

## Forward Head Posture and its Association With Tension Type Headache among the Bankers of Hayatabad Peshawar: A Cross Sectional Study

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### ABSTRACT

**Background:** Forward Head Posture (FHP) is termed as the abnormal forward positioning of the head in relation to shoulder. Out of all postural abnormalities, FHP is one of the most ordinary type. In such a condition, abnormal postural alignment occurs showing increased extension of upper cervical region while in lower cervical and upper thoracic region increased flexion can be seen. The aim of this study was to evaluate the prevalence of Forward Head Posture and its association with Tension Type Headache among the Bankers of Hayatabad, Peshawar.

**Methods:** It was a cross-sectional study conducted in different banks of Hayatabad, Peshawar. A total of 89 bankers were examined using photogrammetry method and Web plot digitizer online software for plotting the craniovertebral angle on digital image. A symptomatic questionnaire was also used for the assessment of Tension Type Headache. Data was collected and entered in Microsoft Excel 2020. Data were analyzed through SPSS-21.

**Results:** A total of 89 bank staff individuals were recruited in the study. Among total, most of the participants had 92.1% Forward Head Posture. Majority rate i.e 12.4% had an age limit of about 26 years and also the mean age was about 34.4. Mean score of Tension Type Headache was 21.3%. Chi square test was done which showed no association of Forward Head Posture with Tension Type Headache.

**Conclusion:** It was concluded from the study that Forward Head Posture is quite common among the bankers but there is no association of Forward Head Posture with Tension Type Headache.

**Keywords:** Forward Head Posture, Tension Type Headache, headache, desktop users, web plot digitizer, craniovertebral angle.

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### INTRODUCTION

Forward Head Posture (FHP) is termed as the abnormal forward positioning of the head in relation to shoulder.<sup>1,2</sup> Out of all postural abnormalities, FHP is one of the most ordinary type.<sup>3</sup> In such a condition, abnormal postural alignment occurs showing increased extension of upper cervical region while in lower cervical and upper thoracic region increased flexion can be seen.<sup>4</sup> Muscular abnormalities of cervical region like weakness and lengthening of the anterior and reduction of posterior cervical muscles.<sup>5</sup> Muscles involved are Middle and Upper trapezius, splenii, sternocleidomastoid, levator scapulae and deep cervical flexor muscles.<sup>6</sup> Normal posture of the cervical region disrupts due to forward bending of the neck for a longer period of time.<sup>7</sup> If such postural abnormalities persist for a longer period of time so it may lead to chronic Forward Head Posture.<sup>3</sup> Excessive usage of mobile phones, laptops and computer screens below the eyesight level, can lead to bad posture resulting in FHP. FHP can be determined by measuring the Craniovertebral angle.<sup>8</sup> Craniovertebral angle is an angle formed due to crossing of two lines; a horizontal line that passes through spinous process of C7 and a line that joins

midpoint of tragus of the ear to spinous process of C7.<sup>9</sup> Normal CVA in males is about 48.8 degrees while in females it is about 47.6 degrees.<sup>6</sup> FHP is a postural abnormality that is common in all age groups, males having an average age of 22-44 years while in females average age is about 23-66 years.<sup>10</sup> According to a study, FHP has a prevalence of about 85.5%. A study showed prevalence of moderate FHP to be about 36.7% and of severe FHP to be about 20.0%. A prevalence of about 53.5% was seen in children and teenagers.<sup>6</sup>

A bilateral headache pattern having a quality of pressing or tightening identifies Tension type headache (TTH) which is a primary headache. It persists for minutes to days having an intensity of mild to moderate.<sup>11</sup> TTH is the prevalent type of primary headache which is treated as a normal headache.<sup>12</sup> It has a pain duration of about 30 minutes to 7 days, it may occur at least once a month.<sup>13</sup> Physical activity does not affect this type of headache. Individuals with tension type headache may be phonophobic or photophobic. No nausea and vomiting seen in such individuals.<sup>12</sup>

Abnormal muscular activities can lead to tension type headache. According to a study, trigger points

develop within the suboccipital muscle which refers pain towards the occipital and temporal region. Stress aggravates the pain of muscle contraction headache and reduces the physical activity. Standard of living decreases in individuals suffering from tension type headache and can also affect one's socioeconomic status.<sup>14</sup> Headache that persists for less than 15 days per month is identified as episodic TTH while headache that persists for 15 or more than 15 days per month is identified as chronic TTH.<sup>15</sup> According to a study, active trigger points have been seen in both episodic and chronic TTH but greater headache severity was seen in individuals with chronic TTH. Bilateral trigger points have also been seen in upper trapezius muscle having lower pressure pain threshold in individuals with chronic TTH. Sensitization of Central Nervous System occurs in individuals due to episodic TTH which can further progress into chronic TTH.<sup>16</sup> The category of episodic tension type headache can further be split up into Frequent episodic TTH and Infrequent episodic TTH. An Infrequent episodic tension-type headache (ETTH) is identified as a headache that occurs once a month while individuals with Frequent ETTH may have anywhere 1 to 14 headaches per month.<sup>17</sup> Tension type headache is seen more commonly in adults having prevalence of about 36% to 48%. At least once in a week, tension type headache is experienced by about 14% of adults.<sup>6</sup> Studies show the prevalence rates of about one year, according to which Muscle Contraction Tension Headache (CTTH) is about 2.2% while ETTH is about 38.3%.<sup>18</sup> The aim of this study was to evaluate the prevalence of Forward Head Posture and its association with Tension Type Headache among the Bankers of Hayatabad, Peshawar.

