ASSESSMENT OF POSTURAL DYSFUNCTION AND ASSOCIATED RISK FACTORS AMONG FEMALES

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Abstract:The word "posture" refers to the relative arrangements of body parts. Postural dysfunction, or "poor" posture, is characterized by an improperly positioned spine that emphasizes the curves. As a result, the joints, muscles, and vertebrae get stressed.

Objective: To assess postural dysfunction and to identify risk factors related to postural dysfunctions among females.

Methodology:An observational cross-sectional study was conducted in Gujranwala among 385 females. Females aged between 18 to 49 years were included in this investigation by using non-probability convenient sampling strategy. Subjects who met the inclusion and exclusion criteria were selected. REEDCO Posture Assessment Scale was used as a diagnostic tool for assessment of postural dysfunction and a self-structured likert scale was used to determine the risk factors of postural dysfunction among females. At 95% confidence level, data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) software version 24.0. Chi-square test was used to find the association of postural dysfunction with risk factors.

Results: Out of 424 females of age 18 to 44 years, average age was 33.41±9.31, their body mass index was 24.29±4.74 kg/m^2 and their REEDCO Posture Assessment Total Score was 54.28±17.64. Among 424 participants, 278(65.57%) had poor posture and 146(34.43%) had good posture. Sedentary lifestyle (p-value<0.001), lack of physical activity (p-value<0.001), muscle weakness(p-value<0.001), joint stiffness(p-value<0.001), stress (p-value=0.007), osteoporosis (p-value<0.001), poor core stability (p-value<0.001), poor footwear (p-value=0.001), motor vehicle accidents (p-value<0.001), incorrect sitting position (p-value<0.001), competitive sports (p-value<0.001) were considered as statistically significant with p-value<0.05.

Conclusion: The present study indicates that the prevalence of postural dysfunction among females is high. Significant risk factors were sedentary lifestyle, lack of physical activity, muscle weakness, joint stiffness, stress, osteoporosis, poor core stability, poor footwear, motor vehicle accidents, incorrect sitting position and competitive sports.

Keywords:*Posture, Body mass index, Risk factors, Assessment, Muscle weakness*

INTRODUCTION

The word "posture" refers to the relative arrangements of body parts.[1]Latalski et al. claims that the anatomical and functional context shapes the motor habit of posture. It is an indicator of a person's emotional and physical well-being.[2] Posture is a motor habit shaped by the anatomical and functional background. It is a reflection of a person's physical and psychological status. With minimal risk of fatigue and strain on the body's muscles and ligaments, effective work can be done while standing or sitting with proper postural alignment. An ideal posture is said to be one in which the musculoskeletal system is balanced and the body is not under too much pressure. Due to a growingpredisposition for a sedentary lifestyle in modern life, human motor behavior is negatively impacted.[3]

Good posture reduces pain and reduces the chance of injury to your joints and muscles. Developing appropriate posture in your body takes time and work, but the rewards are worth it in terms of health and well-being. Good posture can also improve your mood and sense of mind.[4]

The equilibrium of your body is a key to having good posture. It involves using the different body parts in the right proportion and line. Good posture

also involves maintaining the regular curves of the spine, and firmly gripping the lower abdomen with the chest up and the chin in. Each and every person must adhere to these principles.[5] Good posture, according to Bloomfield,[6] and Norris, is present when the greater trochanter, the bodies of the lumbar vertebrae, the shoulder joint, the bodies of the cervical vertebrae, and the lobe of the ear are all in the line of gravity. The body achieves balance as a result.

