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KNOWLEDGE AND PRACTICES REGARDING POSTURAL AWARENESS AMONG UNDERGRADUATE PHYSICAL THERAPY STUDENTS: A CROSS-SECTIONAL STUDY

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Abstract
Postural awareness plays a vital role in preventing musculoskeletal disorders and maintaining overall health and well-being. Despite its significance, postural distortions such as forward head posture, increased lordosis, round shoulders, and kyphosis are commonly observed among students due to poor ergonomics and lifestyle habits. This study aimed to assess the knowledge and practices regarding postural awareness among undergraduate physical therapy students at Khyber Medical University, Peshawar. A descriptive cross-sectional study was conducted from September 2018 to January 2019, involving 415 students selected through non-probability convenience sampling. Data were collected using a structured questionnaire. Results showed that 290 (69.88%) students demonstrated correct knowledge of postural awareness, whereas 125 (30.12%) had insufficient knowledge. Regarding practices, 243 (58.55%) students reported correct practices, while 172 (41.45%) exhibited poor practices. Gender-based differences revealed that male students had lower rates of correct practices (41.2%) compared to females (58.8%). The findings highlight that although a majority of students possess adequate knowledge, a significant proportion still lack proper practices, placing them at risk of musculoskeletal issues. These results emphasize the need for targeted educational strategies and preventive interventions to improve postural awareness and promote healthy practices among future physical therapy professionals.

INTRODUCTION

Health is a level of functional and metabolic efficiency of a living organism. The world health organization (WHO) define human health in its broader sense in its 1948 constitution, as a state of complete physical and mental social well-being and not merely the absence of disease or infirmity (1). Health is a dynamic condition resulting from body's constant adjustment and adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis. Physical is about the body. Mentality is about how people think and feel. Social talks about how people live with other people. It is about family, work, school and friends(1). One of the fundamental

and primary human principles is that to control our environment, to achieve this you must perform certain functions. Among the most important non-vital functions of a human is the postural control including seating, standing and the dynamic control named walking, running or jumping(2). In fact, posture and movement are not different entities, understanding standing as a posture movement and movement as a quick succession between different positions (3). Although postural distortions, such as forward head, increased lordosis, round shoulders and kyphosis were highly observed in most of the individuals before the education, these distortions significantly decreased after the education. Kucuk et al. reported that the belief in exercise, self- esteem and body perception improved as a result of the Clinical Pilates education conducted three times a week for 8 weeks. Such changes in posture are attributed to the belief in exercise and professional respect that are important for physical therapists (4). Prevention of spinal complications in early primary education offers increased opportunities for implementing reinforcement strategies in higher levels of education and also allows a larger percentage of students to be adequately trained (5). Therefore, young people can learn to adopt correct body postures without having to first carry on inefficient posture patterns and inadequate habits (6, 7). In short, preventive actions are easier and faster and have the best long-term prognosis.

Back pain is a common clinical symptom among patients in contemporary populations (12). Today, young people are especially exposed to a sedentary lifestyle. This is due to their spendinga lot of time at the desk, and due to the computerization of the learning process at home (12, 13). This situation can perpetuate bad posture habits and can lead to physical abnormalities, spinal deformities and back pain in later life; still, back pain occurs even in childhood (14). However, research has shown that a high degree of appropriate recreational physical activity in childhood minimizes back pain symptoms at an early age (13). In this respect, preventive exercises are promoted in schools during physical education classes (14). Unfortunately, literature sources report that the level of physical activity of children is generally low. Indeed, only half of all public schools in the United States of America provide children with 20 minutes of exercise per day (12–14).

Posture plays an important role in back pain and refers to our dynamic, adjustable, and responsive positioning to the environment. Each body segment has a center of mass, the differentsegments forming a composite center of mass that, then in turn creates a center of gravity (19), which helps in maintaining body balance with minimal effort. However, misalignment of some of the body segments as a result of postural deviation will cause compensatory effort on other segments to maintain body balance, resulting in muscular strains and stress on the neurological system and resulting in back pain (19,20). According to Kendall and Kendall, there are four major types of posture. The very first posture is ideal posture, then second is kyphosis-lordosis, the third is called flat back, and the fourth one is sway-back (21). It seems that the body shapes itself into different postures depending on our underlying mental and emotional state, therefore establishing a direct link of the body-mind axis and posture (21).