**MATERIAL AND METHODS**

This study was a cross sectional study. It was conducted in Banks of Hayatabad Peshawar. The study was completed within six months from April 2023 to September 2023. The study included 89 participants, selected through non-probability convenience sampling technique on the basis of following inclusion criteria: Age ranging between 25-60 years, both genders and subjects who have been working for at least 1 year. Some individuals were excluded from the study based on the following criteria: those having a pre-existing medical condition such as cervical spine disorders, musculoskeletal disorders or neurological disorder, history of trauma or surgery involving the head, neck or spine and those subjects who are unwilling to provide informed consent or complete the assessments required for the study.

All the willing participants were briefed about the purpose and procedure of this study and then data was collected. The agreed participants were screened through inclusion and exclusion criteria. Data was collected using following data collection tools: •Photogrammetric digital imaging technique used to

evaluate Forward Head Posture by measuring craniocervical angle. Web Plot Digitizer online software (web based online software) used for plotting the angle. A symptomatic questionnaire was used for the diagnosis of Tension Type Headache which was based on its diagnostic symptoms.

**RESULTS**

A total of 89 participants were included in the study. The mean age of the participants was 34.4 years. Out of total 89 participants, 69 were male while 20 were female (Table 1 & 2).

Table 1: Details Participants Age, Mean, and Standard Deviation

| Parameters     | Details |
|----------------|---------|
| Age Ranges     | 25-60   |
| Mean           | 34.4045 |
| Std. Deviation | 7.81711 |

Table 2: Gender-wise distribution of participants

| Gender | Percentage (Number/Frequency) % (n) |
|--------|-------------------------------------|
| Male   | 77.5 (69)                           |
| Female | 22.5 (20)                           |

Out of the total of 89 participants, only 7 individuals were found to be negative for Forward Head Posture, however the majority of participants were diagnosed for forward head posture. The table below gives information of these results. The table provides data that 70 out of 89 participants, representing approximately 79%, did not suffer from tension type headache. This shows that this headache type was common among the remaining 21.3% of the participants. Among the 89 participants, no significant association has been seen between Forward head posture and tension type headache as the P-value is 0.148 (Table 3).

Table 3: Forward Head Posture association with Tension Type Headache

| Forward head posture | Tension Type Headache |          |       | P-value |
|----------------------|-----------------------|----------|-------|---------|
|                      | Negative              | Positive | Total |         |
| Negative             | 4                     | 3        | 7     | 0.148   |
| Positive             | 66                    | 16       | 88    |         |
| Total                | 70                    | 19       | 89    |         |

**DISCUSSION**

Forward head posture is one of the most common type of postural malalignment in which forward positioning of the head occurs in relation to shoulder.<sup>19</sup> With the passage of time, Forward Head Posture can become worse and can further lead to spinal deformities and muscular problems.<sup>15</sup> One of the most common type of headache is Tension Type Headache which is considered normal by most of the people.<sup>20</sup> Experienced by about 78% adults, at-least once in a life time. It's a band like pain that can last

from few hours to weeks.<sup>21</sup> Affecting the quality of life of the individuals.<sup>22</sup> Musculoskeletal problems have also been seen in subjects with Tension Type Headache.<sup>23</sup>

According to many studies, many active trigger points have been seen in subjects with Tension Type Headache.<sup>24</sup> Postural abnormalities in the cervical region may refer pain towards the head causing headache.<sup>2</sup> A study performed on university students included both the genders male and female having an age limit of about 18-28 years showed a high prevalence rate of Forward Head Posture which was found to be 63.96%.<sup>5</sup> A study concluded the positive association of Forward Head Posture with Tension type headache according to which severe FHP was observed in individuals suffering from TTH with active trigger points as compared to healthy individuals. Along with that compromised range of motion of neck was observed in individuals with TTH.<sup>25</sup> Another study concludes positive association of Forward Head Posture with Tension Type Headache which shows increased craniovertebral angle resulting from impaired neck posture in subjects with Tension Type Headache. Active trigger points have also been seen in muscles of individuals with Tension Type Headache.<sup>26,27</sup> A study conducted in Spain also shows positive association of Forward Head Posture with Tension Type Headache.<sup>28</sup> According to which muscle pain occurs due to formation of active trigger points,<sup>29</sup> affecting the lifestyle of the individuals.<sup>30</sup> Whereas our study shows no association of Forward Head Posture with Tension Type Headache among the bankers of Hayatabad, Peshawar. This may be due to small sample size, different study population and different ways of conducting the study.

A descriptive pilot study was conducted on 20 participants, out of which 10 participants were suffering from Tension Type Headache while the other 10 were healthy participants. Patients with Tension Type Headache had smaller craniovertebral angle as compared to healthy participants which indicated increased Forward Head Posture. This study supported our study which showed no association between forward head posture and variables of Tension Type Headache.<sup>28</sup>

#### CONCLUSION

This study concluded that Forward Head Posture is very common among the bankers of Hayatabad, Peshawar. But there is no association between Forward Head Posture and Tension Type Headache. Further study is required to be done at a more generalized level. This study should be conducted on provincial level and longitudinal study should be performed for good inter and intra rater reliability. Population and sample size should be larger.

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