



Determination of Musculoskeletal Disorders (MSDs) on Hair Stylist

PRINCELYMOHAN¹, ASOK KUMAR N²

¹PG scholar, Industrial Engineering, Department of Mechanical Engineering

²Assistant Professor, Department of Mechanical Engineering

College of Engineering, Trivandrum, Kerala, India.

¹tve21meie13@cet.ac.in ² asokkumar@cet.ac.in

Abstract— Work-related musculoskeletal injuries (WRMI) or work-related musculoskeletal disorders (WRMSD) are inflammatory disorders that occur as a result of an injury sustained while performing work duties. Work-related musculoskeletal disorders (WRMSDs) affect a wide range of jobs and are one of the most common causes of occupational injury and disability in both developed and developing countries. Regular exposure to work activities that significantly contribute to the development or worsening of painful symptoms.

Hair stylists face numerous hazards in their careers, including WRMSDs, particularly in the neck, waist, and shoulder areas. Ergonomic hazards are responsible for a significant portion of work-related diseases and injuries among them. Mechanical load on the joints and work-related musculoskeletal disorders (WRMSDs) are caused by awkward posture at work, frequent motions, continuous standing, and long working periods to carry out work activities.

The study is expected to identify the musculoskeletal problems and risk factors among hair stylists.

Keywords— Hair stylist, Ergonomics, Musculoskeletal disorder, work posture.

I. INTRODUCTION

In rural areas, the hairstyling industry is largely unorganized, with small businesses run by individuals or group. People prefer to get their hair cut and styled at local salons rather than travelling to cities, so the industry is primarily concentrated in towns and villages.

Salons in rural areas are frequently small, basic, and devoid of modern amenities. They typically consist of a single chair, a mirror, and basic tools such as scissors, combs, and razors. These salons provide services such as haircuts, shaving, beard trimming, hair coloring, and basic styling. Threading, waxing, and facials are some of the beauty services offered by salons.

Hairstyling is a highly competitive industry in rural India, with several salons located close to each other. Some salons offer lower prices or discounts to attract customers, while others provide better service or use high-quality products. The hairstyling industry in rural India also employs a large number of people, particularly those who are not highly educated or skilled. In these salons, it is common for family

members to work together, with one person cutting hair while another manages the finances and runs the business. Overall, the rural Indian hairstyling industry is an important part of the local economy and provides an important service to the people who live there. Despite challenges such as a lack of modern amenities and competition, the industry continues to thrive and evolve in order to meet the needs of its customers.

Musculoskeletal disorders (MSDs) are a common problem for hair stylists and salon workers who perform repetitive tasks and spend long periods of time in awkward positions.

The most common MSDs in hair salons are neck, shoulder, and back pain, which can be caused by standing for extended periods of time, reaching for tools, holding arms up, and bending over to wash hair. Carpal tunnel syndrome, tennis elbow, and trigger finger are also common in hair salons, and are caused by repetitive motions such as cutting and styling hair and using tools such as scissors and blow dryers.

A. LITERATURE REVIEW

1. *Ergonomic Risk Assessment of Hair stylists Using Rapid Entire Body Assessment (Çakıt, 2022)*: Here this study was to look into the individual and occupational risks associated with the tasks in terms of the prevalence and consequences of WRMSDs. The risk of WRMSDs was assessed using the Rapid Entire Body Assessment (REBA) method in this descriptive analytical study. According to the REBA findings, working postures should be changed as soon as possible.
2. *Prevalence of Musculoskeletal Disorders among Hair Dressers in Urban Setup (Saini et al., 2022)*: Using a brief pain assessment scale, determine the incidence of musculoskeletal problems among hair stylists in an urban setting. The subjects were chosen based on inclusion and exclusion criteria. A signed permission was acquired, and participants were thoroughly informed about the study's procedures. The outcome was obtained by an interview with a brief pain assessment, a short and self-administered questionnaire. Conclusion and outcome: According to the study, the prevalence of work-related musculoskeletal problem



was highest in the lower back (81%), followed by the shoulder (53%), and the calf (45%).