There are a lot of studies have occurred on postural awareness in developed countries as compared to less study in developing countries. The current study was based in the Peshawar region of Pakistan; literature is specifically reviewed for these studies to study the knowledge and practice of postural awareness among undergraduate physical therapy students in Khyber medical university Peshawar. Hence, there was limited research on postural awareness in Pakistan. In this part, the relevant literature which provided theoretical knowledge for this research is presented below. Complications with posture and back pain are projected to become a widespread medical and socio-economic issue across the world, showing more than 70% of the population predicted to be engrossed in the problem. Acute back pain affects about 45% every year of the population between the ages of 35 and 55 years, with 2 to 7% of this cohort exacerbating to chronic back pain (36). In population of physical therapy students of Saudi Arabia at Majmaah University, KSA. A cross-sectional study was conducted to assess the prevalence of scoliosis among physio-therapystudents and to test the relationship between scoliosis

prevalence and level (year) of study at Majmaah University, KSA. In this study, where physical therapy students were dealing with patients in various settings, we found a high prevalence of scoliosis; particularly in female students. The prevalence of scoliosis may be due to job-related risks that are relevant to physical therapy. A total of 152 (92 females, 60 males) physical therapy students were included in the study. Forty-eight of the participants had scoliotic deformity (31.5%), 36 of them were female. and 12 were males, with female-male ratio of 3:1. The prevalence of scoliosis was substantially high among female students (39%), while it was 20% among male students. The highest curvature deformity was thoracolumbar in 101 students (66.4%), thoracic in 34 students (22.4%) and lumbar in 17 students (11.2). There were 77.6% right sided curve and 22.4% left sided curve (33).

Since the literature review show that there has limited studies conducted on the postural awareness among undergraduate physical therapy students at Khyber Medical University Peshawar, Pakistan. Therefore, this study aimed to estimate knowledge and practice about postural awareness among undergraduate students of physical therapy at Khyber Medical University, Peshawar, Pakistan in order to fulfill the gap of literature to some extent. This study will be a source for the education department and universities to form strategies and policies to overcome the lack of postural awareness among students.

Methodology

This is a Descriptive cross-sectional study conducted specifically to determine the knowledge and practice onpostural awareness among undergraduate students of physical therapy at Khyber medical university, Peshawar. The duration of study is 5 months (from September, 2018 to January, 2019). All the students enrolled in undergraduate Doctor of Physical Therapy program at Khyber Medical University were included in the study. Students diagnosed with pre-existing musculoskeletal disorders , recent injury, recent fracture/surgery and any serious underlying pathology that may interfere with mobility was excluded from our study. Non-probability convenience sampling technique was used. The Questionnaire had been used to determine the knowledge and practice of postural awareness among the research participants. There were 27 items in the questionnaire for determining the practices of the research participants and 5 items for the determination of students' knowledge on postural awareness.

Results

Among 415 students there were 201 male subjects in which 100 (41.2%) students had correct practice status and 101 (58.7%) students had incorrect practices and there were 214 female subjects in which 143 (58.8%) students had correct practices and 71 (41.3%) students had incorrect practices. Total 415 research subjects were included in our study in which 241 students were home residents in which 145 (59.7%) had correct practices and 96 (55.8%) had incorrect practices and 165 were hostelite in which 93 (38.3%) had correct practices and 72 (41.9%) had incorrect practices and 9 were residing other than these two in which 5 (2.1%) had correct practices and 4 (2.3%) had incorrect practices. Students were categorized into three age groups, there were 186 students in the age group 15 to 20 years among which 106 (43.3%) had correct practices and 80 (46.5%) had incorrect practices, there were 228 students in the age group from 21 to 25 years among which 137 (56.4%) had correct practices and 91 (52.9%) had incorrect practices, there were 1 student in age group 26 to 30 years among which 0 (0.0%) had correct practices and 1 (0.65%) had incorrect practices. Practice status among physical therapy students with respect to study year shows that among total 415 students in which 57 students were in 1st year in which 35 (14.4%) had correct practices and 22 (15.7%) had incorrect practices and 129 students were in 2nd year in which 73 (30.0%) had correct practices and 56 (32.6%) had incorrect practices, and 94 students were in 3rd year in which 60 (24.7%) had correct practices and 34 (19.8%) had incorrect practices and 38 students were in fourth year in which 19 (7.8%) had correct practices and 19 (11.0%) had incorrect practice, and 92 students were in final year in which 56 (23.0%) had correct practices and 36 (20.9%) had incorrect practices. Practice status and