Postural dysfunction, or "poor" posture, is characterized by an improperly positioned spine that emphasizes the curves. As a result, the joints, muscles, and vertebrae get stressed. As a result of persistent poor positioning pressure builds up in the surrounding structures.[7-9]

Numerous intrinsic and extrinsic factors can affect posture The postural control system is made up of a number of subsystems, including the musculoskeletal, vestibular and proprioceptive systems, as well as the central nervous system.[10] Postural dysfunction is frequently caused by causes such poor core stability, muscle weakness, lack of awareness of correct posture, sedentary lifestyles, occupational pressures, joint stiffness, diminished fitness, and unsuitable ergonomic workspaces. If poor posture is left uncorrected, it can result in sadness, stress, digestive problems, respiratory problems, back discomfort. The lower back (63%) is most commonly afflicted, followed by the neck (53%), shoulders (38%), and wrists (33%). The lungs' capacity to expand can be hampered by bad posture.[7, 8]

Enduring long periods of the same position can cause the agonist muscles to tighten and the antagonist muscles to become weaker, giving the appearance of a hunched posture. Alterations in posture alignment have been linked to the long-term effects of prolonged sitting while using phones and computers. [11, 12] For many years, posture has been a crucial and important part of physiotherapy assessment and treatment.[13]

Women go through a variety of postural and physiological changes while pregnant. Pregnancy is frequently associated with changes in posture, such as an increase in lumbar lordosis and an anterior pelvic tilt. Actually, at a more posterior position, the uterus carries its weight behind the body's natural centre of gravity, which is displayed by 75% of women.[14]

Numerous risk factors for occupational injuries, include awkward working positions, the use of inappropriate instruments, repetitive motions, and excessively lengthy workdays, there is a rising prevalence of postural dysfunctions.[15] In comparison to males, girls have a higher risk of developing postural alterations at this age since the era of growth spurts also coincides with a rise in hormone levels in the blood. This includes estrogen, which interacts with growth hormones and other growth factors, such as bone synthesis, which is believed to be a potential etiological component for postural alterations.[16] Therefore, it is important to evaluate postural alignment in order to make early corrections and stop deterioration.

This research aims to contribute to knowledge of posture among females, highlighting different presenting complaints in females. There are several studies on aberrant posture in schoolchildren, but few studies on adult ladies. This study's aim is toevaluate posture among adult females and provide them guidance towards good posture.

METHODOLOGY

An observational cross-sectional study was conducted in Gujranwala among 424 females. Subjects who met the inclusion and exclusion criteria were selected. Females aged between 18 to 49 years were included in this investigation by using non-probability convenient sampling strategy. Details about consent forms were explained to the participants prior to filling the forms.

The outcome measures of my research were a self-structured likert scale and REEDCO Posture Assessment Scale. A self-structured likert scale was first used to identify risk factors among females. This self-structured likert scale was briefly explained to the participants after which data was collected. Necessary demographic information such as name, age, height, weight and Body Mass Index were noted in the form. BMI of person was measured using formula BMI = Weight in kg/height in m^2. Height was measured through measuring tape and weight through weighing machine. This self-structured likert scale had 15 risk factors. A pilot study was carried out to evaluate the reliability of this self-structured likert scale. This questionnaire was valid and reliable with chronbache alpha value of 0.737.

The main outcome measure of this study was REEDCO Posture Assessment Scale. The REEDCO Posture Assessment Scale is standard protocoal that was utilized to evaluate individuals' postural dysfunction. It was administered by visual evaluation of 10 postural features viewed laterally (sagittal view encompassing neck, upper back, trunk, belly, and lower back) or from behind (coronal view including head, shoulder, spine, hips, and ankles) in head-to-foot sagittal and sagittal views. A score of 0 indicates bad posture or a severe deviation, a score of 5 indicates fair posture or a

minimum to moderate deviation, a score of 10 indicates good posture, and a score of less than 60 is classified as postural dysfunction. The maximum score of 100 indicates good posture.[10, 17]Research was approved by Institutional review board (IRB), University of Lahore, Punjab, Pakistan.

