

ASSESSMENT OF UPPER CROSS SYNDROME IN PROFESSIONAL PHOTOGRAPHERS

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Abstract

When working with cameras and lenses, professional photographers frequently adopt lengthy static positions, which puts them at risk for postural abnormalities. Upper Crossed Syndrome (UCS) is largely caused by shooting with a forward head posture and rounded shoulders. Tightness in the pectoral and upper trapezius muscles, along with weakness in the deep neck flexors and scapular stabilizer, are the hallmarks of Upper Crossed Syndrome. The nature of photography work necessitates prolonged trunk inclination, shoulder elevation, and neck flexion. The cervical and upper thoracic spines are under more mechanical stress as a result of these incorrect postures. Photographers eventually experience musculoskeletal pain, discomfort, and decreased functional effectiveness as a result. Professional photographers frequently overlook posture assessment despite the work risk. Chronic neck and shoulder diseases can be avoided with early detection of UCS through appropriate evaluation. . Therefore, it is essential to evaluate professional photographers for Upper Crossed Syndrome in order to support occupational health and performance.

Methods: The observational study was conducted in Karad. The study was done to assist upper cross syndrome in professional photographers. Prior to conducting the survey, the ethical committee approval was made. Patient selected according to inclusion and exclusion criteria. With permission of 100 professional photographers participating in this study and result was obtained with the help of statistician.

Result: After evaluating the postural and muscular imbalances of 100 professional photographers, 59% of them were found to have Upper Crossed Syndrome (UCS). These people frequently exhibited thoracic kyphosis, rounded shoulders, and forward head posture.

Conclusion: The study revealed that 59% of professional photographers exhibited clinical features consistent with Upper Crossed Syndrome, indicating a high prevalence in this occupation. Key contributing factors include poor posture habits, repetitive arm use, forward head posture, and prolonged camera handling. These findings emphasize the need for early intervention through ergonomic education, targeted strengthening, postural training, and preventive physiotherapy to reduce musculoskeletal strain and improve work performance.

Keywords: Professional Photographer, forward head posture, shoulder pain and neck pain, upper trapezius tightness, upper cross syndrome

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INTRODUCTION

When the pectoralis muscles tighten and the trapezius and deep neck flexors muscles weaken, a postural problem known as upper cross syndrome. This results in kyphosis, rounded shoulder and forward head posture.^[1]Muscles imbalance is the main symptom of the illness, with certain muscles becoming weak and another tonic.^[2]Upper cross syndrome involves tight muscles including upper trapezius, levator scapulae and pectoralis muscles.

As well as weak muscles including deep cervical flexors, lower trapezius and serratus anterior.^[3]Upper cross syndrome is the word for the overlapping tightness and weakness that, when seen on the body, form an X pattern.^[4] Both the neck and upper limbs are commonly affected by musculoskeletal problems, which are typically brought on by repetitive motions, extended periods of inactivity and lifting large object in particular professions. A

sedentary living makes UCS worse by encouraging bad posture and weakening muscles in general. This problem can also develop as a result of repetitive motions and poor ergonomics such as lifting camera and holding camera improperly. Injuries that impair the movement of the human body or the musculoskeletal system (muscles, tendon, ligament, nerve, discs and blood vessels) are known as musculoskeletal disorders.^[13] Long term neglects the pain can lead to secondary issues such as cervicogenic headaches, impingement syndrome, shoulders instability from muscles imbalance, impaired joint position sensing and reduced maximum ventilation. ^[12]Upper cross syndrome manifests as pain decreased physical function and the possibility of prolonged work absence. In the end, this may cause society to experience severe economic hardship. Musculoskeletal issues are often linked to exposure at work. Long term poor posture maintenance might result in postural problem.^[12] Applicability to Photographers, because of the nature of their work, photographers especially those involved in extended or professional photographic sessions are vulnerable to developing UCS. Holding and using a camera frequently requires long-term forward head position, shoulder elevation, and repetitive arm motions. These postures may eventually exacerbate the muscle imbalances that are a feature of UCS. A study on musculoskeletal conditions in photographers found that shoulder and neck discomfort were more common in this population. The results showed that the physical demands of lugging heavy equipment, uncomfortable working postures, and recurrent strain all play a substantial role in these problems.

