed that sleep is important to people's health [strongly agreed 112 (77.2%)] and poor sleep is associated with impaired function [strongly agreed 57(36.1%)], further they stated that excessive sleepiness

[strongly agree 54(34.2%) and insomnia [strongly agree 58(36.7%)] are major sleep problems in public health. However, as a professional they believed that sleep disorders may contribute to medical problems [strongly agree 63(39.9%). Table 2 manifested the patients' attitude towards sleep.

**Table 3. Physical therapist’s knowledge about sleep**

	<b>Correct n(%)</b>	<b>Incorrect n(%)</b>	<b>Don’t know n(%)</b>
The need for sleep decreases in persons above 50 years of age.	32(20.3)	119(75.3)	7(4.4)
Melatonin is a natural body hormone that typically increases during night time hours.	86(54.4)	38(24.1)	34(21.5)
Dream sleep (REM) occurs more in the second half of the night.	121(76.6)	17(10.8)	20(12.7)
Sleeping longer on weekends is recommended as a regular practice to make up for loss of sleep during the work week.	53(32.9)	93(58.9)	13(8.2)
Newborn infants spend about 16—18 hours per 24-hour period sleeping.	137(86.7)	12(7.6)	9(5.7)
The report of insomnia is twice as common in older men than in older women.	50(31.6)	74(46.8)	34(21.5)
A young (pre-adolescent) child who regularly has trouble getting to sleep at night should be allowed to sleep later in the morning.	58(36.7)	81(51.3)	19(12)
The typical age of symptom onset for narcolepsy is 40 years or older.	41(25.9)	67(42.4)	50(31.6)
The ability to sleep increases in persons above 50 years of age.	78(49.4)	57(36.1)	23(14.6)
Slow-wave sleep is more prominent in the second half of the night.	44(27.8)	74(46.8)	40(25.3)
The amount of slow-wave sleep increases in persons above 50 years of age.	43(27.2)	68(43)	47(29.7)
Episodes of sleepwalking tend to occur in the last third of the night.	37(23.4)	88(55.7)	33(20.9)
Episodes of REM sleep tend to lengthen throughout the night.	80(50.6)	43(27.2)	35(22.2)
Periodic limb movements during sleep are typically decreased in REM sleep.	85(53.8)	38(24.1)	35(22.2)
Hyperactivity in children can be exacerbated by inadequate sleep.	88(55.7)	50(31.6)	20(12.7)
In alcoholics in recovery, sleep normalises within one month of alcohol abstention.	48(30.4)	73(46.2)	37(23.4)
Daytime napping is recommended for patients with difficulty initiating sleep.	32(20.3)	105(66.5)	21(13.3)
Weight loss is often indicated in the treatment of primary snoring or mild obstructive sleep apnea.	76(48.1)	51(32.3)	31(19.6)
Slow-wave sleep is enhanced following daytime exercise.	97(61.4)	28(17.7)	33(20.9)
Chronic bedwetting in children responds to treatment with anticholinergic drugs.	83(52.5)	33(20.9)	42(26.6)
Nightmares are more common within the first two hours of sleep.	46(29.1)	86(54.4)	26(16.5)
Heart rate, respiration, and blood pressure are more variable during REM sleep compared to non-REM sleep.	97(61.4)	31(19.6)	30(19)
Antihypertensive drugs (e.g., beta-blockers) may cause sleeping difficulties as a side effect.	103(65.2)	31(19.6)	24(15.2)
Early morning awakenings in the elderly are often associated with changes in the timing of their biological rhythms.	107(67.7)	27(17.1)	24(15.2)
Alcohol can be beneficial in reducing the effects of jet lag.	50(31.6)	57(36.1)	51(32.3)
Night shift workers are more likely to fall asleep on the job compared to employees with regular, daytime hours.	124(78.5)	22(13.9)	12(7.6)

	Correct n(%)	Incorrect n(%)	Don't know n(%)
Episodes of sleepwalking commonly occur during REM sleep.	33(20.9)	96(60.8)	29(18.4)
Menopausal women are at higher risk for developing symptoms of sleep apnea compared to pre-menopausal women.	96(60.8)	22(13.9)	40(25.3)
Irregular sleep scheduling can increase the incidence of sleepwalking in children.	97(61.4)	34(21.5)	27(17.1)
Symptoms of narcolepsy are related to seizure activity in the brain.	26(16.5)	81(51.3)	51(32.3)



**Fig. 2. Percentage of high and low score of ASKME survey**

Knowledge of physical therapists was analysed using 4<sup>th</sup> part of ASKME survey questionnaire. The percentage of the correct answers for all questions was calculated in Table 3. Then the percentage of correct answers of the respondents was divided into two groups those with >60% were classified in high score group and those with <60% were considered low score group as shown in Fig. 2 A total of (90.5%) respondents were in low score group while only (9.5%) were in high score group.

#### 4. DISCUSSION

Normal sleep is an essential component of human health and well-being. Therefore, it is essential for physical therapists to give more attention in sleep assessment as well. The results of our study reveal that sleep medicine knowledge is generally low in physical therapists

[6,15]. Out of 158 therapists only [15(9.5%)] had higher score while remaining [143(90.5%)] had lower score in sleep knowledge and their attitude reported high regard for sleep health. Literature review favors current finding as they reported that physicians exhibited worse knowledge in sleep medicine [16,17]. Majority of the participants believed that sleep is important to people's health (77.2%). Furthermore, when reporting on sleep assessment majority of the physical therapists believed that assessment of patient's sleep habits and quality is important (54.4%) with only few peoples reported that it is not that so important (2.5%). Clinically there are many methods to identify the sleep disorders sleep quality of the patients and treatment protocols are also available to enhance quality of life of patients with sleep disorders; however, this will not happen without the proper education of physical therapists in the field. Sleep medicine

knowledge in overall world is actually low as Meshram CS et.al also observed the same result in their study which showed only (31.15 of interns and (52.63%) of residents obtained higher score in ASKME survey and their attitude for assessing sleep habits were quite positive [15]. Evidence-based recommendations for optimising sleep include regular exercise and relaxation. These can be addressed by physical therapists together with other life style risk factors associated with sleeplessness [18].

It is recommended that measures need to be taken to improve the sleep knowledge among the physical therapists, who do not have enough exposure towards sleep education. To acknowledge the high prevalence and serious consequences of sleep disorders is now a major challenge in the educational system, where including the sleep medicine curriculum in physical therapy medical education is the next goal.

The present study had both strengths and limitations. This was the first study conducted in Pakistan on sleep knowledge and attitude among physical therapists. The main limitation of the study is small sample size due to which we could not find the basic reasons of weak level of knowledge on sleep subjects in physical therapists.

## 5. CONCLUSION

The current study concluded that majority of physical therapists agreed that sleep is important to people's health and they routinely assessed their patients sleep by asking subjective information about quality of sleep and sleep habits. On the other hand, sleep medicine knowledge was generally low among physical therapists. Therefore, educational strategies among physical therapists are needed, to improve knowledge regarding sleep, sleep related problems and enhancement of quality of life of the patients.

## CONSENT

As per international standard or university standard, informed consent from the physical therapists has been taken by the authors.

## ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee

has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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