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Prevalence of Musculoskeletal Disorders among Hair Dressers in Urban Setup

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ABSTRACT

Background: Hairdressers are a group of professionals whose working ability and health status could be affected by specific work-related activities as their nature of the job involves to work with their backs bent forwards or twisted for washing hair at the sink. Repetitive tasks, static postures and long periods of standing have been observed during all client-related activities. To understand the impact of working conditions on work related musculoskeletal disorders (MSDs) in this occupational group, it is necessary to assess the prevalence of these risk factors among hair dressers in urban set-up.

Aims and objectives: To find out the prevalence of musculoskeletal disorders among hair dressers in urban set-up using brief pain inventory scale.

Method: 280 hairdressers between age group of 25-35 years were recruited from hair salons based in metropolitan city of Mumbai after taking permissions from respective salon. All subjects were selected as per inclusion and exclusion criteria. A written consent was obtained and participants were explained about the procedure of the study in details. The outcome was interviewed using brief pain inventory a short and self-administered questionnaire.

Result and conclusion: The study concluded that the prevalence of work-related musculoskeletal disorder was majorly seen at lower back (81%) followed by shoulder (53%) and lastly the calf (45%).

Keywords: Work-related Musculoskeletal disorders, Hair dressers, Brief Pain inventory scale, Pain

INTRODUCTION

The World Health Organization (WHO), recognizing the impact of 'work-related' musculoskeletal diseases (WMSDs), has characterized WMSDs as multifactorial, indicating that a number of risk factors contribute to and exacerbate these maladies. [(1)(2)] Work-related musculoskeletal disorders (WMSDs) are one of the major occupational health problems in many countries affecting the upper limb extremities, the lower back area, and the lower limbs. WMSD are impairments of bodily structures such as muscles, joints, tendons, ligaments, nerves, bones, and the localized blood circulation system that are produced or worsened predominantly by work or the work environment. [(2)]

Hairdressers are a subset of professionals whose capacity to work and health condition may be affected by certain job-related activities. According to a study exploring daily work, professional hairdressers spend 29% of its annual cutting, 17% of its annual colouring, 10% of its annual blow-drying, and 8% of its annual cleansing hair. Professionals who are exposed to manual labour, work in unusual and constrained postures, repetitive and static work, vibrations, and poor psychological and social situations have a high prevalence of job-related musculoskeletal disorders.[(3)] This profession is also exposed to the challenges of working environments, exposing workers to the risks

of musculoskeletal disorders. They frequently stand for more than eight hours at a time and bend or twist their backs forward or sideways throughout their job tasks, which may aggravate back and lower limb conditions. [4] Also, their job involves strenuous hand or arm postures above shoulders and repetitive movements, workload, biomechanical strain due to overtime and no breaks. Other factors like work experience, mental stress, burnout, low support, gender and specific hairdressing tasks like cutting, styling or dying hair are also one of the potential factors that can affect the well-being of the professionals.

Despite a variety of efforts to regulate WMSD, such as engineering design improvements, organizational adjustments, or working training programmers, these disorders cause a significant amount of human suffering owing to worker impairment, frequently resulting to permanent, partial, or whole incapacity. [2]

WMSD has also led to a significant economic consequence for enterprises and healthcare systems. The expenses are attributable to lost production, additional worker training, and compensation expenditures. These expenses are felt globally, when the firms attempt to form multinational alliances for manufacturing and service tasks. [2]

As a result, several researchers found that occupational-related MSD is widespread among hairdressers resulting in altering their work productivity and also increasing their financial burden. [4] In India, there has been marked increase informal industries like hairdressing parlours since past decades. However, enforcement regarding health and safety concerns are still not implemented. Also, none of the studies in India has explored the prevalence of WMSD affecting different body regions. Also, there are very limited studies conducted in metropolitan city of Mumbai. Therefore, this study aims to find out the prevalence of musculoskeletal disorders among hair dressers in urban set-up using brief pain inventory.

MATERIALS & METHODS

The present study was a cross sectional study. Institutional ethical committee clearance was taken prior conducting the study. A purposive sampling method was used to where 280 participants across metropolitan city of Mumbai were selected after taking permission from the respective hair salon. A written consent to participate in the study was taken from the subjects prior and they were explained the procedure in details in the language best understood by them.

