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Prevalence of work related musculoskeletal disorders in hairdressers

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Abstract
Introduction: Musculoskeletal disorders denote the problem of the locomotors system that includes muscles, tendons, cartilages, ligaments and nerves. Occupation related musculoskeletal disorders are from maintaining prolonged awkward posture and the activities with low force results in damage even at short intervals and repetition during work. Hairdressers working ability and health conditions are affected by specific work related activities. The predominant triggering factors are the tasks such as blow drying, dying and cutting. Various researches addressed the musculoskeletal disorders in hairdressers but there are no clear evidences to identify the most likely disorder. Thus the study aimed to find the prevalence of musculoskeletal disorders in hairdressers.
Methodology: 50 hairdressers were selected using convenience sampling method. Body Mass Index, working hours, total years in the field are analyzed and both the gender were included in the study. Nordic musculoskeletal questionnaire was used to evaluate musculoskeletal disorders.
Result: The prevalence of musculoskeletal disorders by Nordic musculoskeletal questionnaire injury to neck region was high as 28% and second most frequent region was wrist and hand with 22% and shoulder with 20%. The significant factors affecting this was improper posture, excess threshold biomechanical strain exposure, continuous exposure to same posture for prolonged time, repetitive strain, lack of strength over muscles. The study also found that female worker complaints majorly the neck pain whereas male worker complaints majorly wrist and hand pain due to difference in task over the clients.
Conclusion: Musculoskeletal symptoms of hairdressers were highly prevalent and are associated with poor posture and lack of awareness. Thus this occupational group could benefit from regular precaution and ergonomic modification.

Keywords: work related musculoskeletal disorders, hairdressers, nordic musculoskeletal questionnaire

Introduction

Musculoskeletal disorders denote the problems of locomotors apparatus like muscle, tendons, cartilages, ligaments and nerves [1]. It arises as the interaction of physical, ergonomic, psychological, social and occupational factors [3]. Occupation related musculoskeletal disorders are from maintaining a static and awkward position [5]. Individuals experience them due to high job demands, low social support, overall job strain, repetitive tasks and lack of control over the job [7]. Musculoskeletal disorders are an increasing healthcare issue globally, being the second leading cause of disability [8]. Prevention of musculoskeletal disorders relies upon identification of risk factors, observation on job, maintenance of good posture. Encouraging the use of proper ergonomics and designing the correct equipment for the task reduces the risk. [10].

Hairdresser does suffer from musculoskeletal disorders by biomechanical and psychological factors and length of the work [12]. Increased muscle tension, increased blood and fluid pressure, reduction of growth function, pain sensitivity reduction results in stress to the muscle. Work involving forceful muscle tension development is very tiring and no time for a full recovery between movements [6]. Static muscle load was found under the condition, where muscles are tensed over long period of time in order to keep a certain body position [11].

People vary in their tendency to get musculoskeletal disorders women with higher incidence than men. Nearly 25% of the affected adults are having chronic musculoskeletal impairment pain, which are equally prevalent in both developed and developing countries [9]. Increase in age, smoking, more experience in field are significant factors for higher levels of musculoskeletal problems [19]. A daily task analysis showed that experienced hairdressers spend on average 29% of their time cutting, 17% hair dying, 10% blow drying and 8% washing hair [14]. These are attributed to the requirement for maintaining posture of upper body and limbs while performing high repetitive task [13]. The combination of repetition and low force exertion typically leads to a moderate increase in the risk of musculoskeletal disorder [16]. Most of the days are taken up in cutting hair with wrist permanently held in non-neutral position, where scissors and comb are grasped precisely and the left hand in prolonged extension [17]. Working with elevated arms above shoulder level was a major risk factor for shoulder disorders [20]. Various researches done before addressed musculoskeletal disorders in hairdressers, but no researches are done previously to identify the most common disorders they get affected and associated factors for the disorders thus the study focused find out the prevalence of work related musculoskeletal disorders in the hairdressers.