socioeconomic status showed that, the students were categorized into three classes, there were 6 students in the lower class among which 4 (1.6%) had shown correct practices and 2 (1.2%) had shown incorrect practices, 317 students were in the middle class among which 185 (76.1%) had shown correct practices and 132 (76.7%) had shown incorrect practices, 92 students were in the upper class among which 54 (22.2%) had shown correct practices and 38 (22.1%) had shown incorrect practices .

Table: Frequency And Percentages of Practice Status Among Students Categorized on Basisof Gender, Age, Residency Status, Study Year and Socioeconomic Status

		Practice Status			
		Correct		Incorrect	
		Count	Column N %	Count	Column N %
Gender	Female	143	58.8%	71	41.3%
	Male	100	41.2%	101	58.7%
Residency status	Home	145	59.7%	96	55.8%
	Hostel	93	38.3%	72	41.9%
	Other	5	2.1%	4	2.3%
Age of the students	15 to 20 years	106	43.6%	80	46.5%
	21 to 25 years	137	56.4%	91	52.9%
	26 to 30 years	0	0.0%	1	0.6%
Study year	First year	35	14.4%	27	15.7%
	Second year	73	30.0%	56	32.6%
	Third year	60	24.7%	34	19.8%
	Fourth year	19	7.8%	19	11.0%
	Final Year	56	23.0%	36	20.9%
Socioeconomic status	Lower class	4	1.6%	2	1.2%
	Middle class	185	76.1%	132	76.7%
	Upper class	54	22.2%	38	22.1%