INCLUSION CRITERIA

- Age group between 25-35 years.
- Both genders.
- Time span- full time working hairdresser performing 8 hours shift a day.
- Is working in a Salon for more than 1 year post training experience.
- Willing to participate in the study

EXCLUSION CRITERIA

- Recent Fracture, Contracture or any nerve injury, Open wound over the joints to be examined.
- Acute injury or trauma.
- Underlying Bone pathological condition.
- Existing Co-morbidities

Participants:

Demographic details including name, age, gender and the work-related history- hours per day, year of work experience and rest pause between work was documented. Participants were explained in detail the purpose and procedure of following assessment

Outcome measure:

Brief Pain Inventory Scale:

- The Brief Pain Inventory (BPI) a short, self-administered questionnaire was interviewed by the participants. It was

used to identify pain severity and pain interference.

- It includes pain intensity and the impact of pain on functioning and well-being. The BPI also displayed excellent internal consistency (Cronbach's alpha value of 0.91, regardless of diagnosis) and good to excellent test-retest values (interclass correlation coefficient (ICC) 0.84–0.90 and Kappa values > .70).

Scoring:

1. Pain Severity Score

The BPI assesses pain at its "worst," "least," "average," and "now" (current pain). In clinical trials, the items "worst" and "average" have each been used singly to represent pain severity. A composite of the four pain items (a mean severity score)
This is calculated by adding the scores for questions 3, 4, 5 and 6 and then dividing by 4. This gives a severity score out of 10.

2. Pain Interference Score

The BPI measures how much pain has interfered with seven daily activities, including general activity, walking, work, mood, enjoyment of life, relations with others, and sleep. BPI pain interference is typically scored as the mean of the seven interference items. This mean can be used if more than 50%, or four of seven, of the total items have been completed on a given administration. This is calculated by adding the scores for questions 9 a, b, c, d, e, f and g and then dividing by 7. This gives an interference score out of 10. [(6)(7)(8)]

Statistical Analysis

The values were documented in Microsoft office excel sheet version 2016. The descriptive analysis was done for demographic characteristics and to find out prevalence of work-related MSDs. The collected data was expressed as mean±standard deviation (Mean±SD), frequency and percentage.

RESULT

94% of hairdressers interviewed were female and rest 6% were male.94% of the population were right-handed and 6% were left-handed. The working duration was 81% of hairdressers who work for about 4-6 hours a day whereas 15% worked for 7-8 hours and only 4% worked for 1-3 hours a day. The work experience in the profession was found to be more than 4-5 years for 68% for hairdressers whereas 31.78% have been working for 1-3 years.

Table 1: Demographic characteristics.

	(n=280)
Age (years)	29.77± 7.07
Working hours	5.53 ± 72.82
Years of experience	4.12 ± 3.53

Inference: This table presents the mean and standard deviation of age, working duration and years of experience.

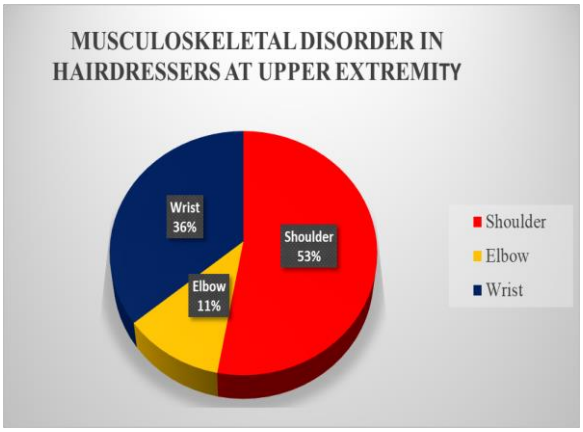

Figure 1: Musculoskeletal Disorder in Hairdressers at Upper Extremity

Inference: Majority of 53% of the hairdressers had pain around shoulder joint, 11% had pain at elbow joint and 36% had pain at wrist.

