

Effect of Forward Head Posture on Neck Disability and Level of Stress among Undergraduate Students

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ABSTRACT

OBJECTIVE: To know the effect of forward head posture on neck disability and level of stress in undergraduate students

STUDY DESIGN: A cross sectional study

PLACE and DURATION: This study was conducted in Superior University, in 6 months from 1st December 2016 to 30th May 2017.

METHODOLOGY: A Myrin's inclinometer / goniometer were used to measure the forward head posture in undergraduate students. Neck disability index was used to assess neck disability and perceived stress scale for level of stress.

RESULT: Most of the participants 55.6% had forward head posture. Majority 53.2% were male and 46.8% were female with mean age of 22.25±2.48 years. The Mean score of Neck disability index was 34.28±7.03 and perceived stress scale was 20.07±4.75. The Chi square test showed significant association ($p < 0.05$) between forward head posture and level of stress but no significant association ($p > 0.05$) between forward head posture and functional disability.

CONCLUSION: The forward head posture has a strong effect on level of stress but no effect on functional disability.

KEY WORDS: Forward Head Posture, Functional Disability, Neck Disability Stress, Undergraduate Students

HOW TO CITE THIS:

Tanveer F, Shahid S, Hafeez MM. Effect of Forward Head Posture on Neck Disability and Level of Stress Among Undergraduate Students. *Isra Med J.* 2018; 10(2): 78-80.

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INTRODUCTION

Neck pain maintain a strategic distance from as an effect of these grievances contain a basic prosperity issue in our industrialized society¹ in like manner, affected workers make a high cost to society and organizations² Figuring related musculoskeletal reactions and disarranges are required to accept a significant part in business related muscles prosperity use PC³ The pocking neck is poor stance got a handle on by these adolescent is an outcome endeavor to fabricate upper flying course⁴ such position causes shortening of solid fibers about verbalization along these lines maybe unending neck pain⁵ sitting stance can change sanctioning of the significant cervical

flexors, accordingly possibly affect deformation of neck and shoulders, for instance, forward neck and balanced upper appendage positions.

Extended flexion at the atlanto-occipital joint structures the level segment from the purpose of meeting of mass of the make a beeline for its inside purpose of turn, with the goal that both atlanto-occipital and cervical flexion develop the torque expected of the extensor musculature to keep up static amicability. This erect stance may create less muscle push and lesser load on the spine contrast with a flexed upper body⁶ Studies reviewing the effects of the heaviness of back pack load on the cervical and shoulder posture of understudies have discovered that backpack weights of over 10% to 15% body weight result in delayed forward head posture (FHP), keeping young people from keeping up an upright standing posture⁷ Postural nervousness realized by poor workstation ergonomics, for instance, inappropriate area of the screen, reassure, or mouse, have been associated with musculoskeletal issues⁸ Forward flexion of the neck makes an increases moment of head weight that can deliver critical compression of the muscles to accomplishes harmony.⁶

The study regarding association of forward neck posture with stress and neck disability has not been done in Pakistan before. In undergraduate students bad posture due to prolong sitting is very common especially in cervical area. By finding the association of forward neck posture with stress and neck disability in undergraduates, this study will emphasize the improvement of posture to reduce stress and increase the quality of life of undergraduates. The objective of the study was to determine the effect of forward head posture on neck disability and level of stress among undergraduate students.

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Received for Publication: 27-08-17

1st Revision of Manuscript: 28-02-18

Accepted for Publication: 06-04-18

METHODOLOGY

This Cross sectional study was conducted from 1st Dec 2016 to 30th May 2017. The data was collected from Undergraduate students of Information Technology Department of Superior University. The sample size was taken as 126. Sample size was calculated by 'Raosoft' in which the margin of error was 5%, confidence level is 95%, the response of population was 50% over the 187 of the population size. Sample size formula by which 'Raosoft' is calculating is as follows; Non probability convenient sampling technique was used. Undergraduate students, both gender and age around 15-28 years were included whereas patient who was not willing to be part of research, systemic disorders affecting musculoskeletal system, any history of surgical or traumatic condition were excluded from the study. Data was analyzed by using SPSS 22. A Myrin's inclinometer / goniometer were used to measure the forward head posture in undergraduate students. Neck disability index was used to assess neck disability and perceived stress scale for level of stress. Frequency tables, descriptive statistics were used for data analysis. Chi square test was used to determine the association of forward neck posture with level of stress and functional disability. P-value was considered as ≤ 0.05 .

