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## Incidence and Prevalence of Work-Related Musculoskeletal Disorders and Their Risk Factors among Hairdressers and Beauticians: A Cross- Sectional Study

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#### KEYWORDS

Hairdressers musculoskel etal pain, occupational health. prevalence, work-related musculoskel etal disorders (WMSDs), repetitive movement, postural discomfort

**ABSTRACT: Introduction:** Hairdressers in India experience occupational illness as well as stressful working conditions which can result in permanent incapacity mainly due to work-related musculoskeletal disorders (WRMSDs), yet WRMSDs in this workforce remain largely unstudied. The aim of the present study was to assess the risk of work-related musculoskeletal disorder (WMSDs) and evaluate the prevalence of WRMSDs among hairdressers and beauticians.

**Method**: A cross-sectional survey was carried out between May and June 2021. This study investigates the prevalence of WRMSDs among 150 study subjects largely from Mumbai and Gujarat metropolis in India. WRMSDs was evaluated with, The Modified Nordic Questionnaire for Musculoskeletal Symptoms. Each hairdresser completed a self-administered Questionnaire which included information on socio-demographic characteristics, working conditions and health-related musculoskeletal system complaints.

**Results**: The study of 150 hairdressers and beauticians revealed a high WRMSD prevalence (88.7%). Significant associations were found between WRMSDs and factors including age, work experience, customer count, rest time, and hours spent standing.

**Conclusions**: The prevalence of the WMSDs among participants was 88.7%. The most commonly affected body region included the Neck (46%), Lumbo-pelvic region (44.7%), Shoulder (40.7%). Taking sufficient rest breaks was one of the major coping strategies they adopted.

### 1. Introduction

Hairdressing is a rapidly expanding profession in urban India, with approximately 168,000 salons offering a variety of services. Despite being considered artists in their craft, hairdressers face challenges related to workrelated musculoskeletal disorders (WMSDs) due to the physical demands of their job. These disorders stem from repetitive movements, prolonged holding of positions, and awkward postures necessary for hairstyling. Studies globally reveal high prevalence rates of WMSDs among hairdressers, particularly affecting the back and lower extremities. For instance, in Nigeria, Turkey, and Brazil, prevalence rates range from 27.4% to 76.3%. In Europe, 25% of adults suffer from musculoskeletal problems, while in Brazil, WMSDs accounted for over 50% of occupational diseases. (1,2,3,4)

Despite the apparent risks, the relationship between hairdressing and WMSDs remains unclear, with limited research available. This study aims to investigate the prevalence and risk factors of WMSDs among hairdressers and beauticians in India, focusing on regions such as Maharashtra and Gujarat. By examining working postures and their impact on different body regions, the research seeks to shed light on the status of WMSDs in

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the Indian hairdressing industry, providing valuable insights for occupational health and safety measures. (5,6,7,8,9,)

#### 2. Objectives

#### Aim of the Study

The aim of the present study involved an investigation into the status of WRMSDs for hairdressers and beauticians in Mumbai and Ahmedabad cities of India.

#### Objectives of the Study

1.To identify risk factors for work-related musculoskeletal disorder injuries within the hairdressing industry.

2.Hairdressers' professional activities and environment in order to identify working postures and the levels of discomfort in various body regions relating to the MSDs among hairdressers and beauticians.

#### 3. Methods

The study included 150 participants comprising 102 males, 46 females, and 2 transgender individuals, recruited from hairdressing salons and beauty parlours in Mumbai and Gujarat, India. Prior to data collection, permission was obtained from salon owners, and participants completed a 38-item questionnaire via Google Form after providing informed consent. Ethical approval was obtained from the Department of Physiotherapy, P.P. Savani University, Surat, Gujarat.

Musculoskeletal complaints were assessed using the Modified Nordic questionnaire, focusing on pain experienced in the past six months, with questions verifying the work-relatedness of symptoms. The questionnaire covered demographic, social, and professional characteristics. Inclusion criteria encompassed practicing hairdressers of any gender, all age groups, with a minimum one-year work experience, while exclusion criteria included nonoccupational musculoskeletal pathologies, prior musculoskeletal surgeries or trauma. (10,11,12,13)

The questionnaire, titled "Incidence and Prevalence of Work-Related Musculoskeletal Disorders and Their Risk Factors Among Hairdressers and Beauticians: A Cross-Sectional Study," comprised six sections:

Section A: Demographic data

Section B: Working experience

Section C: Musculoskeletal disorders

Section D: Effects of disorders on job performance

Section E: Predisposing factors

Section F: Coping strategies

Participants were assured of confidentiality, and the questionnaire was administered electronically via Google Form.

Data analysis utilized SPSS Version 20.0, employing descriptive statistics for demographic variables and frequency distribution for components of the Modified Nordic questionnaire. The association between variables and musculoskeletal disorders was assessed using the chi-square test, with a significance level set at p < 0.05.

#### 4. Results

The study distributed a Google Form questionnaire to 150 hairdressers and beauticians, with a response rate of 100%. The prevalence of Work-Related Musculoskeletal Disorders (WRMSDs) among participants was high, with 88.7% reporting experiencing these disorders at least once during their professional careers.

