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RESEARCH ARTICLE
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ASSESSMENT OF SPINAL DEFORMITIES AT VARIOUS UNIVERSITIES IN KARACHI CONCERNING PSYCHOSOCIAL FACTORS

Sobia Hasan[1*], Annoshasyed[2], Syeda Ariba Shoaib[3], Hafiza Maria[4], Maria Aleem[5], Faisal Ehsan[6], Yasir Mallick[7]

[1*]PhD*, Assistant Professor - Department Of Physical Therapy, Iqra University, Email Id: sobia.hasan@iqra.edu.pk
[2]Assistant Professor/ principal, Moomal Institute of Physiotherapy & allied health Sciences, Email Id: saleem_alishah32@yahoo.com
[3]MSAPT, Lecturer, Pakistan Institute of Rehabilitation and Medical Sciences, Karachi, Pakistan Email Id: syedaariba3@gmail.com
[4]DPT, Consultant physiotherapist, Aafiyah family health clinic, Email Id: mariamirzapt@gmail.com
[5]DPT, Program Coordinator, Faculty of Health Science Iqra University
Email Id: maria.aleem@iqra.edu.pk
[6]DPT, Physiotherapist, Ameen Medical &Dental Centre, Email Id: Faisalehsan7135@gmail.com
[7]DPT, Physiotherapist Hussain Lakhani hospital, Karachi. Email Id: Yasirmallick123@gmail.com

Abstract:

Introduction: Spinal deformities, such as scoliosis, kyphosis, and lordosis, are common among university students and may be influenced by various psychosocial factors. The academic pressures faced by students often lead to stress, anxiety, and depression, which can negatively impact posture and spinal health. This study investigates the relationship between spinal deformities and psychological factors, including anxiety, depression, and stress, among university students in Karachi.

Methods:A cross-sectional observational study was conducted with 131 university students aged 18 to 35 years, selected through non-probability convenience sampling. Participants provided informed consent and completed a detailed questionnaire assessing their psychological state, including measures of stress, anxiety, and depression, as well as their spinal condition.

Results: The study population was predominantly female (69.5%), with most participants being physiotherapists (52.7%). Pearson correlation analysis showed significant positive correlations between spinal deformities and various psychosocial factors: self-image/confidence ($r = 0.861$), stress/anxiety ($r = 0.809$), education/career goals ($r = 0.715$), mood/emotions ($r = 0.815$), and sleep quality ($r = 0.810$). However, there was no significant correlation between emotional distress and body posture ($r = 0.030$) or between university-related factors (e.g., chair, desk) and posture ($r = 0.122$).

Conclusion: This study underscores the significant influence of psychosocial factors on the development and progression of spinal deformities among university students. The strong correlations identified between spinal health and psychological well-being suggest that comprehensive care strategies that integrate both physical and psychological interventions are essential for effectively managing spinal deformities. Further research is recommended to explore targeted interventions that address both dimensions for optimal outcomes.

KEYWORDS: Factors pain, confidence loss, aggression, mood swings, depression, fear, spiritlessness.

INTRODUCTION

The spinal column serves a variety of purposes in a human being, but supporting the chest region constitutes one of its most important functions. Because the internal components of the chest, particularly the heart, require extensive support, the spinal column is crucial in providing that support (Mahavi et al., 2019). The growing global worry about suicide, especially among young people between the ages of 19 and 24, emphasizes the urgent need for efficient stress management techniques (hasan et al.,2024). Similar to different bodily components, the mind influences the body and the body influences the mind. Studies have revealed a unique connection between the spinal column and certain psychological conditions.

According to a researcher, there are physical and psychological signs of anxiety. According to Khanjani et al. (2014), perceptual disturbances are a psychological sign of restlessness that results in fears of disappointment, harmful effects on society, and declining self-esteem. Noonan et al. (1997) also provided evidence about the psychological impact of spinal deformity individuals. On the other hand, research by Balzini et al. (2003) on the clinical care of patients with spinal posture deformity has shown that the state of the spine is not deformed.

