

## SHORT REPORT

# Prevalence of work-related musculoskeletal disorders in Brazilian hairdressers

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<b>Background</b>	There are occupational risks inherent to the activities of professional hairdressers, which are not frequently studied, and therefore not considered in the formulation of health policies for this group.
<b>Aims</b>	To verify the prevalence of work-related musculoskeletal disorders (WRMDs) in hairdressers through symptom reports, to characterize the most frequently affected anatomical parts and to identify and analyse risk factors of WRMDs in hairdressing.
<b>Methods</b>	A cross-sectional epidemiological study of 220 hairdressers from beauty parlours in São Paulo (Brazil) was carried out. Each hairdresser completed a self-administered questionnaire which included information on socio-demographic characteristics, working conditions and health-related musculoskeletal system complaints. Ergonomic analyses were also performed in six parlours.
<b>Results</b>	The prevalence of WRMDs was 71%. Risk factors were associated with psychosocial factors and factors related to discomfort and work fatigue such as lack of acknowledgement of work and uncomfortable posture at work [odds ratio (OR) = 3.54; 95% confidence interval (CI) 1.51–8.30], not feeling comfortable with body/neck/shoulders while working (OR = 2.78; 95% CI 1.40–5.54) and having >15 years of professional activity (OR = 3.04; 95% CI 1.17–7.91).
<b>Conclusion</b>	Occupational risk factors associated with the development of WRMDs in hairdressers are related to biomechanical, organizational and psychosocial work factors. The high prevalence of WRMDs found highlights the importance of disseminating recommendations for prevention of symptoms with regards to the provision of suitable furniture, equipment and work tools, environmental conditions, size of workplace, work organization and psychosocial work factors.
<b>Key words</b>	Work-related musculoskeletal disorders (WRMDs); hairdressers; occupational risk factors.

## Introduction

The activity of professionals working in beauty parlours is one of the least studied in occupational health. Hairdressers are exposed to a variety of hazards in the workplace. These include chemical agents (products for hair), physical agents (noise, temperature) and ergonomic hazards (inappropriate posture during work, demands for service quality, long work hours without breaks, etc.).

In Brazil, according to data from the Social Welfare Ministry, the work-related musculoskeletal disorders (WRMDs) group represented 52.8% of occupational dis-

eases registered in 2001, 55.3% in 2002 and 50.1% in 2003 [1].

In view of the specific work activities of hairdressers, as well as the lack of studies on WRMDs in these professionals, this study aimed to ascertain the prevalence of WRMDs in hairdressers through symptom reports, to characterize the most frequently affected anatomical parts and to identify risk factors for WRMDs in hairdressers' work.

## Methods

A cross-sectional study of hairdressers working in beauty parlours located in two central districts of the city of São Paulo was carried out from April 2002 to February 2004.

Contact was made with the owner of each beauty parlour to obtain permission to interview the hairdressers working in their business. On agreement of the owner,

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a meeting was held with the hairdressers to explain the objectives of the study and invite them to take part in it.

Data were collected using a self-applied questionnaire with questions related to socio-demographic characteristics, time in profession, activities performed, work conditions (quality of furniture, equipment and tools, posture during work, physical efforts, work environment, temperature, lighting, noise), work organization (rhythm, time constraint, work day, breaks) and psychosocial work factors (discomfort or fatigue and satisfaction factors).

Instructions were given on how to fill out the questionnaire (answered at home), and informed consent was obtained from participants.

The questions to detect WRMDs were adapted from a questionnaire developed by Kuorinka *et al.* [2]—*The Nordic Questionnaire for Musculoskeletal Symptoms*. This questionnaire was adapted and validated in Brazil by Souza and Pinheiro *et al.* [3,4]. Symptoms of pain or discomfort for at least 6 months, with a frequency of at least once a month, in at least one part of the body were used as criteria for defining cases.

After the end of data collection, ergonomic analyses of the work of the hairdressers in six parlours were carried out. These consisted of two small, two medium and two large size parlours, according to services offered and number of workers. These parlours were considered representative of the other parlours studied in the region as they carried out the same activities and offered similar services. The results of these analyses were used in the discussion of data, seeking to understand certain associations between working conditions and symptom reports.

Prevalence of WRMDs for neck, shoulder, back, elbow/forearm, hand/wrist and fingers and respective 95% confidence intervals (CIs) were calculated. The overall prevalence for WRMDs was also calculated by taking into consideration all segments affected.