		PARTICIPANTS n=150	
VARIABLES	DESCRIPTIVE DATA		% PERCENTAGE
	Male	102	68
GENDER	Female	46	30.7
	Transgender	2	1.3

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	<20 years	15	10
	20-30 years	93	62
AGE	30-40 years	21	14
	>40 years	21	14
PROFESSIONAL	Owner	36	24
CHARACTERISTICS	Employee	83	55.3
	Freelancer	31	20.7
	Maharashtra	78	52
STATE	Gujarat	70	46.7
	Other	2	1.3
	<1 year	54	36
	1-4 years	46	30.7
WORK EXPERIENCE	4-7 years	9	6
	>7 years	41	27.3
	2-4 hours	31	20.7
WORK DURATION	4-6 hours	31	20.7
	6-8 hours	39	26
	>8 hours	49	32.7
	1-4 hours	53	35.3
WORKING POSITIO	N4-7 hours	49	32.7
DURATION	7-10 hours	28	18.7
	10-12 hours	20	13.3
	0-5 customers	53	35.3
CUSTOMERS ATTENDING	G5-10 customers	54	36
PER DAY	10-15 customers	28	18.7
	>15 customers	15	10
	<30 min	37	24.7
REST TIME	30-45 min	45	30
	45-1 hour	52	34.7
	No break	16	10.7
TIME TAKE FOR	15-30 min	88	58.7
	45-1 hour	48	32

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ATTENDING	ONE>1 hour	14	9.3	
CUSTOMER				

Table: 1 Demographic, Socio-economic, and Professional characteristics of study subjects.

Demographic and professional characteristics of the participants were analyzed, revealing a majority of male workers (68%), with 30.7% females and 1.3% transgender individuals. Most participants were employees (55.3%), while 24% were salon or beauty

parlour owners, and 20.7% worked as freelancers. Maharashtra and Gujarat were the primary work locations for 52% and 46.7% of participants, respectively.





Regarding work experience, 36% of participants were newcomers (<1 year), while 27.3% had over 7 years of experience. The majority reported working more than 8 hours a day (32.7%), attending 5-10 customers (36%), and taking 45-1 hour rest breaks (34.7%). Most participants spent 15-30 minutes attending to one customer (58.7%).

Graphical representation illustrated that WRMSDs predominantly affected the neck (46%), lumbo-pelvic region (44.7%), and shoulders (40.7%). Furthermore, factors associated with WRMSDs included stress and working overtime (50.7%), inadequate rest breaks (17.3%), and a large number of clients per day (9.3%).

VARIABLES	DESCRIPTIVE DATA	PARTICIPANTS n=150	% PERCENTAGE
WRMSDs	No	21	14
	Yes	129	86
	Gradual	54	36
ONSET OF PAIN	Sudden	32	21.3
	No response	64	42.7

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	I modify my position		
	so as to be comfortable	81	54
	I pause regularly so i		
	can stretch and change posture	29	19.3
	I select a technique	26	17.3
MODIFICATIONS WHILE			
WORKING	I stop attending to customers if it causes	14	9.3
	or worsens discomfort		
	Stress and working overtime	76	50.7
	No adequate		
	uninterrupted breaks between clients	34	22.7
REASON FOR MSDs	No adequate rest breaks	26	17.3
	Large number of clients per day	14	9.3

Table: 3 Factors associated with WRMSDs in hairdressers and beauticians.

Bivariable logistic regression analysis identified significant associations between age, work experience, customer count, rest time, and hours spent standing, indicating higher risks for younger participants, those with less experience, and those with higher customer counts and longer standing durations. Multivariable logistic regression revealed additional associations with gender, time taken to attend one customer, professional characteristics, and symptoms affecting daily activities and job efficiency.

#### 5. Discussion

The research conducted on Work-Related Musculoskeletal Disorders (WRMSDs) among hairdressers and beauticians in Mumbai and Ahmedabad cities of India provides valuable insights into the occupational health challenges faced by professionals in this industry. With a prevalence rate of 88.7%, the study highlights the significant impact of WRMSDs on the well-being of hairdressers. Neck pain emerged as the most common area of discomfort, consistent with

findings from other countries like Nigeria, Brazil, and Iran.

Age, work experience, rest time, and work duration were identified as major associated risk factors for WRMSDs. Younger participants and newcomers to the industry showed high prevalence rates, indicating that adaptation to the physical demands of the profession may play a role in the development of musculoskeletal disorders. The study underscores the importance of adequate rest breaks during work, with only a small percentage of participants reporting taking no breaks. Regular breaks are crucial in preventing micro injuries and alleviating tissue damage, although they are often overlooked in the hairdressing profession. (14,15,16)

Furthermore, gender differences were observed, with males experiencing more discomfort than females, possibly due to longer working hours and greater mechanical stress. Age-related changes in muscle activity and kinematic function may also contribute to the higher prevalence of WRMSDs among older participants. (17,18,19)

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The study's findings emphasize the need for ergonomic interventions and workplace policies aimed at reducing the risk of WRMSDs among hairdressers and beauticians. Implementing measures such as proper training in body mechanics, ergonomic workstation design, and encouraging regular breaks could help mitigate the physical strain associated with the profession. Additionally, promoting awareness among employers and employees about the importance of occupational health and safety practices is essential for creating a healthier work environment and improving the overall well-being of hairdressing professionals. (20,21)

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