Technology's Effect on Contemporary Work Practices. The emergence of digital photography and the growing dependence on computer-based manipulation have made photographers' risk factors for UCS even worse. Long-term use of computers or mobile devices for photo editing might perpetuate bad posture, including forward head posture and slouching. These behaviours not only harm musculoskeletal health but also aid in the onset and advancement of UCS. Furthermore, the general population is showing signs of a wider trend of technology-induced musculoskeletal difficulties, with younger people increasingly presenting with posture-related muscle and spine issues. This change highlights the significance of addressing ergonomic principles in a variety of fields, including photography.^[13]

Studies show that among professionals with comparable occupational exposures, work-related musculoskeletal disorders (WRMSDs) are

significantly more common. For example, a survey of cameramen found that 86% of them had musculoskeletal pain, with the most common areas being the neck, shoulders, and lower back. 76.8% of Malaysian cameramen reported having neck pain in another study, underscoring the substantial risk of musculoskeletal problems in occupations involving repetitive motions and extended static postures. Despite the paucity of studies specifically examining photographers, similarities in occupational demands point to a comparable susceptibility to UCS.

The necessity for awareness and preventive measures is highlighted by the repetitious nature of photography work, as well as the physical demands of handling equipment and maintaining certain postures. A diversified strategy, involving ergonomic improvements, posture education, and focused exercise regimens, is required to address UCS in photographers. By putting these methods into practice, photographers can improve their general musculoskeletal health and reduce their risk of acquiring UCS.

It has been demonstrated that the forward head position, which is a part of UCS, affects the scapular upward rotators' activity during shoulder motions. According to research by Weon et al. (2010), forward head posture changes how these muscles activate during isometric shoulder flexion, which may result in shoulder dysfunction and scapular instability.

Research has indicated that UCS's forward head position (FHP) modifies the patterns of muscular activation. In particular, during loaded isometric shoulder flexion, FHP decreases activity in the serratus anterior while increasing activity in the upper and lower trapezius muscles. Shoulder dysfunction and scapular instability may result from this imbalance.

The changes in scapular kinematics and muscular activation are a result of FHP and rounded shoulder posture (FHRSP). When doing overhead tasks, those with FHRSP have increased scapular internal rotation and decreased serratus anterior activity, which can result in shoulder pain and dysfunction.

Prevention can be achieved by teaching photographers about the dangers of UCS and the significance of good posture. Practical advice on ergonomics and posture correction can be obtained through workshops and training sessions.

Photographers are particularly vulnerable to Upper Crossed Syndrome because of the nature of their employment, which frequently entails repetitive motions and extended static postures. It is feasible to lessen the negative effects of UCS on photographers' health and productivity at work by using

sophisticated evaluation methods, putting thorough remedial plans into place, and encouraging preventive actions.

METHODOLOGY-

The permission were obtained from protocol and ethical committees from Krishna Vishwa Vidyapeeth, Karad and research is conducted at Karad. This is an observational type of study was conducted among professional photographers. Based on inclusion and exclusion criteria the participants were selected. The procedure was explained to the participants. The first pain assessment of the patient was done with a NPRS. Then anterior, posterior and lateral postural assessment was done with plumb line. Pectoralis major contracture test was done to check the tightness of pectoralis muscles. Trapezius weakness test was done to check the weakness of trapezius muscles. Cervical flexion test was performed to measurement of the strength of the deep neck flexors. Measurement of craniovertebral angle was done to assess the alignment and positioning of the head and neck. Based on collected data the statistical analysis was done.

INCLUSION CRITERIA-

- Participation must be professional photographers.
- Participants experiencing constant and frequent neck, shoulder or back pain lasting over one month.
- Participants having at least one year of photography experience.
- Both male and female

EXCLUSION CRITERIA-

- Any recent incidents of upper body injury or trauma.
- History of congenital conditions affecting the shoulder joint.
- Persons who have had shoulder surgery in the past six months.