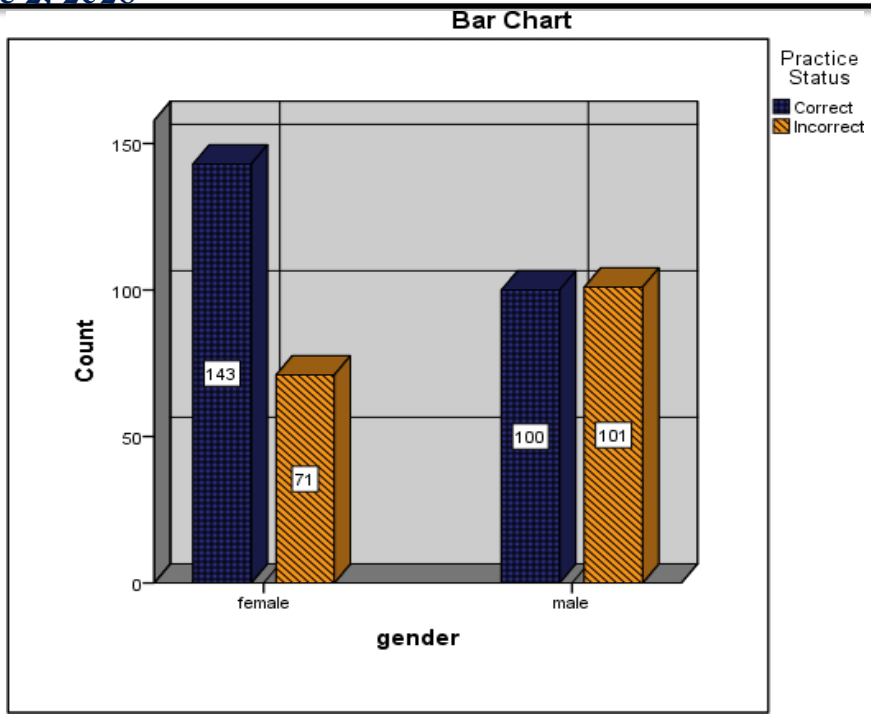

Figure: Clustered Bar Graphs showing frequency of practice status and gender

DISCUSSION

This is a Descriptive cross-sectional study conducted to determine the knowledge and practice on postural awareness among undergraduate students of physical therapy at Khyber medical university, Peshawar. The students enrolled in undergraduate program of Physical Therapy in Khyber Medical University and its affiliated institutes were the target population of the study. This is the first study investigating the Postural awareness among the undergraduate Physical Therapy students at Khyber medical University, Peshawar. Among the students 415 students from different years of study were selected for the study. As expected due to lack of following correct practices and lack of knowledge, most of students were at risk of developing musculoskeletal disorders. The findings of the current study indicated that among 415 research subjects, 243 (58.55%) students had correct practice status while 172 (41.45%) students were showing incorrect practices. And 290 (69.88%) students had correct knowledge about postural awareness while 125 (30.12%) students had incorrect knowledge about postural awareness.

Among 415 students there were 201 male subjects in which 100 (41.2%) students had correct practice status and 101 (58.7%) students had incorrect practices and there were 214 female subjects in which 143 (58.8%) students had correct practices and 71 (41.3%) students had incorrect practices. Total 415 research subjects were included in our study in which 241 students were home residents in which 145 (59.7%) had correct practices and 96 (55.8%) had incorrect practices and 165 were hostelite in which 93 (38.3%) had correct practices and 72 (41.9%) had incorrect practices and 9 were residing other than these two in which 5 (2.1%) had correct practices and 4 (2.3%) had incorrect practices. There were 415 students which were categorized into three age groups, there were 186 students in the age group 15 to 20 years among which 106 (43.3%) had correct practices and 80 (46.5%) had incorrect practices, there were 228 students in the age group from 21 to 25 years among which 137 (56.4%) had correct practices and 91(52.9%) had incorrect practices, there were 1 student in age group 26 to 30 years among which 0(0.0%) had correct practices and 1(0.65%) had incorrect practices. There were total 415 students in

which 57 students were in 1st year in which 35 (14.4%) had correct practices and 22 (15.7%) had incorrectpractices and 129 students were in 2nd year in which 73 (30.0%) had correct practices and 56 (32.6%) had incorrect practices, and 94 students were in 3rd year in which 60 (24.7%) hadcorrect practices and 34 (19.8%) had incorrect practices and 38 students were in fourth year in which 19 (7.8%) had correct practices and 19 (11.0%) had incorrect practice, and 92 students
were in final year in which 56(23.0%) had correct practices and 36 (20.9%) had incorrect practices. The students were categorized into three classes, there were 6 students in the lower class among which 4 (1.6%) had shown correct practices and 2 (1.2%) had shown incorrect practices, 317 students were in the middle class among which 185(76.1%) had shown correct practices and 132 (76.7%) had shown incorrect practices, 92 students were in the upper class among which 54 (22.2%) had shown correct practices and 38(22.1%) had shown incorrect practices.