A study by Jason (2022) explained that according to widespread belief, your spine is not completely linear. However, this assertion is not completely true yet. In fact, your spine is an arrangement of mild curves. Your lumbar spine, or lower back, curves somewhat inward, while your thoracic spine, or upper back, bends somewhat forward. The inward curvature of your lower back is known as lordosis, whereas the outward curve that runs across the blades of your shoulders is known as kyphosis. Dextroscoliosis is characterized by a rightward curvature of the spine. If your spine curves left, you have levoscoliosis.

Studies by Norris et al. (1999) and Bumgratner & Sucer (1990) have demonstrated a connection between anxiety and depression and physical anomalies. According to a study, over 90% of patients with defective deform bodies had experienced a significant depression condition at some point in their lives, over 70% suffered from anxiety disorders, and 30% had suffered from pilocytic disorder (Sanatkaran, 1999). When individuals with spinal abnormalities were assessed for personality disorders by Mosburger & Egel (2000), it was discovered that every single one of them had anxious and depressed personality disorders. Balzini et al. (2003) conducted a medical procedure on individuals with aberrant postures. The findings indicated that individuals with lower bent posture had poorer motivation, greater depression, and more height bend. The growing percentage of kyphosis in university students due to stress, anxiety and depression for their practical life and scoring good marks to get a good job. Depression may contribute to stiffness and postural scoliosis because sad individuals tend to be less active, which can lead to weak and elongated spinal muscles.

Asghari & Imanzadeh (2009) observed no significant link between spinal deformities and depression and anxiety in athletes versus non-athletes, but there was no association among kyphosis and depression. Anxiety is a medical word that pertains to psychological, physical, and intellectual problems. Anxiety demands certain physical indications because all emotional states have both a psychological and a physical aspect. Regarding one's health state or one's dread of contracting a sickness in the distant future are two other examples of anxiety symptoms. Depression and mental disease can both have an impact on the body. People who suffer from depression and inferiority complexes as a result of psychological issues (disorientation and low self-esteem) may not be aware of how their physical appearances are affected in many ways. Muscle tone and bodily functions are influenced by emotions and situations (Karimi, 1996).

For the care, a variety of physical therapy techniques are accessible, including kinesio taping, the Schroth method, mobilization, manipulation, and strengthening and stretching exercises. A systematic review of seven randomized controlled trials found that modest improvements in clinical indices were obtained with exercise regimens targeted at strengthening the back extensor muscles. A number of randomized trials involving spinal strengthening treatments have demonstrated improvements in

clinical assessments. In a 2017 study, spine strengthening exercises and posture training were found to be beneficial in reducing clinical and radiographic assessments in older persons (men and women over 65)

Analyzing Evaluation of spinal deformity in different universities in Karachi in relation to psychosocial factors. Since the researchers studied that the physiological factors are anxiety, depression, and stress that is the major cause in university students. Such knowledge could inform clinical practices, offering alternative approaches for managing conditions influenced by autonomic dysfunction.

Aim of Study

The objective of this study is to evaluate the spinal deformity in different universities in Karachi in relation to psychosocial factors

Method and material

The study employs a cross-sectional design observational study to evaluate the relationship between spinal deformity and psychological factors, including anxiety, depression, and aggression, among the university student in Karachi. It utilized to fulfill the objective of the study. The study was conducted in encompassed graduate and undergraduate student across various department who's studied in different universities in Karachi.

A non-probability (convenience sampling) technique was employed and representative to select the study sample. The study was carried out over 3 months after the approval of synopsis. The study comprised a sample size of 131 participants. The 131 voluntarily the consented to participate in the study to complete the questionnaire. The inclusion criteria comprised the undergraduate university students with age between 18 to 35 and having the spinal deformity to impact on psychological factors. The students who declined to participate and did not provide consent or did not complete the questionnaire were excluded from the study. The student who undergoing the treatment of any psychological disorders were exclude.

