

# Prevalence of Forward Head Posture Among Collegiate of Ziro, Arunachal Pradesh

Ngilyang Mica<sup>1</sup>, Keula Kri<sup>2</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>BPT, Department of Physiotherapy, Indira Gandhi Technological and Medical Sciences University, Ziro, Arunachal Pradesh.

## Abstract:-

### ➤ *Introduction:*

The tendency to adapt bad posture increases with the increasing sedentary life style. Sitting for prolong period of time will lead to bad postures such as scoliosis, rounded shoulder, kyphosis, lordosis and forward head posture.<sup>1</sup> Therefore, a cross-sectional study was conducted to evaluate the prevalence of forward head posture among college going student in Arunachal Pradesh, Ziro and to educate them about the bad posture.

### ➤ *Method:*

Permission was taken from various colleges of ziro and consent form was obtained from all the participants. After the inclusion and exclusion criteria, participants were assessed for forward head posture using a plumb line in a sagittal plane where the tragus of ear was marked as a point of reference.

### ➤ *Result:*

Out of 355 total participants, the forward head posture prevalence was found to be in 278 collegiate. Total percentage with forward head posture was 78% and 22% did not have forward head posture. Highest number of forward head posture was seen among female.

### ➤ *Conclusion:*

This study indicated that forward head posture is very common among collegiate of Ziro, Lower Subansiri, Arunachal Pradesh.

**Keywords:-** Forward Head Posture, Collegiate, Good Posture, Bad Posture, Plumb Line.

## I. INTRODUCTION

Good posture is as a state of alignment of the body for a specific amount of time, while a state of maintaining balance in the body using minimal musculoskeletal activity without causing pain or discomfort is termed as an ideal posture.<sup>1</sup>

The National Academy of Sports Medicine (NASM) defines FHP as holding the head out, in front of its natural position over the cervical spine. A person with FHP also tend to tilt their head back in order to look forward that puts increasing amounts of weight and strain on the muscles and bones of the neck and spine. In one of the study it was found

that there is increase in weight on the cervical spine by about 4.5 kg for every 1-inch of anterior positioning of the head, causing musculoskeletal, neural and vascular system dysfunction which can also lead to muscle imbalances.<sup>2</sup>

According to a U.S. National Library of Medicine, the muscles such as; Deep neck flexors (longus colli and longus capitis) and Scapular stabilizers and retractors (rhomboids, middle and lower trapezius, teres minor, and infraspinatus) tends to lengthen and become weaker with FHP. The muscles that becomes shortened and overactive include; Deep upper cervical extensors (splenius capitis, longissimus capitis, cervical multifidus, and upper trapezius) and Shoulder protractors and elevators (pectoralis minor, pectoralis major, and levator scapula).

In this modern world of technology and sedentary work-life style, prolong use of computers, laptops, desktops, television, tablets, mobile phones, video games, and even bag packs force the body to exhibit bad posture among students<sup>3</sup> that causes muscular imbalances leading to malfunctioning of various parts of the body.<sup>4</sup>

Studies have been conducted to understand the correlation of forward head posture and neck pain and it was revealed that there is decreased length of the muscle fibers and muscle tension which causes severe neck pain.<sup>5</sup> FHP can exhibit restricted range of motion leading to fatigue, TMJ dysfunction, teeth clenching, pinched nerves, headaches, numbness, tingling in arms and hands, muscle spasm which ultimately hampers the activity of daily living and various other symptoms.<sup>5,6</sup>

Neck pain is one of the commonest complaint among people, with a considerable impact in an individual's life. Strong evidence was found that relates neck pain with female gender, older age, being an ex-smoker, high job demands, and low social of work support. Neck pain was significantly associated with prolong FHP and repetitive movements with head held in FHP<sup>7</sup>

FHP causes increased external flexion torque to the vertebrae of cervical spine leading to increase in tension on neck extension and surrounding tissues and increased burden on the spinal tissues causes persistent spinal deformity and reduces proprioceptive sense in cervical spine.<sup>8</sup>