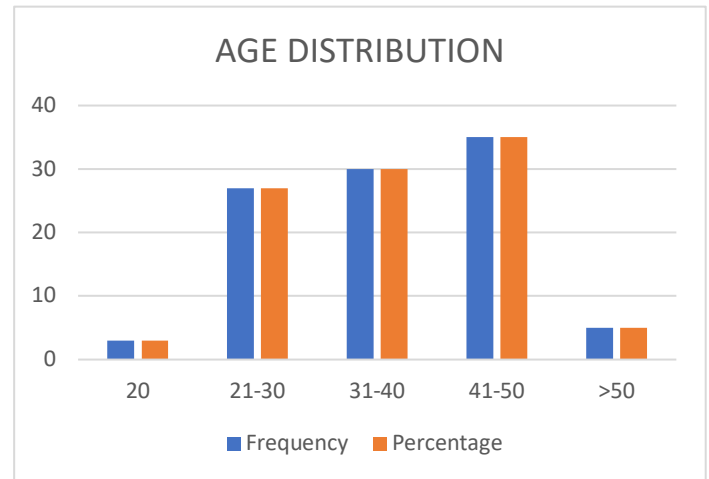
RESULT-

Table No-1 : AGE DISTRIBUTION

Age	Frequency	Percentage
20	3	3
21-30	27	27
31-40	30	30
41-50	35	35
>50	5	5

20	3	3
21-30	27	27
31-40	30	30
41-50	35	35
>50	5	5

Graph No-1: AGE DISTRIBUTION

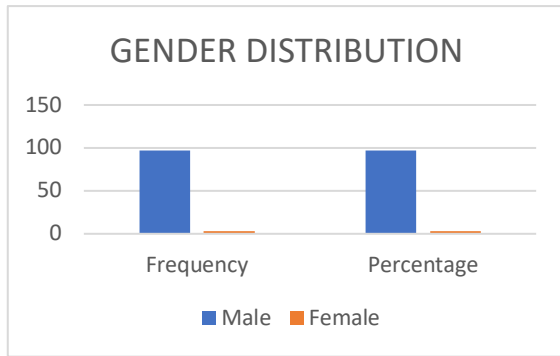


Interpretation- The majority of participants belonged to the 41–50 years age group (35%), followed by 31–40 years (30%) and 21–30 years (27%). Very few participants were aged above 50 years (5%) or exactly 20 years (3%). This indicates that middle-aged individuals formed the largest proportion of the study population.

Table No-2 : GENDER DISTRIBUTION

Gender	Frequency	Percentage
Male	97	97
Female	3	3

Graph No-2: GENDER DISTRIBUTION

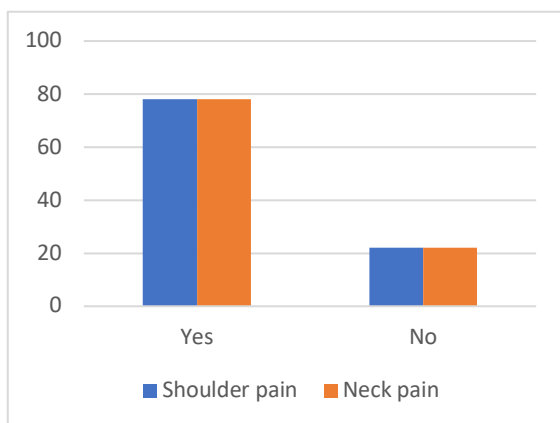


Interpretation-The gender distribution shows , Out of the total sample, 97% are male, while only 3% are female. This indicates that the study population is overwhelmingly dominated by males.