3. *Musculoskeletal health, work-related risk factors and preventive measures in hairdressing: a scoping review (Kozak et al., 2019)*: These findings support the existence of occupational risk factors for MSD in hair stylists and highlight the need for a strong emphasis on preventive interventions. To clarify the efficacy of intricate preventative approaches in the field of hairdressing, high quality and extensive interventional research are required.
4. *Musculoskeletal health, work-related risk factors and preventive measures in hairdressing: a scoping review (Kitzig et al., 2015)*: These findings support the existence of occupational risk factors for MSD in hair stylists and highlight the need for a strong emphasis on preventive interventions. To clarify the efficacy of intricate preventative approaches in the field of hairdressing, high quality and extensive interventional research are required. Only the rehabilitation studies produced significant pain reduction, increased physical capacity, and understanding of potential risk factors for MSD. These studies also demonstrated good impacts on the management of physical and mental strain.
5. *Compensation claims for work-related musculoskeletal disorders among hair stylists in France (Nanyan & Charrada, 2020)*: This study's objective was to examine patterns in hair stylists' compensation claims for WRMSDs. Methods. The French National Health Insurance Fund for Salaried Workers was used to gather information about claimants' gender, age, permanent infirmity, work history, and lost workdays (LWD). During the research period, there was a non-significant 12.8% rise in the claim rate. Although the incidence rate of permanent disability grew dramatically and several categories at risk were identified, the claims rate did not significantly increase.

II. OBJECTIVES

A. Broad Objective

To determine the health and safety concerns at work connected to hair stylists.

B. Specific Objectives

- To determine the likely ergonomic risk factors related to the health and safety of hair stylists.
- To determine the occupational duties thought to be hazardous to hair stylists.

III. METHODOLOGY

Beauty salon workers recruited as sample using the systematic random sampling technique. Data were analyzed using statistical package for Social Sciences.

- 1) *Sample Size Calculation*: Sample size for the study was determined using the formula of the single population

proportion. Assuming 5% margin of error, 95% confidence level and alpha, $\alpha = 0.05$ for two-tailed.

The total sample size is calculated by using the single population formula:

$$n = (z(\alpha/2))^2 p(1 - p) / d^2$$

Individual participants from each beauty salon were selected as follows: one participant was selected from those with one eligible hair stylist, whereas from those with more than one eligible hair dressers.

- 2) *Data Collection*: Data from the research participants were gathered using a standardized questionnaire that was delivered during an interview. The survey was broken down into four pieces. The questionnaire is divided into four sections: the first section includes questions about sociodemographic or individual factors; the second section asks about low back pain at work; the third section asks about ergonomic risk factors; the fourth section is about the study participants' psychosocial factors. The Nordic Musculoskeletal Questionnaire, a screening and surveillance tool designed to examine musculoskeletal complaints in an ergonomic or occupational health environment, was modified to create the questionnaire to identify self-reported low back pain.

The following are the variables considered for the work, they are age, sex, marital status, level of education, monthly income, number of children, BMI, degree of physical activity, and smoking are sociodemographic and personal variables. working conditions and ergonomics: professional experience, work history, job category, height-adjustable chair, height-adjustable washbasin, workload, posture at work, repetitive motion, working hours, and break times, workplace happiness, workplace stress, and relationships with coworkers or customers are all psychosocial aspects.

- 3) *Data Analysis* : The IBM statistical package for social sciences (SPSS) was used to enter and analysis the data. The mean, standard deviation, and median were calculated to summarize the numeric variables, and frequencies and categorical variables were presented using text and tables.

IV. RESULTS AND DISCUSSION

From the Fig 1. 95% of total sample population has responded to the questionnaire survey and nearly it includes 150 to 170 hair stylists. Only 5 % were not willing to respond to the survey.