RESULTS

By using nonprobability sampling, 424 girls between the ages of 18 and 49 were chosen as a sample. The 95% confidence interval was used to derive all findings. Participants' average age was33.41±9.31, their body mass index was 24.29±4.74 kg/m^2 and their REEDCO Posture Assessment Total Score was 54.28±17.64 (Table 1). Out of a total of 424 participants, 109 (25.7%) were between the ages of 18 and 25, 111 (26.2%) between the ages of 26 and 33, 104 (24.5%) between the ages of 34 and 41, and 100 (23.6%) between the ages of 42 and 49. Results indicate that 46 participants (10.8%) were underweight, 210 participants (49.5%) were normal, 111 participants (26.2%) were overweight and 57 participants (13.4%) were obese. According to REEDCO POSTURE ASSESSMENT Scale, prevalence of fibromyalgia indicates that 278(65.6%) had poor posture and 146(34.4%) had good posture among total of 424 participants (Table 2).

Risk factors such that Sedentary lifestyle (χ^2=33.467, p-value<0.001, odds ratio=3.368), Lack of physical activity (χ^2=32.484, p-value<0.001, odds ratio=3.313), Muscle weakness (χ^2=44.437, p-value<0.001, odds ratio=4.652), Joint stiffness (χ^2=2.9.4 p-value<0.001, odds ratio=3.496), Stress (χ^2=7.229, p-value=0.007, odds ratio=1.746) ,Osteoporosis (χ^2=37.382, p-value<0.001, odds ratio=3.797), Poor core stability (χ^2=61.26, p-value<0.001, odds ratio=5.729), Poor footwear (χ^2=11.043, p-value=0.001, odds ratio=1.997), Motor vehicle accidents (χ^2=44.437, p-value<0.001, odds ratio=3.553), Incorrect sitting position (χ^2=44.437, p-value<0.001, odds ratio=7.843), Competitive sports (χ^2=13.649, p-value<0.001, odds ratio=2.149) were considered as statistically significant with p-value<0.05. All of these were associated with postural dysfunction. Lack of awareness of correct posture, stress, heavy manual work and heavy weightlifting were not associated with postural dysfunction. Odds ratio were calculated to quantify risk variables (Table 3).

Table 1: Descriptive analysis of participants

Variables	Mean ± Std. Deviation
Age of participants in years	33.41±9.31
Body mass index score of participants (kg/m^2)	24.29±4.74
REEDCO Posture Assessment Total Score	54.28±17.64

Table 2: Postural changes of different regions

Posture	Responses	n (%)
Posture of Head	Good (10)	140(33.00)
	Fair (5)	248(58.50)
	Poor (0)	36(8.50)
Posture of Shoulders	Good (10)	81(19.10)
	Fair (5)	321(75.70)
	Poor (0)	22(5.20)
Posture of spine	Good (10)	131(30.90)
	Fair (5)	268(63.20)
	Poor (0)	25(5.90)
Posture of Hips	Good (10)	122(28.80)
	Fair (5)	286(67.50)
	Poor (0)	16(3.80)
Posture of Ankles	Good (10)	128(30.20)
	Fair (5)	213(50.20)
	Poor (0)	83(19.60)
Posture of Neck	Good (10)	47(11.10)
	Fair (5)	304(71.70)
	Poor (0)	73(17.20)
Posture of upper back	Good (10)	66(15.60)
	Fair (5)	271(63.90)
	Poor (0)	87(20.50)
Posture of Trunk	Good (10)	75(17.70)
	Fair (5)	278(65.60)
	Poor (0)	71(16.70)
Posture of Abdomen	Good (10)	96(22.60)
	Fair (5)	205(48.30)
	Poor (0)	123(29.00)
Posture of Lower back	Good (10)	81(19.10)
	Fair (5)	276(65.10)
	Poor (0)	67(15.80)
Prevalence of postural dysfunction/poor posture (Total Score =100)	Poor Posture (<60)	278(65.60)
	Good Posture (60 and Above)	146(34.40)
Total		**424(100)**