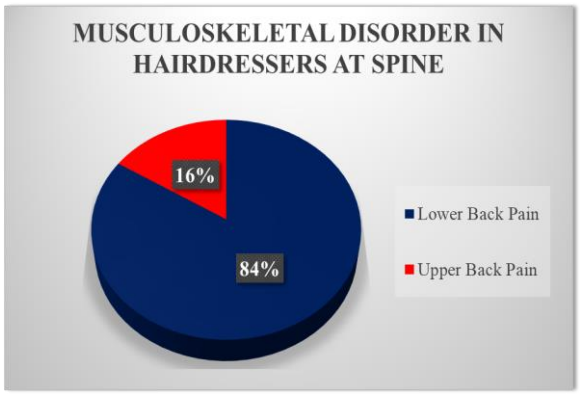

Figure 2: Musculoskeletal Disorder in Hairdressers at Spine

Inference: Majority of 84% experienced Lower Back pain and 16% experienced Upper Back pain.

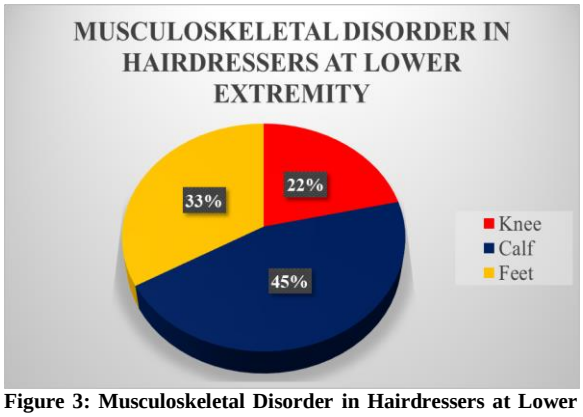

Figure 3: Musculoskeletal Disorder in Hairdressers at Lower Extremity

Inference: Most of 45 % Hairdressers had calf pain, 22% had knee pain and 33% had pain in their feet.

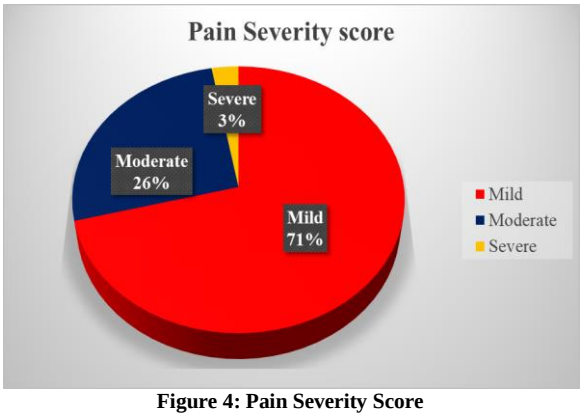

Figure 4: Pain Severity Score

Inference: Most of hairdressers experienced 71% mild pain, 26% moderate pain, 3% Severe pain.