There is increased cervical spine compression involving vertebral joints, ligaments and back of cervical spine due to FHP. It also disturbs the anatomy and physiology of connective tissue by effecting its length and strength hence causing pain<sup>9</sup> and hyper extension of upper part of the neck (C1-C3) and flexion of lower part (C4-C7).<sup>10</sup>

Lack of knowledge and awareness about the posture causes improper posture of head and neck. There are many studies conducted to evaluate the FHP prevalence at different places and among various student groups but no evidence was found about the college going students of Ziro and their level of understanding about the posture and how it affects their ADLs and life in long run, therefore this study was conducted to evaluate the prevalence of forward head posture among college going student in Arunachal Pradesh, Ziro and to educate them about the bad posture.

## II. METHODOLOGY

➤ *Source of Data: 3 Colleges of Ziro (Saint Claret College, Mudo Tamo Memorial B Ed College, Indira Gandhi Technological and Medical Sciences University).*

- *Sampling method: Purposive sampling.*
- *Study design: Cross sectional study*
- *Sample size: 355*

➤ *Inclusion Criteria:*

- *Age group between 18-30 years*
- *Full time college going students*

➤ *Exclusion Criteria:*

- *Musculoskeletal Injury*
- *Neuro-Muscular Dysfunction*
- *Congenital Deformity*
- *Infective Diseases*
- *Malignancy*

➤ *Procedure:*

An approval was obtained from the Ethical committee and a permission was taken from all the Head of institutions (study settings), the written and verbal informed consent was obtained from each participants. n age group of 18-30 years were included in the study. The subjects where selected after the inclusion and exclusion criteria of the study. A total of 355 subjects took part in the study and were screened for forward head posture with the help of plumb line tool. A posture plumb line is a straight line from the head to the floor to assess the body posture and curve. It is a string where a weight is attached so that it hangs perfectly vertical, allowing the therapist to check for symmetry relative to the vertical line. According to Petronella AH et al., a plumb line is a reliable method in clinical context for the assessment of postural alignment. The tragus of ear had been marked as a point of reference for the assessment of forward head posture. Head posture was considered normal if a plumb line passes through the tragus of the ear in a straight line, the forward displacement of tragus from the plumb line or the backward displacement of acromioclavicular joint from the line of reference is considered as FHP. The assessment of FHP was done in sagittal plane. Students have been instructed to take out any restriction on their neck and head (eg: muffler or cap etc) and was instructed stand right behind the plumb line (laterally). They were instructed to stand in an upright position right behind the plumb line, where the plumb line will pass through the tragus.



Fig 1 Plumb Line Passing Through

## III. RESULT

Table 1 Age Group Distribution

Age Group	No. of Participants
18	13
19	19
20	37
21	54
22	63
23	52
24	43
25	28
26	22
27	12
28	5

29	1
30	1

In Table 1 consisting of age group distribution, the highest number of participants were age of 22 years old with 63 participants, followed by 54 participants of age group 21 years old. It can be seen that the highest participants were in age group of 21-23 years old.

