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PREVALENCE OF FORWARD HEAD POSTURE IN PROFESSIONAL PHOTOGRAPHERS IN SOUTHERN PUNE REGION.

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Abstract : The aim of this study was to find prevalence of forward head posture in professional photographers in southern Pune region, maharashtra, india. A cross-sectional study was conducted on 70 individul in duration of 6 months by using software called MB ruler to measure Craniovertebral angle to find forward head posture. the result show that out of 70 individuals 45 individuals had forward head posture.The study concluded that there is moderate prevalence of forward head posture in professional photographers that is 64.28%.

Keywords: **Craniovertebral angle, Forward head posture, Professional photographer.**

INTRODUCTION

The Posture is defined as attitude of body, relative arrangement of body parts for specific activity or characteristic manner of bearing one`s body. Forward head posture is characterised by increase flexion of lower cervical spine and upper thoracic region and increased extension of upper cervical vertebrae which also leads to changes in lumbar spine.[1] Forward head posture is the anterior positioning of cervical spine. When head changes its position from normal and moves forward from cervical spine the condition is termed as forward head posture. It moves center of gravity forward from spine. This puts abnormal stress on cervical musculature causing muscle imbalance. Forward head posture results in increased external flexion torque to the vertebrae of cervical spine causing severe tension on extensors of neck and surrounding connective tissue.[2] Eventually, there is increased burden on spinal tissue causing persistent spinal malalingment. Additionally forward head posture reduces sense of proprioception in cervical spine. Forward head posture is associated with shortening of upper trapezius, posterior cervical extensor muscles, sternocleidomastoid muscle and levator scapulae muscle.[3] Forward head posture also known to elevate/ increase compression on cervical spine involving vertebral joints, ligaments and back of cervical spine and also disturb the anatomy and functioning of connective tissue by affecting its length and power causing pain.[1] Photographer is a professional specialised in capturing images, managing shootings and processing of images, editing and ensuring high quality photos. To be a a professional photographer requires BA in Photography and Hands on experience with traditional and modern photo equipment and indepth knowledge of photography software. Photographers duties and responsibilities: Capture and process images until you achieve desired results. Direct models for the poses, mood and overall feel of the product shots. Constantly improve image quality using various editing methods. Use and maintain modern and traditional technical equipment (camera & lenses) Adapt different posture according to the shoot. Arrange object, scenes, lighting and background to adhere to the specifications. Concentrate on the lenses, adaption of faulty posture for the prolonged period of time to click perfect shot.[2] Work related musculoskeletal disorder are the serious socioeconomic problems in modern society. Work related musculoskeletal disorders known to be very common among workers who expose to various occupational hazards such as awkward working posture, repetitive manual work and long duration of work. Job performed by the photographers require very demanding physical tasks and physically demanding workload which is significant risk factor for developing musculoskeletal disorders. The job requires carrying heavy cameras on the shoulder and maintaining forward neck posture for long periods of time. Sometimes they have to work for several hours without taking break depending upon their recording schedule which is also risk factor for developing forward head posture. One of the work of photographers is to control studio camera that is fixed on ground; in this they do not get any weight on shoulder and neck but they have to keep a steady posture all the time during working hours. Photographers use the camera that weights average 1-10 Kgs and with this weight they have to maintain a steady posture for prolonged time as per the instructions and prolonged shooting.[4]

Photographers are often self employed providing their services on freelance basis or else working on behalf of photographic agencies. They often work in studios but are equally likely work on locations. Sets for photoshoots can be situated in an infinite variety of both indoor and outdoor locations and may involve travel to wide range of destinations based on clients requirements.