RESULTS

There were majority of 67 (53.2%) male students ranges between 18 years and 28 years with a mean age of 22 Years and Standard Deviation of 2.4. There were a total of 126 students out of which 67 (53.2%) male and 58 (46.8%) were female (Table I) The mean and S.D of neck disability was 34.28 ± 7.03 and level of stress was 20.07 ± 4.75 (Table II) There were 70(56%) students with forward head posture out of which 3(4.2%) had moderate, 37(52.8%) severe and 30 (42.8%) complete disability while 56(44%) without forward head posture out of which 5(7.1%) had moderate, 21 (30%) severe, 30 (42.8%) complete disability whereas out of 70(56%) students with forward head posture, 23(32.8%) had low, 30 (42.8%) moderate and 17 (24.2%) high stress while out of 56(44%) without forward head posture, 9 (12.8%) had low, 21 (30%) moderate and 26 (37.1%) high stress. Pearson's Chi square test between forward head posture and neck disability showed no significant ($p > 0.05$) association ($P=0.183$) whereas a significant ($p < 0.05$) association was seen between forward head posture and level of stress ($P=0.017$) (Table III)

TABLE – I: DEMOGRAPHICS OF AGE AND GENDER (N=126)

Variable	Mean +Std. Deviation	Range	
AGE	22.25± 2.48	18-28	
GENDER	Frequency	Percentage	
	MALE	67	53.2%
	FEMALE	58	46.8%

DISCUSSION

The study by Yoonmi Lee observed the relationship between cervical lordosis angles (Absolute Rotation Angle, forward

TABLE - II: MEAN AND SD OF NECK DISABILITY AND LEVEL OF STRESS (N=126)

Variable	Mean ± Std. Deviation
NECK DISABILITY SCORE	34.28±7.03
STRESS SCORE	20.07± 4.75

TABLE III: ASSOCIATION BETWEEN FORWARD HEAD POSTURE AND NECK DISABILITY, FORWARD HEAD POSTURE AND LEVEL OF STRESS (N=126)

ASSOCIATION		FORWARD HEAD POSTURE		P-Value
		Yes	No	
NECK DISABILITY	15-24 (Moderate)	3 (4.2%)	5 (7.1%)	0.183
	25-34 (Severe)	37 (52.8%)	21 (30%)	
	Above 34 (Complete)	30 (42.8%)	30 (42.8%)	
LEVEL OF STRESS	Low	23 (32.8%)	9 (12.8%)	0.017
	Moderate	30 (42.8%)	21 (30%)	
	High	17 (24.2%)	26 (37.1%)	

head posture), the range of extension and flexion (RFEM), the endurance and strength of the deep neck flexor and neck pain. The examination demonstrated that the posture of the neck influences the perseverance when contrasted with quality of the deep neck flexor. To upgrade the continuance of the deep neck flexor, to lessen AWB by controlling posture and strategies to improve RFEM and extension ought to be considered.⁹ This study done by Fran Kinster recommended that the impacts of a few rucksack weight on stance of basic schoolchildren and postural returns as change in forward head position were analyzed.

Rucksack push conveyed by schoolchildren ought to be limited to 10% body weight due to forward head positions and people protests at 15% - 20% body weight loads⁷ The study done by Christian Córdova¹ demonstrated that the under studies of dentistry, solution and nursing have a high ordinariness of impression of some level of cervical failure, being higher in upper courses the work of the significant number of social events focused on the more essential inescapability and reality found in students of dentistry¹⁰ The investigation by Michel to using an expressed that the CROM demonstrated sublime establishment authenticity for estimations of cervical upset. We propose using ROM esteems measured by the CROM as result measures for patients with neck pain.¹¹ Another study explored by Anna Grimby-Ekman demonstrated that by using different backslide models particular parts of neck anguish illustration could be tended to and the risk segments influence on torment case was perceived. Transient peril factors were seen stretch, high work/contemplate solicitations and PC utilize configuration (break plan). Those were also whole deal risk factors.

For making torment saw uneasiness and PC utilize illustration were peril factors.¹² The study by Veerle De Free showed the delayed consequences of physical and psychosocial work qualities in the etiology of neck torment in military office authorities.¹³ The investigation done by Cammie Chaumont Menendez demonstrated that the prevalence of farthest point musculo-skeletal signs in school masses, proposing a basic people for sharing by and large prosperity mediations expected to reinforce sound handling sharpens and perceive risk factors.³ Another study by Eliane C.R. exhibited a blend of postural and breathing exercises was effective in restoring muscle unpredictable attributes and position in a social affair of school-age mouth breathing children, as measured by changes in electrical development and positional data.⁴ Previous study by Jung-Ho Kang, M.D suggested that forward head positions in the midst of PC based work may add to some agitating impact to be chosen of strong adults. These results could be associated with direction programs concerning right positions when working at a PC for created time allotments.⁵

The results of study showed that stress on neck has the great influences on work and the daily living activities. One more study was conducted in college concluded the result that prolonged work on computer at college or work with forward neck posture cause neck pain the results of this research are very similar to our research.¹⁴ One other research support the results of our research which was conducted which give up value (p .017of stress)¹⁵. Another study showed that 40% of computer user student has neck pain and 33%with persistent neck pain.70% or more time on computer and stress are the most important factor of neck pain in undergraduate students²All of these previous research support the results of our research. The forward neck and stress can cause great effects on the working ability of student or in combination with functional disabilities for the long time period, and also delay the work performance of students. Prevention is better than treatment. Students must maintain the body and neck posture and they must be well known about the ergonomics of chair sitting.

CONCLUSION

This study concluded that forward head posture is quite common in undergraduate students and has significant effect on level of stress but insignificant effect on neck disability.

CONTRIBUTION OF AUTHORS

Tanveer F: Conceived Idea, Designed Methodology, Manuscript Writing, Manuscript Critical Revision and Final Approval
Shahid S: Data Collection, Statistical analysis
Hafeez MM: Data Analysis and interpretation

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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