Table 4: Association of postural dysfunction with risk factors

Risk Factors		Posture		Total	Chi-square	P-value	95% Confidence Interval	
		Poor Posture (<60)	Good Posture (60 and Above)				OR	LL-UL
Lack of awareness of correct posture	Yes	187(676.3 %)	87(59.6%)	274(64.6%)	2.468	0.116	1.394	0.92-2.12
	No	91(32.7%)	59(40.4%)	150(35.4%)				
Sedentary	Yes	179(64.4%)	51(34.9%)	230(54.2%)	33.467	<0.001*	3.368	2.21-5.13
	No	99(35.6%)	95(65.1%)	194(45.8%)				
Lack of physical activity	Yes	176(63.3%)	50(34.2%)	226(53.3%)	32.484	<0.001*	3.313	2.17-5.05
	No	102(36.7%)	96(65.8%)	198(46.7%)				
Muscle weakness	Yes	239(86.0%)	83(56.8%)	322(75.9%)	44.437	<0.001*	4.652	2.90-7.46
	No	39(14.0%)	63(43.2%)	102(24.1%)				
Joint Stiffness	Yes	132(47.5%)	30(20.5%)	162(38.2%)	29.414	<0.001*	3.496	2.19-5.57
	No	146(52.5%)	116(79.5%)	262(61.2%)				
Stress	Yes	182(65.5%)	76(52.1%)	258(60.8%)	7.229	0.007*	1.746	1.16-2.63
	No	96(34.5%)	70(47.9%)	166(39.2%)				
Osteoporosis	Yes	159(57.2%)	38(26.0%)	197(46.5%)	37.382	<0.001*	3.797	2.44-5.89
	No	119(42.8%)	108(74.0%)	227(53.5%)				
Poor core stability	Yes	174(62.6%)	33(22.6%)	207(48.8%)	61.26	<0.001*	5.729	3.62-9.06
	No	104(37.4%)	113(77.4%)	217(51.2%)				
Excessive use of mobile	Yes	136(48.9%)	66(45.2%)	202(47.6%)	0.53	0.467	1.161	0.77-1.74
	No	142(51.1%)	80(54.8%)	22(52.4%)				
Heavy manual work	Yes	110(39.6%)	49(33.6%)	159(37.5%)	1.474	0.225	1.296	0.85-1.98
	No	168(60.4%)	97(66.4%)	265(62.5%)				
Poor footwear	Yes	150(54.0%)	54(37.0%)	204(48.1%)	11.043	0.001*	1.997	1.32-3.02
	No	128(46.0%)	92(63.0%)	220(51.9%)				
Motor vehicle accidents	Yes	136(48.9%)	31(21.2%)	167(39.4%)	30.739	<0.001*	3.553	2.24-5.64
	No	142(51.1%)	115(78.8%)	257(60.6%)				
Incorrect sitting position	Yes	245(88.1%)	71(48.6%)	316(74.5%)	78.674	<0.001*	7.843	4.81-12.7
	No	33(11.9%)	75(51.4%)	108(25.5%)				
Heavy weightlifting	Yes	107(38.5%)	46(31.5%)	153(36.1%)	2.024	0.155	1.36	0.89-2.09
	No	171(61.5%)	100(68.5%)	271(63.9%)				
Competitive sports	Yes	161(57.9%)	57(39.0%)	218(51.4%)	13.649	<0.001*	2.149	1.42-3.24
	No	117(42.1%)	89(61.0%)	206(48.6% 0				
Total		**278(100%)**	**146(100%)**	**424(100%)**				

("*"indicates statistical significant difference; OR: Odds ratio; LL: Lower limit; UL: Upper limit)

DISCUSSION

Poor posture may be detected using a variety of techniques and is characterized by a change in body form without any subjective complaints, such as discomfort. Usually, these problems worsen if they are not treated.[18] The goal of the current study was to close the knowledge gap about postural deviations. 424 women in Wazirabad's general population between the ages of 18 and 49 were included in this study. The average female age was 33.41±9.31. This study used the REEDCO Posture Assessment Scale to measure postural dysfunction and investigate the link between the risk variables that are related with it in females.