Photographers have no standard working hours and may be required to work in evening and at weekends to meet their deadlines and satisfy clients requirements. In order to attract clients and secure photographic assignment an essential asset for any photographer is portfolio showing their best work. Some photographers have their own photography shops in such cases they will typically offer range of photographic services.[2]

The craniovertebral angle is identified as the intersection of a horizontal line passing through the C7 spinous process and a line joining the midpoint of the tragus of the ear to the skin overlying the C7 spinous process. Measurement of craniovertebral angle, (CVA) is one of the common methods in assessing head posture. Craniovertebral angle is also referred to as cervical angle and forward head angle.[5]

Craniovertebral angle is measured by taking lateral photographs of the subject in a relaxed standing position without a back support. Spinous process of C7 and the tragus of ear are marked with a body marker. A horizontal line is drawn passing through C7 making a right angle with the vertical. Then, the angle between the line connecting C7 spinous process with the tragus of the ear and the horizontal line, is measured using eg. Goniometer or Image Software. One of the study compared the craniovertebral angle in sitting and standing positions.[4] There is a clear link between the thoraco-lumbar spine posture and cervical spine posture which depends on different sitting and standing positions. The study concluded that it is recommended to measure CVA in standing posture as the postural muscles activity decrease in slump sitting compared to standing. Craniovertebral angle is the landmark for assessment of head and neck postures. The angle is significantly smaller in subjects with neck pain. The decrease in the values of craniovertebral angle is associated with the greater incidence of forward head posture, and a greater level of disability among the subjects with neck pain. A smaller craniovertebral angle (CVA) indicate a greater forward head posture. A CVA less than 48–50 is defined as Forward head posture.[5]

MATERIALS AND METHOD

Institutional ethical committee approval was taken before starting the study. The study is a cross-sectional study. the study was carried out on professional photographers in pune region.

A total of 70 participants were included in the study based on inclusion and exclusion criteria.

Photographers between age group 25-40 y/o with minimum of 4 years of experience ,those who work 25 to 30 hours in a week were included in study. and photographers with pre-existing musculoskeletal condition and neurological condition were excluded. Study procedure was explained to each and every participant and the written consent form was taken from them. Participant was assured about the confidentiality of their personal information.

After obtaining consent the upper neck was exposed and body marker was placed on tragus of ear and C7 vertebrae.

Patient was instructed to stand and look ahead and single sagittal photograph was taken using mobile phone camera positioned at direct line at 1.5 m. image was digitalised and craniovertebral angle was calculated using MB ruler software.

RESULTS:

The research was conducted to find the prevalence of forward head posture in professional photographeres. A total of 70 professional photographers from southern pune region participated in study.all data was analysed and result was calculated using Advance microsoft excel 2021.

Table No 1: Age Distribution.

Age group	Frequency	percentage
25-35	54	77.14%
36-45	16	22.86%

INTERPRETATION: out of 70 subjects, 54 belong to the age group 25-35 years, 16 belongs to the age group 36-45 years,

Table No 2: Gender distribution.

Gender	No. of people	Percentage
Male	65	92.86%
Female	5	7.14%

INTREPERTATION: The above graph show there are 92.2% of males and 7.1 % of female photographers.

Table No 3: Distribution of Daily working hours

Hours per day	No. of photographers	percentage
4	1	1.4%
5	3	4.3%
6	13	18.6%
7	21	30%
8	21	30%
10	11	15.7%

INTREPERTATION: Above table represents distribution according to working hours.

Table No 4: Distribution of working days.