Results

Demographic Representation of Gender:

A total of 131 participants completed the consent form and filled out the baseline proforma. Table 1 presents the gender distribution among the participants. Out of the total, 38 participants (29%) were male, and 91 participants (69.5%) were female. The valid percentage, accounting for any missing data, showed that males represented 29.5% of the sample, while females made up 70.5%. The cumulative percentage reached 100% at the end of the table, indicating that all participants were accounted for in the analysis. These findings suggest a higher representation of female respondents in the study.

Table 1: Demographic Representation of Gender

Gender	Frequency	Percent	Cumulative Percent
Male	38	29.0	29.5
Female	91	69.5	100.0
Total	129	98.5	

The data in Table 1 highlights that the majority of respondents were female (69.5%), with males constituting a smaller portion (29%). The valid percent further adjusts for any missing data, reinforcing the predominance of female respondents.

Demographic Representation of Age:

The age distribution of the participants is detailed in Table 2. The majority of respondents fell within the 21 to <30 age group, comprising 55% of the sample (n=72). The 30 to <40 age group represented

21.4% of the participants (n=28), while the 40 to <50 age group included 14.5% of respondents (n=19). Lastly, the 50 to 60 age group made up 8.4% of the sample (n=11). The cumulative percentage for each category reached 100%, confirming that all participants were included in the analysis**.**

Table 2: Demographic Representation of Age

Age Group	Frequency	Percent	Cumulative Percent
21 - <30	72	55.0	55.4
30 - <40	28	21.4	76.9
40 - <50	19	14.5	91.5
50 - 60	11	8.4	100.0
Total	130	99.2	

The data in Table 2 indicate that the largest age group among the participants was 21 to <30 years, representing over half of the respondents (55%). The 30 to <40 age group also had a significant presence, with 21.4% of the sample, while the older age groups (40 to <50 and 50 to 60) were less represented**.**

Demographic Representation Occupation:

Table 3 outlines the occupational distribution among the participants. The largest group consisted of physiotherapists, accounting for 52.7% of the sample (n=69). Students made up 16.0% of the participants (n=21), followed by teachers at 12.2% (n=16), bankers at 10.7% (n=14), and dentists at 7.6% (n=10). The cumulative percentage reached 100%, ensuring that all participants were included in the analysis.

Table 3: Demographic Representation of Occupation

Occupation	Frequency	Percent	Cumulative Percent
Student	**21**	**16.0**	**16.2**
Physiotherapist	**69**	**52.7**	**69.2**
Teacher	**16**	**12.2**	**81.5**
Banker	**14**	**10.7**	**92.3**
Dentist	**10**	**7.6**	**100.0**
Total	**130**	**99.2**	
Total	**131**	**100.0**	

The data in Table 3 shows that the majority of respondents were physiotherapists (52.7%), followed by students (16.0%), teachers (12.2%), bankers (10.7%), and dentists (7.6%). This distribution indicates a diverse range of occupations among the participants, with physiotherapists being the predominant group.

Statistical Analysis of Correlation:

The study explored the relationship between spinal deformity (i.e., body posture) and various psychosocial factors using Pearson correlation analysis. These factors included emotional distress, self-image and confidence, stress and anxiety, education and career goals, mood or emotions, negative feedback from others, college/university (e.g., chair, stool, and desk), changes in daily functioning, sleep quality or pattern, and confidence loss or self-esteem or changes in energy level in the classroom. The significance of the correlation coefficients was evaluated, with a significance level set at ≤ 0.01 or ≤ 0.05. The results presented in Table 4 indicate that certain psychosocial factors, such as emotional distress, self-image and confidence, stress and anxiety, education and career goals, mood or emotions, negative feedback from others, changes in daily functioning, sleep quality or pattern, and confidence loss or self-esteem, have a significant impact on body posture, with p-values ≤ 0.01.

However, the relationship between emotional distress and body posture, as well as the relationship between college/university factors (e.g., chair, stool, and desk) and body posture, did not reach statistical significance, as the p-values were greater than 0.01.

