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## Neck, Shoulder, and Back pain Among Photographers: Prevalence and its Risk Factors

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### ABSTRACT

**Background:** photographers have to carry heavy gears, hike miles for a perfect photo and/or maintain an odd position over time can develop shoulder, neck and back pain. These pains can affect their photography. So, a study was carried out to assess the prevalence of shoulder, neck, and back pain among photographers and to investigate the relationship between this pain and its risk factors.

**Methodology:** A sample size of ninety photographers were taken for this study. To assess risk factor of pain among photographers were asked to fill the work-related musculoskeletal disorders questionnaire (WMSDsQ) to identify the musculoskeletal disorders during the photo-shoots. It is analysed by rapid upper limb analysis (RULA) and ergonomic risk factors noted. The outcome measure used in this study is RULA (rapid upper limb analysis).

**Result:** The prevalence of neck and shoulder pain is comparatively higher in photographers. The causes of the pain are repeated strain and awkward working postures, excessive positioning injuries and other musculoskeletal conditions. In this study the professional photographers (57%) showed more neck and shoulder pain than freelance photographer (35%)

**Conclusion:** It was found that prolonged occupational hazard and maintaining awkward positions were the main reasons for musculoskeletal disorders among photographers.

## INTRODUCTION

Neck, shoulder and back pain is relatively common among photographers and has a negative impact on their physical and psychological health. Neck, shoulder and back pain is relatively mild musculoskeletal condition, but in recent years it has become a major health problem and has imposed a heavy burden on the person and community [2,3].

The World Health Organization (WHO) has ranked neck, shoulder and other musculoskeletal diseases as the 4<sup>th</sup> and 10<sup>th</sup> health problems, respectively, for years lived with disability [1].

A typical photographer's posture is with upper body forward, shoulders rolled in, and neck bent forward with chin extended. Work-related musculoskeletal disorders (WMSDs) result from the workplace risk factors and are well known by the terms such as cumulative trauma disorders and repetitive strains injuries [2].

Musculoskeletal disorders are the injuries that affect the human body's movement or musculoskeletal system (muscle, tendon, ligament, nerve, discs, blood vessel). Neck, shoulder and back pain is relatively mild musculoskeletal condition, but in recent years it has become a major health problem and has imposed a heavy burden on the person and community [3]. Body posture refers to the position of a person's body in space, the alignment of body parts in relationship to one another and to the environment at one point in time and is influenced by each of the body's joints [4]. Habitual postural patterns are associated with musculoskeletal pain, and improving a

maladaptive posture requires postural awareness to lead to clinical improvements [4,5]. Postural control refers to building up posture against gravity and to ensuring that balance is maintained. It enables postural stabilization during voluntary movements and recovery of balance after disturbance. Postural control also constructs a reference frame for proprioception, i.e., the perception of joint angles and muscle tensions, of movement, balance and posture [6]. When less attention is paid to the physical damage caused by holding a certain position over time causes holding injuries technically called excessive positioning injuries [7]. Swelling and heat in joints, physical stiffness and discomfort, headaches, jaw pain, and chronic neck or low back pain are all signs of excessive positioning injuries. The findings of a study showed that camera usage increased the risk of developing musculoskeletal disorders [7,8,9]. Such an increase is mediated by ergonomic factors such as standing for prolonged periods, adoption of inadequate or uncomfortable postures, hiking miles for perfect photo, performing certain angles for photograph, carrying heavy lens luggage on the back and psychosocial factors. Standing for more than half a day in an awkward position increases the likelihood of having musculoskeletal problems [10]. This study is done to assess the prevalence of shoulder, neck, and back pain among photographers and to investigate the relationship between this pain and its risk factors using Work-related musculoskeletal disorders

(WMSDs) and rapid upper limb assessment (RULA).

### **METHODOLOGY**

Prior collecting the data, permission was received from Institutional Ethics committee from the Krishna Institute of Medical Sciences "deemed to be university" to collect data. Participants were informed and the participation was voluntary. Participants were selected by simple random sampling method according to inclusion criteria and exclusion criteria. Ninety photographers working in and around local area were taken for this study with full consent. The selected photographers were working in the profession with more than one year experience, either freelancers or professional photographers. A professional photographer is typically part of a company or agency and works full-time either have their own photo studio, On the other hand, a freelancer takes on jobs on a contract basis as opposed to being an employee for a company.