Chi-square association tests and univariate and multiple logistic regression models were used to analyse the

association between the presence of WRMDs and socio-demographic and occupational characteristics. All variables with a  $P < 0.20$  in univariate models were selected for the multivariate modelling process. The estimated risk was calculated by odds ratio (OR). Statistical analysis was conducted using the SPSS for Windows program, version 12.0.

## Results

The study group comprised 220 hairdressers who worked in 71 beauty parlours located in two central districts of the city of São Paulo. The hairdressers were on average aged 37 years, white, with a high-school education and working in the profession from 1 month to 45 years (median of 8 years).

In all, 155 professionals (71%) met the defined criteria for WRMD cases in at least one body segment as follows: 34 (22%) professionals had WRMDs in one body segment, 38 (25%) in two segments, 31 (20%) in three segments, 17 (11%) in four, 16 (10%) in five and 19 (12%) in six parts surveyed.

The most frequently affected body was the shoulder (49%; 95% CI 42.0–55.3), followed by the neck (47%; 95% CI 40.6–53.9) and back (39%, 95% CI 32.2–45.1).

Table 1 shows the statistically significant associations between the presence of WRMDs and occupational characteristics, working conditions and psychosocial factors.

The multivariate model (Table 2) defined that independent factors associated with the prevalence of WRMDs in hairdressers were, 'not comfortable body/neck/shoulders while working' (adjusted OR = 2.78;  $P < 0.01$ ), 'lack of acknowledgement of work and uncomfortable posture at work' (adjusted OR = 3.54;  $P < 0.01$ ) and >15 'years in the profession' (adjusted OR = 3.04;  $P < 0.5$ ).

**Table 1.** Prevalence of WRMDs in hairdressers and OR according to work conditions (posture, physical efforts and work environment)

Variable	Category	N	% WRMD	$P^a$	OR	95%CI
Physical efforts in tasks	No	28	57	<0.05	1.00	1.14–4.30
	Yes	127	75		2.22	
Arms are comfortable during work	No	83	77	<0.05	1.93	1.06–3.48
	Yes	69	63		1.00	
Comfortable body/neck/shoulders	No	102	80	<0.001	3.04	1.67–5.57
	Yes	49	56		1.00	
Your work place is noisy	No	14	50	<0.05	1.00	1.23–6.20
	Yes	141	73		2.77	
Temperature of environment	Comfortable	102	69	NS	1.00	0.72–2.64
	Uncomfortable	52	75		1.38	

<sup>a</sup>Chi-square association test.

**Table 2.** Factors associated with the prevalence of WRMDs in hairdressers—multivariate model

Variable	Category	P	Adjusted OR	95% CI
Years in the profession	1.0–4.9		1.00	
	5.0–14.9	NS	1.04	0.45–2.39
	15–45	<0.05	3.04	1.17–7.91
Lack of acknowledgement of work and uncomfortable posture <sup>a</sup>	01–23	<0.01	3.54	1.51–8.30
	24–28	NS	1.94	0.87–4.34
	29–35		1.00	
Comfortable body/neck/shoulders	No	<0.01	2.78	1.40–5.54
	Yes		1.00	

Hosmer–Lemeshow test  $P = 0.438$ .<sup>a</sup>Score obtained from factorial analysis.

## Discussion

Based on the symptoms report, this study identified a high prevalence of WRMDs in hairdressers as 71% of the studied subjects met the criteria for the condition. Shoulder, back and neck were the most frequently affected body regions. The risk factors associated with the occurrence of WRMDs were mostly related to biomechanical (uncomfortable posture at work) and psychosocial factors (lack of acknowledgement of work) and length of profession.

These results are consistent with literature on WRMD in professionals who also had musculoskeletal and psychosocial demands during work activities [5–10], but unfortunately, no studies specifically looking at hairdressers were found for comparison.

In spite of the limitations of a cross-sectional study and the lack of a clinical examination of the study subjects, the report of symptoms obtained is a good indicator of the morbidity experienced by this population. In addition, the ergonomic analysis of work contributed to the identification of the most likely occupational factors associated with the development of WRMDs in hairdressers.

Based on these results and taking into consideration the high prevalence of WRMDs, we consider it important to disseminate general recommendations for prevention of WRMDs with regards to the suitability of furniture, equipment and work tools, environmental conditions, size of workplace, work organization and work psychosocial factors to both the professional hairdressers and the owners of beauty parlours.

## Key points

- A high prevalence of WRMDs in hairdressers was identified.
- The occupational factors associated with the development of WRMDs in hairdressers were biomechanical, organizational, psychosocial and working for >15 years in the profession.

## Acknowledgements

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## Conflicts of interest

None declared.

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