Table No-3: PREVALANCE OF PAIN WITH RESPECT TO BODY REGINE

Body region	Yes	No
Shoulder pain	78	22
Neck pain	78	22

Graph No-3: PREVALANCE OF PAIN WITH RESPECT TO BODY REGINE



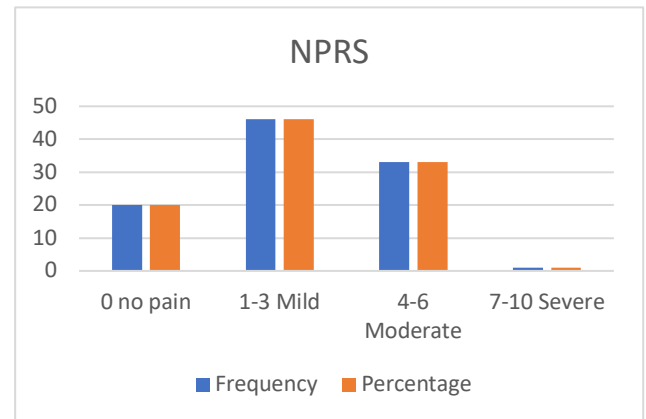
Interpretation-This indicates that both types of pain are common and occur at the same rate within the population. Such a pattern suggests that there may be shared contributing factors.

Table No-4: NUMRICAL PAIN RATING SCALES DISTRIBUTION

NPRS (Grading)	Frequency	Percentage
0 no pain	20	20
1-3 Mild	46	46
4-6 Moderate	33	33
7-10 Severe	1	1

0 no pain	20	20
1-3 Mild	46	46
4-6 Moderate	33	33
7-10 Severe	1	1

Graph No-4: NUMRICAL PAIN RATING SCALES DISTRIBUTION

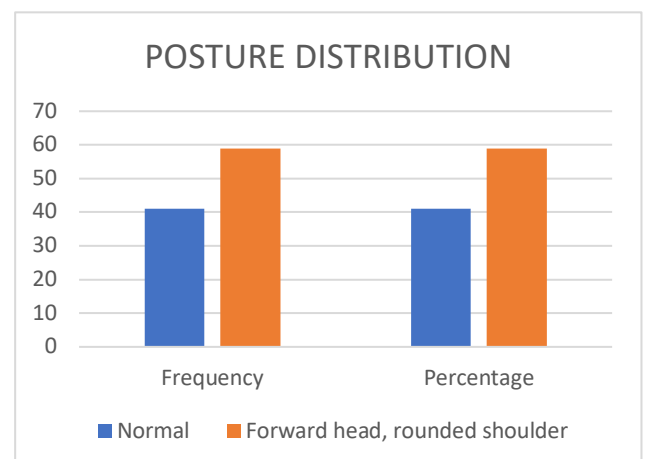


Interpretation- Overall, the data suggests that, pain in the study population is predominantly mild to moderate, with very low incidence of severe pain.

Table No-5: POSTURE DISTRIBUTION

Posture	Frequency	Percentage
Normal	41	41
Forward head, rounded shoulder	59	59

Graph No-5: POSTURE DISTRIBUTION

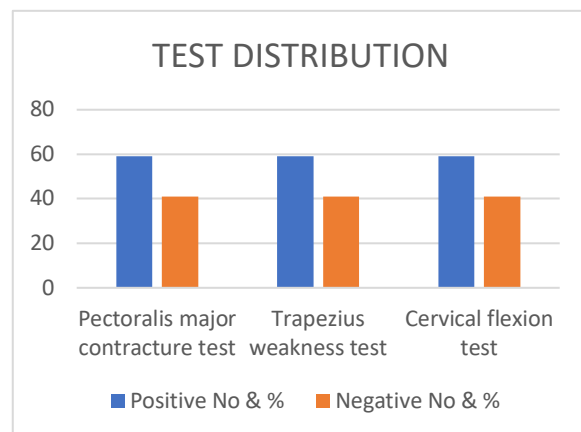


Interpretation-The posture data indicates that 59% of participants have forward head and rounded shoulder posture, while 41% maintain a normal posture.