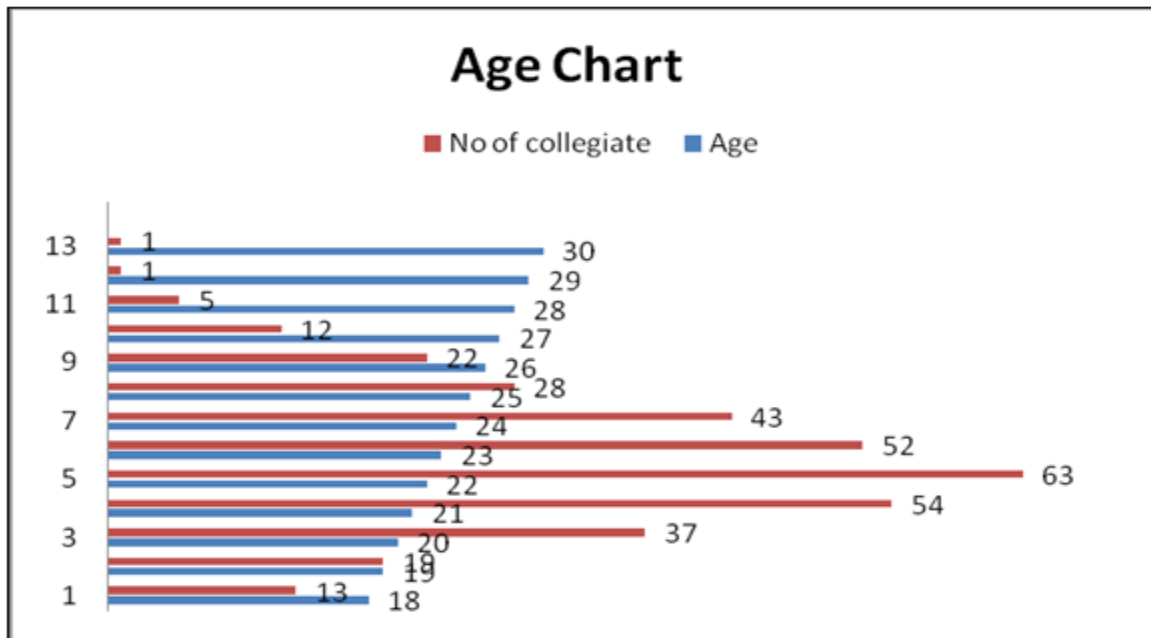


Fig 2 Age Group Chart

The highest age group that participated in this study was 22 years old with 63 participants.

Table 2 Gender Distribution

Gender	No. of Participants
Female	202
Male	153

In table 2, the gender distribution shows that the total of female participant were 202 and males were 153. Highest number of participants in this study were female.

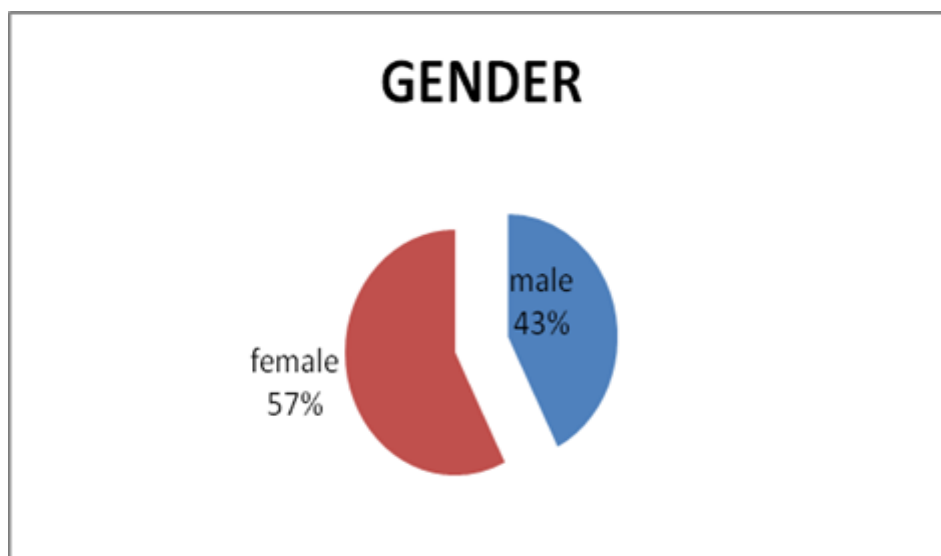


Fig 3 Gender Distribution Chart

The gender chart distribution in Fig 3 shows that the highest percentage of participants were female with 57 % in total.