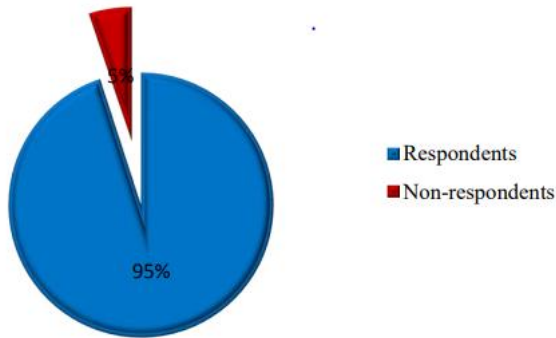


Fig 1: Participant's response.

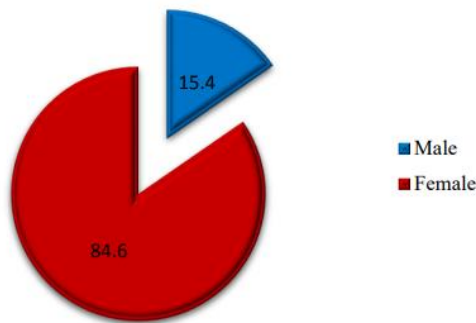


Fig 2: Severity of discomfort

From the Social and other demographics of the study population, it is shown that most of the hair stylists participated in the survey is female. Compared to female workers, male workers is less in this field.

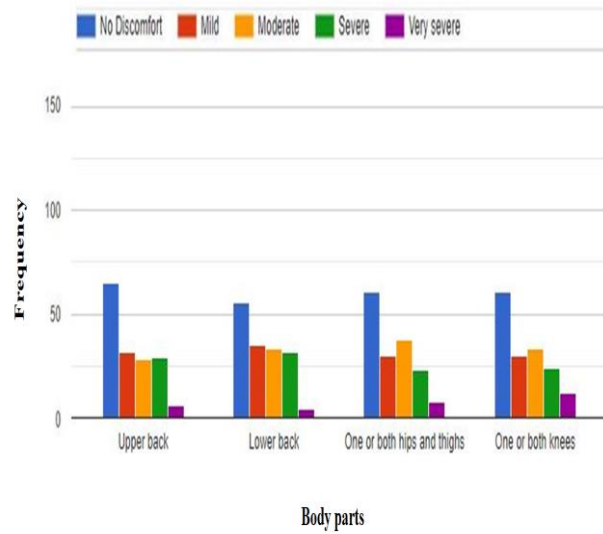


Fig 3b: Severity of discomfort

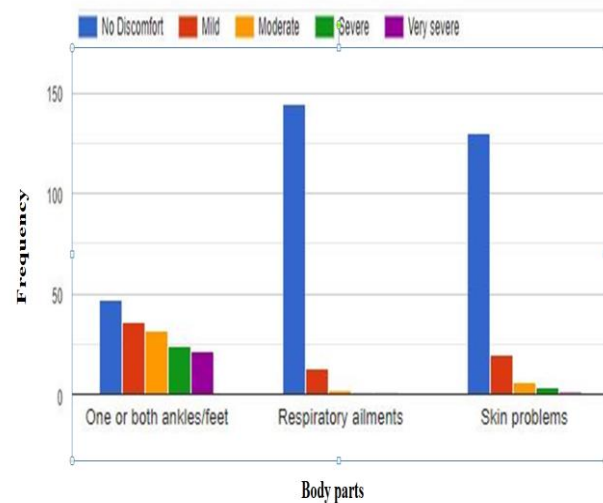


Fig 3c: Severity of discomfort

From the figure 3a, 3b and 3c it is found that severe discomfort is found on both ankles and feet and also in knees. A very large proportion of hair stylists suffered with work-related musculoskeletal disorders. The long daily working hours and prolonged standing time without rest cause increased static pressure. This is the main reason associated with enhanced risk of developing WMSDs.