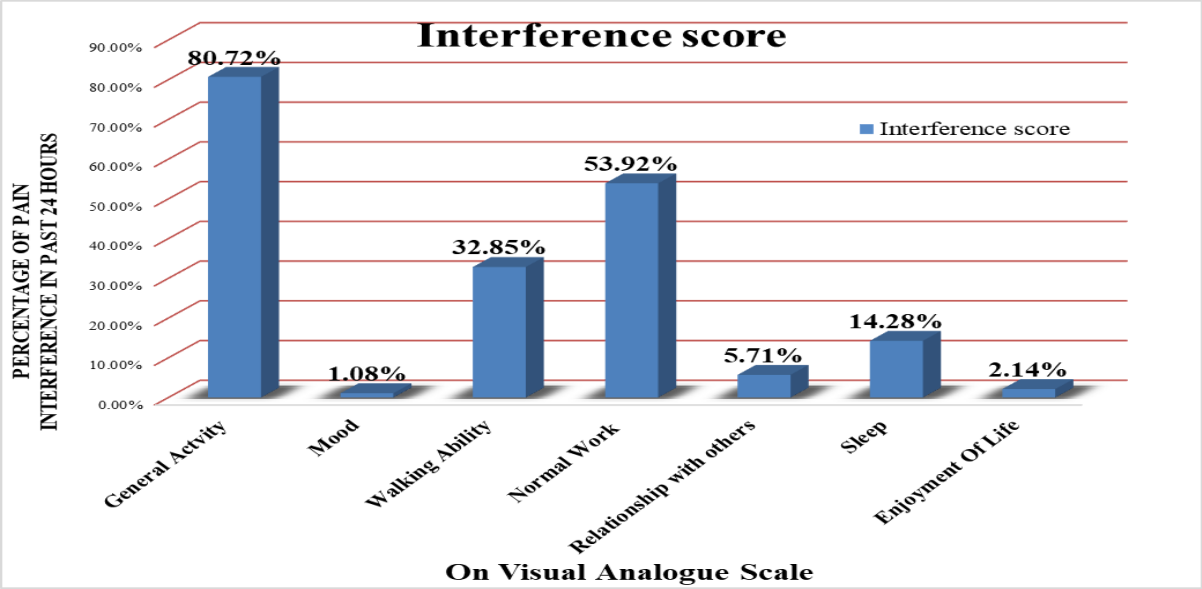

Figure 5: Interference Score

Inference: Result indicate that 80% hairdressers face most of problem in their general daily life activity, while pain interfere least in mood 1.08%

DISCUSSION

Work-related musculoskeletal disorders (WMSD) associated with repetitive and demanding working conditions remain one of the most significant challenges that hairdressers face in their careers. The purpose of this study is to determine the prevalence of musculoskeletal disorders among hairdressers working in an urban setup. Using a Self-Administered Questionnaire Brief Pain Inventory in our research, 280 hairdressers were interviewed. Our result indicates majority of the hairdressers experienced mild pain where the most prevalent source of discomfort has been noted at the lower back region due to stress imposed on the lower vertebral structures in a prolonged standing position.

Working with arms above shoulder level, repetitive activities, intense exertion of the upper extremities, awkward postures and movements of the back, a high mechanical stress, and standing for extended periods of time are all substantial physical exertions for hairdressers. Hairdressers put in extra effort and, most of the time, adopt awkward postures to fulfil clients desired hairstyles. Working in the same position for extended durations and attending to a high

number of clients in one day were some of the significant employment risk factors discovered for WMSDs, as were work scheduling, doing the same task over and over, and not having sufficient rest intervals during the day. One of the primary coping techniques employed by the participants can be discontinuation of customer service if it causes or increases discomfort, as well as the adoption of advanced technologies to help alleviate work load.

Happiness Anulika Awet et al. carried out a study on the incidence of work-related musculoskeletal disorders (WMSDs) among hairdressers, the most usually affected body parts were low back, shoulder, and neck.[5] The higher incidence of musculoskeletal discomfort in the low back, shoulder, and neck may be related to occupational factors that place undue strain on the multiple body regions. According to the study, the majority of musculoskeletal illnesses are cumulative disorders caused by repeated exposure to high or low intensity loads over a long period of time.

In our study approximately 94% of the population was right-handed, with only 6% being left-handed. Most discomfort was reported over the right side of the body, such as discomfort over the right shoulder, which accounted for 7.14 %, discomfort over the right elbow joint, which accounted for 2.8% and discomfort around the right wrist, which accounted for 9.2%.

In our study, 53% of hairdressers reported shoulder joint discomfort as a result of working with the arm above the shoulder level, repetitive movements, and intense upper extremity exertion. A similar study conducted in 2019, by Tesfaye Hambisa Mekonnen et al. study also revealed that the prevalence of work-related musculoskeletal pain found highest in shoulder, 53.7% (n = 350) than in the other body sites.[10] In 2009, a study by Jens Wahlstrom on Upper Arm Postures and Movements in Female Hairdressers, showed that Hairdressers may be at risk of developing musculoskeletal disorders in the neck and shoulders due to a considerable occurrence of highly elevated arms, especially during customer tasks. Studies have shown high degree of neck shoulder pain in hairdressers. In our study, 11 % of hairdressers reported elbow joint discomfort as a result of lifting high weights with poor mechanisms, too many repetitions of a motion without pause, overexertion, musculoskeletal fatigue, or inappropriate posture.