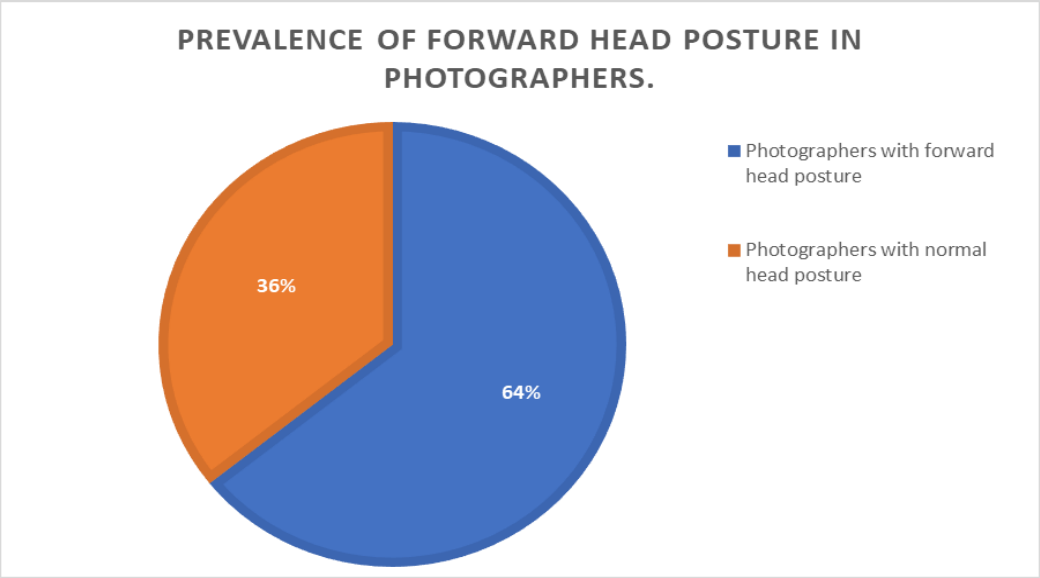
Days of work in a week	Frequency(hours)	Percentage
4	1	1.4%
5	7	10%
6	11	15.7%
7	51	72.9%

INTREPERTATION: This graph shows that out of 70 individuals 51 individuals work for 7 hrs/day, 11 individuals work for 6 hrs/day, 7 individuals work for 5 hrs/day ,1 individual work for 4 hrs/day.

Table No 5: Prevalence of forward head posture.

Total sample size	70	Percentage(%)
Photographers with forward head posture (CVA < 48 degree)	45	64.28%

INTREPERTATION: The above table shows out of 70 individuals 45 individuals having forward head posture.



DISCUSSION:

In this study we recruited 70 experienced and skilled professional photographers in the southern pune region. And among them 92.9% were males and remaining were females which can see in graph no 2 above. The study found that among photographers the mean age was found to be 34 years as shown in table no 1 above As the graph no 3 and graph no 4 shows the majority of photographers was working for 7 hours /day that too for approximately 6 days a week.

A typical photographer posture is upper body forward, shoulders rolled in with elbows flexed to hold camera, and neck bent forward with chin extended to concentrate on lens to adjust light, distance , angle of picture[16].

In our study we found that among 70 participants 45 individuals had FHP hence the prevalence of forward head posture in professional photographers is 64.28%.

This prevalence could be due to participants were using cameras like dslr, fujifilm ,mirrorless for prolonged period of time, also the work position attained by them during standing to click different shoots like maternity, baby shoot ,fashion, product shoot, corporate shoot, individual, family and group photoshoot ,especially during shooting events like engagement ,birthday parties, wedding and prewedding shoots neck postures are at extreme flexion or in other words in ergonomically inappropriate body position(upper body forward, shoulders rolled inward with elbows flexed to hold camera and neck bent forward to concentrate on lenses, adjust light and to sett perfect angle) for prolonged hours to have desired pictures.

According to recent study on photographers, the region mostly associated with musculoskeletal disorder is neck and shoulder. 57.65% of neck and 44% of shoulder were affected by musculoskeletal disorders.musculoskeletal symptoms which may occur at any region of body are mainly associated with organizational factors such as type of work ,frequency of working hours[16]

Also when there are wedding and prewedding shoots photographers are carrying around a canon, or nikon emblazoned shoulder bag with several lenses and paraphernalia inside as well as tripod under other arm and possibly even an additional ‘old trusty, camera ready for those faithful shoots. all the conventional cameras that the photographers use whether it is dslr or mirrorless weights around 559 g to 685 g if it is DSLR and 676 g to 738 if it is mirrorless that means photographers carries on an average 1 to 1.5 kg cameras on their shoulders and neck while shooting for prolonged hours on daily basis for weeks which causes postural change and discomfort in neck muscle.

CONCLUSION:

This study concludes that their is moderate prevalence of forward head posture in professional photographers that is 64.28%.

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