Table No-6: TESTS DISTRIBUTION

Tests	Positive No & %	Negative No & %
Pectoralis major contracture test	59	41
Trapezius weakness test	59	41
Cervical flexion test	59	41

Graph No-6: TESTS DISTRIBUTION

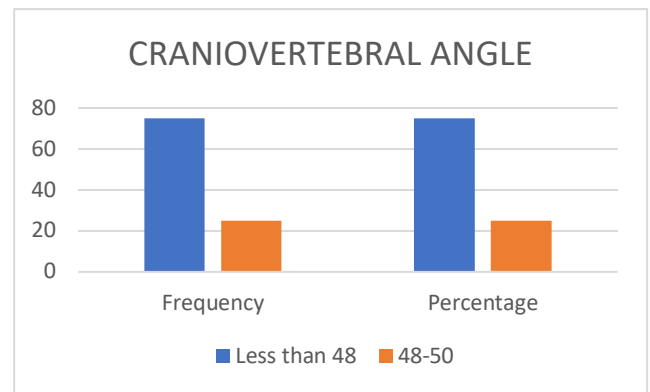


Interpretation-The results show that all three clinical tests Pectoralis major contracture test, trapezius weakness test, and cervical flexion test have the same outcome, with 59% positive and 41% negative.

Table No-7: CRANIOVERTEBRAL ANGLE

Craniovertebral angle	Frequency	Percentage
Less than 48°	75	75
48°-50°	25	25

Graph No-7: CRANIOVERTEBRAL ANGLE



Interpretation-The craniovertebral angle data shows that 75% of participants have an angle less than 48°, while 25% fall within the 48°–50° range.

DISSCUSSION

Aim of the study to determine assessment of upper cross syndrome in professional photographers. Upper Crossed Syndrome (UCS) is a common postural condition caused by an imbalance between weak and tight muscles around the neck, shoulders, and upper back. Characterized by forward head posture, rounded shoulders, and thoracic kyphosis, UCS results from the tightening of the pectoralis muscles and upper trapezius, alongside the weakening of deep cervical flexors, lower trapezius, and serratus anterior. This muscular imbalance leads to altered joint loading, neuromuscular dysfunction, and long-term functional limitations.

Professional photographers are particularly vulnerable to UCS due to the repetitive nature of their work, which involves holding cameras for extended periods, adopting static and awkward postures, and frequently engaging in forward-reaching or overhead activities. Prolonged forward head posture, shoulder elevation, and camera handling contribute significantly to postural strain and the development of muscular imbalances. Technological advancements, such as digital editing, further worsen posture through prolonged computer use. In this project, UCS was assessed in professional photographers using tools like the **Visual Analogue Scale** for pain intensity, **Postural Analysis** (static and dynamic), **Cervical Flexion Test**, and **Craniovertebral Angle** measurement to quantify forward head posture. Additional tests like the **Pectoralis Major Contracture Test** and **Trapezius Weakness Test** helped evaluate muscular tightness and weakness contributing to UCS. Research shows a high prevalence of musculoskeletal disorders (MSDs) among occupations with similar postural demands. Studies report neck and shoulder pain in up to **86% of cameramen**, with **forward head posture** found to significantly disrupt scapular muscle activation and shoulder mechanics. The

combination of prolonged static postures, repetitive strain, poor ergonomics, and stress highlights the occupational risk factors for UCS in photographers. Therefore, this project underlines the critical need for **early assessment, ergonomics education, and corrective interventions** such as posture training and strengthening exercises. Addressing UCS in photographers not only improves their musculoskeletal health but also enhances occupational performance and reduces long-term disability risk.

CONCLUSION-

The study revealed that 59% of professional photographers exhibited clinical features consistent with Upper Crossed Syndrome, indicating a high prevalence in this occupation. Key contributing factors include poor posture habits, repetitive arm use, forward head posture, and prolonged camera handling. These findings emphasize the need for early intervention through ergonomic education, targeted strengthening, postural training, and preventive physiotherapy to reduce musculoskeletal strain and improve work performance.

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