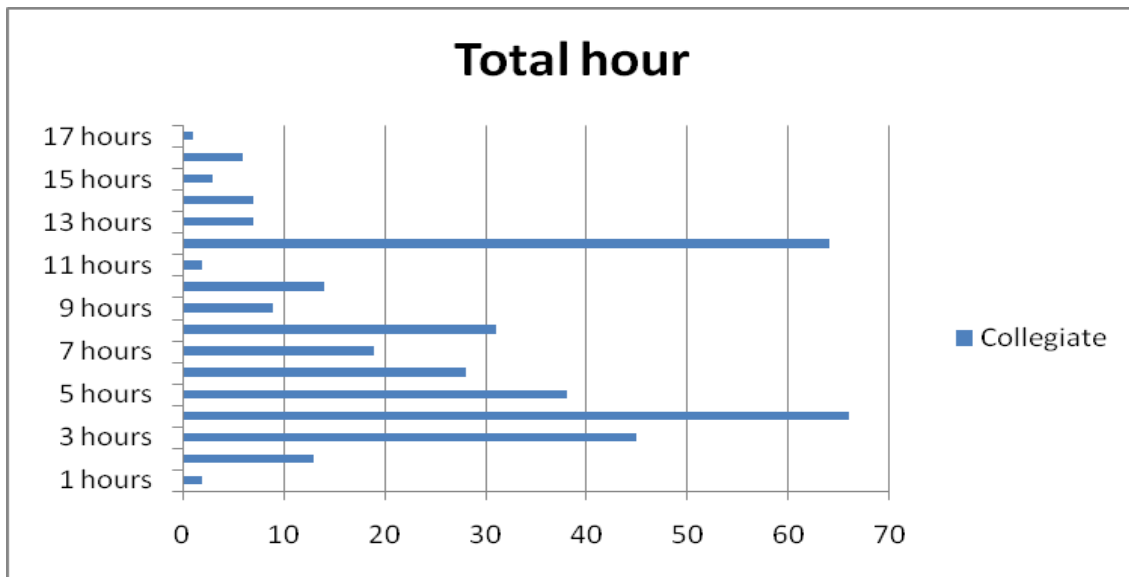


Fig 4 Distribution Chart of Hours Spent with Mobile

The highest duration of 17 hours with mobile was spent by only one participant among the total participants. Fig 4; shows that 66 participants, which is a highest number of participants uses mobile for four hours per day, followed by 64 participants that used mobile for 12 hours per day.

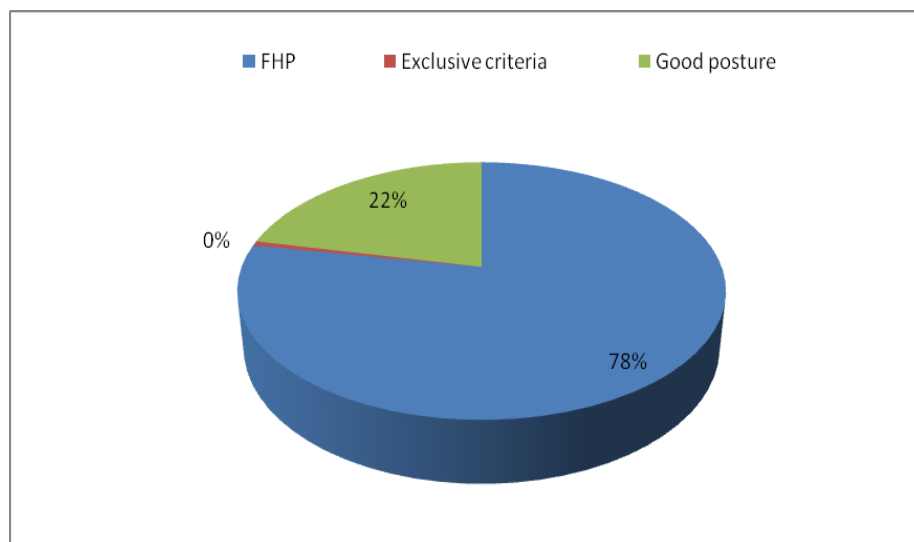


Fig 5 Percentage Distribution Chart for Forward Head Posture

The above chart shows that 78% of total participants had a forward head posture and 22% did not have forward head posture.

The prevalence of forward head posture was found to be in 278 college students out of 355 collegiates.

#### IV. DISCUSSION

This study was conducted to find the prevalence of forward head posture among college students of Ziro and their knowledge about the posture. From the results, it is found that there is 78% of prevalence of FHP among students of Ziro.