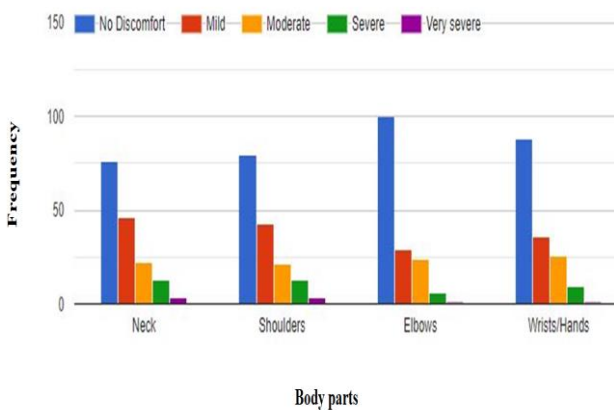


Fig 3a: Severity of discomfort

TABLE 1. CORRELATION ANALYSIS

	Upper back	Lower back	Knees	Hips & thigh	Angle & feet
Experience	0.661	0.695	0.684	0.672	0.720



From the correlation study, it is found that the correlation value for the given variables are above 0.5 and positively correlated with work experience with a confidence level of 99%. It shows that prevalence of musculoskeletal disorders in the given locomotor organs depend highly on work experience of the hair stylists.

V. CONCLUSION

When a hairstylist has a problem with their knee, wrist, or ankle, the level of difficulty they feel varies based on the particular ailment and the person. If a hair stylist has a knee problem, they could feel discomfort and stiffness, especially if they stand for a long time or bend down to wash their clients' hair or pick up products. They may find it challenging to carry out their duties as a result, and if the pain is not managed, it may get worse over time. The hair stylist might occasionally need to take time off work to recover or get physical treatment to get better.

A hairstylist may endure discomfort and restricted range of motion if they have a wrist problem. The degree of discomfort felt by hair stylists when they are having problems. This may impede their ability to undertake complex hair style procedures and make it difficult for them to grasp and utilize equipment like combs or scissors. If the symptoms are severe, they could need medical care, such as a brace or surgery, to reduce the discomfort and enhance wrist function.

When standing for extended periods of time or moving around the salon, a hair stylist who has an ankle problem may feel discomfort and swelling. They may find it challenging to stand or walk as a result, which may limit their capacity to carry out their professional obligations. The hair stylist might occasionally need to take time off work to relax and recover or go through physical therapy to become better. In general, any problem with the knee, wrist, or ankle might make a hairstylist uncomfortable and hinder their ability to carry out their tasks. Hair stylists should take care of their health, seek medical help if they feel any pain or discomfort, and take preventative measures to avoid these problems from emerging or getting worse.

FUTURE SCOPE

Although working in the hair business can be gratifying and creative, there are physical demands that might result in musculoskeletal diseases (MSDs) and other health problems. Fortunately, the industry can address these issues and enhance the health and wellbeing of hairstylists in a number of ways. One strategy is to raise public knowledge of the value of good posture, ergonomics, and movement patterns when dealing with clients. Hairstylists can lower their risk of getting MSDs and other associated illnesses by learning how to arrange their bodies and their instruments in a way that minimizes pressure and stress on them.

Purchasing equipment and gadgets that are more ergonomic and user-friendly is another tactic. For instance, rotate freely-corded flat irons and lightweight blow dryers can assist ease neck, arm, and wrist pain. Finally, it's critical to place a high priority on self-care and to urge hair stylists to stretch and take breaks often. Simple stretches and exercises can ease stress and boost circulation, which can assist to reduce the risk of accidents and advance general health and wellness. The hairstyling business may lower the prevalence of MSDs and other health concerns among hairstylists by putting these and other measures into place while also guaranteeing that they can carry out their crucial work in a secure and long-lasting way.

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