According to our knowledge, this was the first study to examine postural dysfunction in young and middle-aged adult females as well as related risk factors. Most previous studies on the prevalence of bad posture were done on young children. A cross-sectional study was done in 2015 to look at the relationship between bad posture and structural changes in children's and teenagers' spinal columns. There were 59 pupils assessed, both males and females. 79.7% of people had poor posture.[19] According to our study's prevalence of postural dysfunction, 65.57% of female had poor posture. Because we only look at females in this study, but the prior study looked at both genders, this finding is different.

A research on 2007 was done. This study's objective was to determine the prevalence and key contributing variables of bad posture among Czech schoolchildren. 3600 kids from both sexes were involved in this cross-sectional research. 38.3% of kids had a diagnosis of poor posture, with males being more likely to have one. Children in this research were far less likely to have bad posture than adult females, contrary to our previous results that gender was a major predictor. [20]

In order to ascertain the incidence of neck discomfort among university academic staff and potential risk factors, a research was conducted in 2002. Neck discomfort was more common in female academic staff (62%), compared to male personnel (38%).[21] This was consistent with our study's findings, which showed that women had worse posture on average.

This research was conducted in 2015. This study directly contradicted our conclusions. Poor posture and television or video entertainment were not significantly correlated in our study.[22]

In order to identify the risk factors for the emergence of postural abnormalities in school-aged children, a study was conducted in 2013. In line with earlier research, our findings showed that a sedentary lifestyle ($p<0.001$) and a lack of physical activity ($p<0.001$) were significant risk factors for poor posture.[23]

We discovered that our results were consistent with this research and that physical inactivity ($p<0.001$) was a substantial risk factor that had a high connection with postural dysfunction.[18]

In 2008, a research was carried out. This study sought to ascertain how muscular weakening affected postural instability and falling. The conclusion showed that postural instability was significantly increased by muscular weakening.[24] According to our research, women who had weaker muscles ($p<0.001$) were more likely to have postural problems which is consistent with our findings.

In 2011, a research was conducted to identify the prevalence and risk factors for CANS (Complaints of arms, neck and shoulders). Using the validated Maastricht Upper Extremity Questionnaire, information on the prevalence and risk factors of CANS was gathered.[25] This investigation confirms our results that bad posture is substantially correlated with poor sitting posture ($p<0.001$).

Limitations: Photogrammetry would have produced greater results, but it was costly. Since we didn't have access to the data, we used non-probability sampling. This was a single-center research carried out at Wazirabad. We are unable to extrapolate these results to other domains because of this reason

Recommendations: Photogrammetry might be used in more study to obtain more accurate results.For better selection, probability sampling should be used in the future.More investigation should be conducted in other Pakistani cities, it is urged.

CONCLUSION

The present study indicates that the prevalence of postural dysfunction among females is high. Significant risk factors were sedentary lifestyle, lack of physical activity, muscle weakness, joint stiffness, stress, osteoporosis, poor core stability, poor footwear, motor vehicle accidents, incorrect sitting position and competitive sports. Programs promoting posture awareness should be set up to educate women about proper posture and encourage them to engage in physical activity.

Conflict of Interest

There was no conflict of interest.

Financial Statement

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Data availability

Data will be provided on the demand by corresponding author.

REFERENCES

1.Penha P, João S, Casarotto R, Amino C, Penteado D. Postural assessment of girls between 7 and 10 years of age. Clinics (São Paulo, Brazil). 2005;60:9-16.

2. Latalski M, Bylina J, Fatyga M, Repko M, Filipovic M, Jarosz MJ, et al. Risk factors of postural defects in children at school age. 2013;20(3):583-7.

3. Selvakumar K, Rekha K, G P, Manoharlal M. Prevalence of Postural Dysfunction among Female College Students?A Qualitative Analysis. Biology and Medicine. 2018;10.

4. Giordani R, Parker V, McNamara B, Kids S, Staff POA, Welcome NG. The benefits of good posture.

5. Gardner E. Posture: a 4-H club activity: [University of Missouri, College of Agriculture]; 1955.

6. Illian T. Posture and sports performance: The University of Alabama; 2011.

7. Kratenová J, Zejglicová K, Malý M, Filipová V. Prevalence and Risk Factors of Poor Posture in School Children in the Czech Republic. The Journal of school health. 2007;77:131-7.