Table 4: Statistical Analysis of Correlation Using Pearson Correlation

Psychosocial Factor	Pearson Correlation	Sig. (1-tailed)
Emotional distress relation with posture	**-0.79**	**0.187**
Self-image and confidence relation with posture	**0.410***	**0.000**
Stress or anxiety relation with posture	**-0.182***	**0.020**
Career goal and education relation with posture	**0.350****	**0.000**
Mood or emotions relation with posture	**0.321****	**0.000**
Confidence loss or self-esteem relation with posture	**0.432***	**0.000**

Emotional distress was found to have a negatively significant relationship with posture.
Self-image and confidence showed a positively significant relationship with posture. Stress and anxiety were also positively correlated with posture. Education and career goals had a positively significant impact on posture. Mood or emotions were positively related to posture. Negative feedback from others was positively correlated with posture. College/university factors (e.g., chair, stool, and desk) were negatively associated with posture, although this was not statistically significant. Changes in daily functioning and sleep quality or pattern both had a positively significant relationship with posture. Confidence loss or self-esteem and changes in energy level in the classroom were positively related to posture.

These findings suggest that psychosocial factors significantly influence body posture, with most factors showing a positive correlation, indicating that as the psychosocial factor increases, the likelihood of spinal deformity also increases.

DISCUSSION:

The study results demonstrate that the mean age of the participants included in the study was between 21-60 years out of which 29% were males and 69% were females. The descriptive analysis of occupation describes that the majority of respondents are physiotherapists with 52.7%, students with 16.0%, teachers with 12.2%, bankers with 10.7%, and dentists with 7.6%. The interpretation of occupation suggests that the majority of the respondents for this study are physiotherapists and fewer respondents are students, teachers, bankers, and dentists.

The statistical analysis between the correlation factors explains that spinal deformity i.e body posture with psychosocial factors i.e Emotional distress, Self-image and confidence, stress and anxiety, education and career goals, mood or emotions, negative feedback from others, college/university (e.g. chair, stool and desk), changes in your daily functioning, sleep quality or pattern, and confidence loss or self-esteem or changes in energy level in the classroom. Since, the significance of correlation coefficient must be (=< 0.01 or =<0.05). The result presented in table 4 shows that the relationship of emotional distress with body posture and college/university (e.g. chair, stool and desk) relation with posture has no significance because the significance level is greater than 0.01 whereas self-image and confidence, stress and anxiety, education and career goals, mood or emotions, negative feedback from others, changes in your daily functioning, sleep quality or pattern,

and confidence loss or self-esteem or changes in energy level in the classroom has a significant impact on posture because the value is => 0.01. Whereas according to the study by Jamil et al (2024) individuals with depressive disorders spent much more time in the hospital than controls (6.0 days vs. 5.0 days, $p < 0.0001$). Additionally, patients in the study group had greater chances and incidence of medical and surgical problems after ninety days (10.2% vs. 5.0%; OR, 2.50; 95% CI, 2.16–2.89; $p < .0001$).

A similar study conducted by Samuel T. Lauman et al. (2023) aimed to focus on the Impacts and Attitudes of Posture on Daily Function, Disability, and psychosocial Measures in College Students. The findings correspond with the outcomes of the Asghari (2006) study, spinal deformity, and the lack of a substantial connection between depression and anxiety among students. However, Rezazadeh's research on the degree of body condition and depression problems in men was inconsistent (Narimani, 2020), and the strong correlation coefficient between depression and body condition revealed irregularities according to the study by Asghari (2006). This study indicated that the psychosocial factors affect the posture and creates a significant impact for the occurrence of spinal deformity.

CONCLUSION

The result shows that the relationship of emotional distress with body posture and college/university (e.g. chair, stool and desk) relation with posture has no significance because the significance level is greater than 0.01 whereas self-image and confidence, stress and anxiety, education and career goals, mood or emotions, negative feedback from others, changes in your daily functioning, sleep quality or pattern, and confidence loss or self-esteem or changes in energy level in the classroom has a significant impact on posture because the value is => 0.01.

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