There were 415 research subjects among which 201 were male students in which 132 (45.5%) had correct knowledge and 69 (55.2%) had incorrect knowledge, and 214 were female students in which 158 (54.5%) had correct knowledge and 56 (54.8%) had incorrect knowledge. There were 415 research subjects among which 241 students were home residents in which 170 (58.6%) had correct knowledge and 71 (56.8%) had incorrect knowledge, 165 students were hostelite in which 113 (39.0%) had correct knowledge and 52(41.6%) had incorrect knowledge,9 students were residing other than home and hostel in which 7 (2.4%) had correct knowledge and 2 (1.6%) had incorrect knowledge. The students were grouped into three age groups, there were 186 students in the age group of 15 to 20 years in which 156 (53.8%) had correctknowledge and 30 (24.0%) had incorrect knowledge, 228 students were in the age group of 21 to25 years in which 134 (46.2%) had correct knowledge and 94 (75.2%) had incorrect knowledge, 1 student was in the age group of 26 to 30 years having incorrect knowledge. There were 62 students in the 1st year among which 61 (21.0%) had correct knowledge and 1 (0.8%) had incorrect knowledge, there were 139 students in the 2nd year among which 104 (35.9%) had correct knowledge and 35 (20.0%) had incorrect knowledge, there were 94 students in the 3rd year among which 53 (18.3%) had correct knowledge and 41(32.8%) had incorrect knowledge, there were 38 students in the fourth year among which 16 (5.5%) had correct knowledge and 22 (17.6%) have incorrect knowledge ,there were 92 students among which 56 (19.3%) had correct knowledge and 36 (28.8%) had incorrect knowledge. There were total 415 research participants which were categorized into three classes, there were 6 students in the lower class in which 4 (1.4%) had correct knowledge and 2 (1.6%) had incorrect knowledge, there were 317 students in the middle class in which 226 (77.9%) had correct knowledge and 91 (72.8%) had incorrect knowledge, there were 92 students in the upper class in which 60 (20.7%) had correct knowledgewhile 32 (25.6%) had incorrect knowledge.

The following studies supported the results of the current research study.

These results corroborate by a study conducted in Montenegro, Rio Grande do Sul, Brazil, that assessed whether postural education was included in the syllabus of physical education courses for 5th to 8th graders and evaluated all physical education teachers (n = 22) in all primary schools in the city using a self-administered questionnaire. The results showed that most of physical education teachers of 5th to 8th graders neglected postural education in the practice, although these teachers were aware of importance of teaching and discussing these topics. In addition, it was hard for them to define the concept of adequate posture, suggesting a remarkable contradiction between thinking and doing) (6).

Another study that evaluated 5th to 8th graders found that the students had limited knowledge about postural deviations and their causes and that they had not learned these topics from their physical education teachers (11).

The current study showed that the 30.1 % respondents had correct posture while watching television, 82.9% students had correct posture while retrieving objects from the floor and 39.5% respondents had used the correct posture while sleeping , and 18.3% respondents correctly carry

their purse or backpack which is supported by a study conducted among students in southern Brazil which reported that 38.9% had the correct posture while watching television, 92.3% had correct knowledge of retrieving objects from the floor , 36.2% students had correct posture while sleeping and 36.6% had correct way of carrying backpack or purse .The current study also showed that 79.5% respondents had followed the correct posture in classroom 32.8% respondents used to read or study in bed ,which was not supported by a study conducted among students in southern Brazil which reported that 40.0% had the incorrect posture in the class room, while 92.1% students used to study in bed (10).

The current study showed that 89.4% students had used to take breaks during their work, 36.9% respondents had used to sit at correct distance from computer or laptop, 20.2% respondents were using screen filters,63.4% were using mouse and keyboard at the same level,66.3% had used to sit with support for lower back,16.6% had attended workshops while compare to a study conducted among students in Gulf Medical University, Ajman and Ajman University of Science and Technology which reported that 80.0% respondents were taking breaks ,46.3% % respondents had used to sit at correct distance from computer or laptop,13.0% respondents were using screen filters,41.3% were using mouse and keyboard at the same level,46.3% % had usedto sit with support for lower back,61.3 % had attended workshops (46).

LIMITATIONS OF THE STUDY

Among 424 patients, 9 patients did not agree to take part in the research study. Hence , the non- response rate in the current study was 9 out of 424 (2.12%).

The Two main limitations of the current study are the nature of the study which is descriptive cross-sectional study. Descriptive cross-sectional study only determines the prevalence and generates the hypothesis. For the more detailed information, longitudinal studies are the best studies design as compare to cross-sectional study.

Secondly, the current study was single centered study which did not represent the whole population of the physical therapy students, therefore population based studies should be conducted to capture the real depiction of the population.

CONCLUSION

It had been concluded that most of the students were exposed to the risks of adopting poor posture which can lead to musculoskeletal disorders and postural deformities in future. The results of this study suggest the importance of postural awareness among undergraduate physical therapy students.

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