8. Mörl F, Bradl IJJoe, kinesiology. Lumbar posture and muscular activity while sitting during office work. 2013;23(2):362-8.

9. Sygit K, Kollataj W, Gozdziewska M, Sygit M, Kollataj B, Karwat IDJAoA, et al. Lifestyle as an important factor in control of overweight and obesity among schoolchildren from the rural environment. 2012;19(3).

10. Booshanam DS, Cherian B, Joseph CPA, Mathew J, Thomas RJRi. Evaluation of posture and pain in persons with benign joint hypermobility syndrome. 2011;31(12):1561-5.

11. Suliburska J, Bogdanski P, Pupek-Musialik D, Glod-Nawrocka M, Krauss H, Piatek JJAoA, et al. Analysis of lifestyle of young adults in the rural and urban areas. 2012;19(1).

12. Seefeldt V, Malina RM, Clark MAJSm. Factors affecting levels of physical activity in adults. 2002;32(3):143-68.

13. Sahrmann SAJJoO, Therapy SP. Does postural assessment contribute to patient care? : JOSPT, Inc. JOSPT, 1033 North Fairfax Street, Suite 304, Alexandria, VA …; 2002. p. 376-9.

14. Lile J, Perkins J, Hammer RL, Loubert PVJJ-JotAAoPA. Diagnostic and management strategies for pregnant women with back pain: once a serious cause of the pregnant patient's back pain is ruled out, conservative measures may help to relieve the discomfort. 2003;16(12):31-9.

15. Froorash E. Ergonomic evaluation of body postures and effective risk factors contributing musculoskeletal disorder in barbers in SARDASHT. 2012.

16. Leboeuf D, Letellier K, Alos N, Edery P, Moldovan FJTiE, Metabolism. Do estrogens impact adolescent idiopathic scoliosis? 2009;20(4):147-52.

17. Sahu P, Phansopkar PJJMPAS. Screening for lower cross syndrome in asymptomatic individuals. 2021;10(6):3894-8.

18. Kiruthika S, Rekha K, Preethy G, Abraham M. Prevalence of Postural Dysfunction among Female College Students-A Qualitative Analysis. Biology and Medicine. 2018;10(1):1-3.

19. Sedrez JA, Rosa MIZd, Noll M, Medeiros FdS, Candotti CT. Risk factors associated with structural postural changes in the spinal column of children and adolescents. Revista Paulista de Pediatria. 2015;33:72-81.

20. Kratěnová J, ŽEjglicová K, Malý M, Filipová V. Prevalence and risk factors of poor posture in school children in the Czech Republic. Journal of school Health. 2007;77(3):131-7.

21. Chiu T, Ku W, Lee M, Sum W, Wan M, Wong C, et al. A study on the prevalence of and risk factors for neck pain among university academic staff in Hong Kong. Journal of occupational rehabilitation. 2002;12(2):77-91.

22. Quka N, Stratoberdha D, Selenica R. Risk factors of poor posture in children and its prevalence. Academic Journal of Interdisciplinary Studies. 2015;4(3):97-.

23. Latalski M, Bylina J, Fatyga M, Repko M, Filipovic M, Jarosz MJ, et al. Risk factors of postural defects in children at school age. Annals of agricultural and environmental medicine. 2013;20(3).

24. Horlings CG, Van Engelen BG, Allum JH, Bloem BR. A weak balance: the contribution of muscle weakness to postural instability and falls. Nature Clinical Practice Neurology. 2008;4(9):504-

25. Ranasinghe P, Perera YS, Lamabadusuriya DA, Kulatunga S, Jayawardana N, Rajapakse S, et al. Work related complaints of neck, shoulder and arm among computer office workers: a cross-sectional evaluation of prevalence and risk factors in a developing country. Environmental health. 2011;10(1):1-9.

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