All the participants were males in the age between 20– 60 years. The 90 participants divided into 2 groups with 45 participants in each group.

**Group A:** 45 freelance photographers

**Group B:** 45 professional photographers

The procedure and purpose of the study was explained to the participants. Assessment was carried out by using RULA (rapid

upper limb assessment) .The Rapid Upper Limb Assessment (RULA) method has been developed in 2004 by Dr. Lynn McAtamney and Professor E. Nigel Corlett, ergonomists from the University of Nottingham in England . RULA is a postural targeting method for estimating the risks of work-related upper limb disorders. A RULA assessment gives a quick and systematic assessment of the postural risks to a worker. The analysis can be conducted before and after an intervention to demonstrate that the intervention has worked to lower the risk of injury. They were asked to perform their task in their working posture. Using RULA assessment, scores were given according to their respective posture during work. Work-related musculoskeletal disorder questionnaire (WMSDs) . Using the scores obtained from RULA assessment and musculoskeletal disorder questionnaire a comparative statistical analysis, interpretation was obtained.

### **RESULT**

The prevalence of neck and shoulder pain is slightly higher in photographers. The causes of the pain are repeated strain and awkward working postures, excessive positioning injuries and other musculoskeletal conditions. In this study the professional photographers (57%) showed more neck and shoulder pain than freelance photographer (35%).

**TABLE 1:RULA score obtained from working posture**

Sr. No	Type of photographer	Age group	Total no. of participants	RULA score >2	RULA score <=2
1	professional photographers	between 20-29	13	7	6
		between 30-39	15	10	5
		between 40-49	12	5	7
		between 50-59	5	4	1
<b>TOTAL</b>			45	26(57%)	18
2	Freelance photographers	between 20-29	16	4	12
		Between 30-39	12	4	8
		between 40-49	13	6	7
		between 50-59	4	2	2
<b>TOTAL</b>			45	16(35%)	29

**TABLE 2: Prevalence of pain with respect to body region**

Sr .No	Reported region	professional photographers	Freelance photographers
1.	Neck	65%	52%
2.	Shoulder	60%	34%
3.	Back	40%	35%

**TABLE 3: Average % of RULA score with respect to age**

Sr .No	Age	Average % of RULA score >2	Average% of RULA score <=2
1.	20-40	44.6%	55.3
2.	40and above	50%	50%

## DISCUSSION

This study conducted on the prevalence of neck, shoulder and back pain among photographers, specifically professional and freelance photographers.

The study was conducted using the Rapid Upper Limb Assessment (RULA) method to assess the working posture of the participants. The RULA score (>2) was greater (57%) in professional photographers than freelancers due to their working environment, where professional photographers need to carry around professional equipment and edit in their lab for hours, also the results showed that photographers are at a higher risk of developing pain due to their work-related risk factors such as prolonged standing, inadequate or uncomfortable postures, and carrying heavy equipment. By using work-related musculoskeletal disorders questionnaire (WMSDsQ) it was found that the prevalence of neck and shoulder pain is slightly higher in photographers, and professional photographers showed more neck and shoulder pain than freelance photographers. The average percentage of unacceptable RULA score (>2) were shown by 40 above age group. The causes of the pain were attributed to repeated strain and awkward working postures, carrying around heavy objects, excessive positioning injuries, and other musculoskeletal conditions. Therefore, ergonomic interventions with the aim of improving physical factors in the working environment like designing suitable bags carrying heavy objects, improving posture while shooting, starting regular exercise

and stretching (hamstrings, shoulders and arms) programs may help preventing of such complaints.

## CONCLUSION

The Study found that the Professional Photographers have higher risk of developing Musculoskeletal Symptoms than free Lancers.

## LIMITATIONS

This is a small sample study. Only descriptive method was used and RULA score wasn't compared to their age matched to their age matched controls. High frequency of pain and high-risk levels, according to the RULA method, suggest inappropriate and incorrect ergonomic postural habits existing among photographers.

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