A similar cross-sectional study was done by Mamani et al. where they found 70% of prevalence of FHP and that physiotherapy students were spending most of the time on books, laptop, and mobile which might be the reason of their result.<sup>11</sup>

In a study conducted by Naz A et al. 63.96% with forward head posture were found including male and female out of 197 students. The study also showed positive correlation between the forward head posture and shoulder rolling forward.<sup>12</sup>

Furthermore, a study by Singh S et al. on prevalence of FHP and its impact on the activity of daily living among students of Adesh University showed 73% of prevalence among students out of 200 students with little or no effects on activity of daily living.<sup>13</sup>

A study by Guan revealed that while using a mobile phone, the user tends to attain FHP. Increasing trend of mobile phone usage among youth is also a major contributing factor to the increased prevalence of FHP.<sup>11</sup>

As the population of students were unaware about the posture and forward head posture, an awareness program can be conducted in general for the public and an exercise can be given to prevent and treat FHP. Ergonomics can be advised before structural changes occur.

## V. CONCLUSION

The result shows 78% prevalence of FHP in students. As postural control is under our conscious control, an awareness program that includes assessment and exercises explicitly designed to improve posture can be conducted in future that potentially changes the habitual bad postures

- *Source of Funding- Self.*
- *Conflict of Interest- Nil*

## REFERENCES

- [1]. Kim DH, Kim CJ, Son SM. Neck Pain in Adults with Forward Head Posture: Effects of Craniovertebral Angle and Cervical Range of Motion. *Osong Public Health Res Perspect.* 2018 Dec;9(6):309-313. doi: 10.24171/j.phrp.2018.9.6.04.
- [2]. Hansraj KK. Assessment of stresses in the cervical spine caused by posture and position of the head. *Surgical Technological international.* 2014 Nov;25:277-279.
- [3]. Wani SK, Subrat S, Ostwal P, Quazi R. Prevalence of anterior head translation in patients with neck pain. *Int J Curr Med Appl Sci.* 2016;9:78-83.
- [4]. Willford CH, Kisner C, Glenn TM, Sachs L. The interaction of wearing multifocal lenses with head posture and pain. *J Orthop Sports Phys Ther.* 1996;23:194-9.
- [5]. Lee MY, Lee HY, Yong MS. Characteristics of cervical position sense in subjects with forward head posture. *J Phys Ther Sci.* 2014;26:1741-3.
- [6]. Harman K, Hubley-Kozey CL, Butler H. Effectiveness of an exercise program to improve forward head posture in normal adults: A randomized controlled 10-week trial. *J Man Manip Ther.* 2005;13:163-73.
- [7]. Mahmoud NF, Hassan KA, Abdelmajeed SF, Moustafa IM, Silva AG. The Relationship Between Forward Head Posture and Neck Pain: a Systematic Review and Meta-Analysis. *Curr Rev Musculoskelet Med.* 2019 Dec;12(4):562-577. doi:10.1007/s12178-019-09594-y.
- [8]. Lee MY, Lee HY, Yong MS. Characteristics of cervical position sense in subjects with forward head posture. *J Physical Ther Sci.* 2014;26:1741-3.
- [9]. Silva AG, Punt TD, Sharples P, Vilas-Boas JP, Johnson MI. Head posture and neck pain of chronic nontraumatic origin: a comparison between patients and pain-free persons. *Arch Physical Med Rehabil.* 2009;90:669-74.
- [10]. Ohmure H, Miyawaki S, Nagata J, Ikeda K, Yamasaki K, Al-Kalaly A. Influence of forward head posture on condylar position. *J Oral Rehabil.* 2008;35:795-800.
- [11]. Mamania JA, Anap DB. Prevalence of forward head posture amongst physiotherapy students: A cross-sectional study. *Int J Educ Res Health Sci.* 2018;1:125-7.
- [12]. Naz A, Bashir MS, Noor R. Prevalence of forward head posture among university students. *Rawal Medical Journal.* Jun 2018;43(2):260-2