36% of people had wrist discomfort as a result of using improper tools such as a clipper, razor, blow-dryer, and scissors. The continual flexion-extension action of the hairdresser's wrist to utilize scissors, hair dryers, and blow dryers strains the hairdresser's arms. On the other hand, the forced steadiness of the wrist in flexion during the use of combs when cutting and flattening the hairs may induce the thickening of the flexor retinaculum, making hairdressers more prone to developing carpal tunnel syndrome. A similar study was undertaken in 2018 by Asli Asoy et al., which likewise found that the prevalence of CTS among hairdressers was high 73.4%. Moreover, it was shown that as the duration of time spent working in the hairdressing profession grew, so did the risk of developing CTS among hairdressers.[9]

In our study, the majority of hairdressers (84%) reported lower back pain, and marital status demonstrated a statistically significant correlation in which married hairdressers were more likely to acquire LBP than single or unmarried hairdressers. Also 94% of the participant in our study are female making a higher count for lower Back. This might be because married women might well have additional responsibilities beyond their hairdressing professions, and they may be affected by physical stress. According to a survey of female employees, married women were more likely to be exposed to injuries or suffering as a result of housework, child care, a lack of time for relaxation, and not exercising. However, marital status was not shown to be related to the research that were

undertaken. According to our findings, hairdressers who practice bending and twisting posture were more likely to develop LBP. [11]

In 2021, Berihu Fisseha Gebremeskel et al. observed that 47.5 % of Ethiopian hairdressers experienced lower back pain (LBP) due to incorrect body mechanics during tasks such as bending, twisting, and focusing on the job which resulted in stress on the highly mobile lumbosacral area of the spine. Also, pathomechanically bending incorrectly exerts a mechanical load on the posterior longitudinal ligament, stressing the facet joints and resulting in LBP. [11] Long periods of standing are an inevitable part of the job for hairdressers having affection of 45% calf discomfort, presenting history of varicose vein or webbing in the leg, swelling, and discoloration which might be early indicators and exacerbating factor for calf pain.

81% of hairdressers stood for 4-6 hours per day, exerting a larger strain on the vertebral body and causing significant lower back discomfort. Hairdressers do the same task in a variety of techniques for instance some cut hair in a standing posture for most of the time. Furthermore, work responsibilities varies where trainee hairdressers often spend a lot of time washing hair, whereas senior hairdressers typically spend the majority of their time cutting hair.

Furthermore, 15% of hairdressers have a successful company and work more than 8 hours per day with little time off. Pain in the knee joint was reported by 22% of respondents, which might be attributed to osteoporotic changes that had started in professional hairdressers in their thirties. [11] It's likely that 33% of those who suffered foot discomfort did so because they were overweight and wore conventional shoes.

In our study, 71% of participants had a mild incidence of pain in their professional sector, causing mild discomfort, whereas 26% had moderate pain and 3% had severe pain. Dance, sport activity, heading to the gym, and practicing yoga asana accounted for the majority of the 80% interference with general activities.53.92% had pain interference in normal work experienced frequent aches and pains which restricted their job description. 32.85 % difficulty in their walking abilities, causing them to choose elevators instead of walking down the stairs, and also periodic leg cramps and muscular soreness. The domains of mood, relationships with others, and sleep were the least influenced by pain interference.

Age of hairdressers followed by their years of working experience and long hours they spent working in standing position may be significant factor that contributes to mild prevalence of work-related musculoskeletal disorder among them. Thus, our study demonstrated prevalence of low back pain was present in majority of the hairdressers seen on the body chart following which the shoulder joint was the next most affected joint having mild severity of pain. Also, our study revealed that the interference of pain was highest reported in general task by the working professionals.

CONCLUSION

The study concluded that the prevalence of work-related musculoskeletal disorder was majorly seen at lower back (81%) followed by shoulder (53%) and lastly the calf (45%) where the severity of pain was mild and its interference was highly noted in general activities by the hairdressers.

Limitation And Suggestions

Due to the larger sample size included we have not performed posture analysis that could have addressed the degree to which the participants have exposed to other risk factors related to work related musculoskeletal disorder.

Future Scope

Other investigators can investigate the relation of range of work place factors in this occupation. A study can be carried out

to include more such professionals working in different sectors to provide a more homogeneous and accurate image of these job-related demands and various tasks for further analysis of musculoskeletal disorders.

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