Materials and Method

About 50 subjects were selected from the parlors around Saravanampatti, Coimbatore through convenience sampling

method based on the inclusion and exclusion criteria. A clear explanation about the procedure was given to each subject and then consent form was obtained from each of them. The study duration was 6 months. Data were collected using a self-administrated questionnaire with questions related to demographic characteristics, number of years in the field, work organization (duration, Full time/part time), personal habits (smoking, alcoholism, vegetarian/non vegetarian), Associated illness (diabetes, hypertension), work conditions (equipment and tools, posture during work, physical efforts) which was validated by three senior Physiotherapists. To detect work related musculoskeletal disorders the questionnaire developed by Joanne O Crawford *et al* (2007); Nordic Musculoskeletal Questionnaire was used. This questionnaire was given to all the participants and given adequate time to answer the questions in it [30].

Statistical Analysis

The collected data were analyzed using descriptive statistics. Upon analysis study showed that neck pain position first of all the musculoskeletal disorders. The percentage evaluation of musculoskeletal injury was analyzed for each component in which the neck pain was 28% which means that 14 subjects had neck related problems complaints among 50. On the analysis wrist and hand problems 22% subjects had wrist and hand pain. On the analysis of shoulder problems 20% of subjects had shoulder pain which means 10 subjects had shoulder related problems among 50. On analyzing elbow 10% of subjects complained of elbow pain. On the analysis of back problems, lower back problem was 10%, upper back problems were 6% reported. Only 4% complaints knee pain. On the analysis of other joints, no hip and ankle joints were complained as a problem by subjects. Based on gender, male worker complaints majorly wrist and hand pain followed by neck pain. Female worker complaints majorly neck pain followed by shoulder pain due to modification in positioning of joint based on clients.

Results

50 subjects were included in the study based on inclusion and exclusion criteria, and their baseline characteristics are recorded in the table 1. It includes the gender wise distribution of males and females, age wise classification of subjects, eating habits of the subjects, hours of work classification of subjects either. BMI classification of subjects.

Based on the data collected from Nordic Musculoskeletal questionnaire distribution of pain among the male subjects and female subjects in different parts of the body are shown in table 2. It shows that in male wrist and hand pain (N=7) was complained followed by Neck pain (N=6) and Shoulder pain (N=5) majorly. In females Neck pain (N=8) was complained followed by Shoulder pain (N=5) and wrist and hand pain (N=4) majorly.

Table 2 also shows the overall distribution of Musculoskeletal disorders in hairdressers of Saravanampatti, Coimbatore is seen majorly with Neck pain (N=14), Wrist and hand pain (N=11), Shoulder pain (N=10), Elbow pain (N=5), Lower back pain (N=5) according to Nordic Musculoskeletal Questionnaire.

Table 1: Baseline Characteristics

Distribution based on the gender	Male	24
	Female	26
Age group classification	27-29	18
	30-32	15
	33-35	17
Eating habits	Vegetarian	9
	Non-vegetarian	41
Body Mass Index	Underweight-Below 19	7
	Obese-Above 25	5
	Normal-Between 19-25	36
Hours of work classification	4 hours (Part time)	6
	7 hours (Full time)	7
	8 hours (Full time)	20
	9 hours (Full time)	12
	10 hours (Full time)	5

Table 2: Distribution of pain among Hairdressers

Area	Male	Female	Total
Neck	6	8	14
Shoulder	5	5	10
Upper back	1	2	3
Elbow	2	3	5
Wrist and hand	7	4	11
Lower back	2	3	5
Hip and Thigh	0	0	0
Knee	1	1	2
Ankle and Feet	0	0	0

Discussion

A high prevalence of work related musculoskeletal disorders had been recorded among workers who are exposed to manual labor, working unusual with restricted postures, repetitive, static work vibration, poor psychological and social conditions [30]. Pain due to musculoskeletal discomfort is multifactorial phenomenon affecting almost all the individuals depending upon the physical movement characteristics and work setup [24]. The reported risk factors were strenuous hand or arm postures and movement, awkward posture and movement (bending and twisting), workload and biomechanical strain (mechanical workload, overtime), Prolonged standing and sitting, specific repetitive task (cutting, dying, styling hair) [2, 18, 22, 25, 26].From the study we found that injury to neck region was higher than other parts with neck 28% and second most frequent region of getting injured was wrist and hand with 22% and shoulder with 20%.This is due to improper posture and strain exposure with lack of strength over the muscles [15]. The study also found that, in female worker complaints majorly the neck pain whereas male worker complaints majorly the wrist and hand pain due to the difference in the tasks over the clients.

In female workers, on doing styling and blow-drying over the hair, there will be continuous grasping of hairdryers and brushes in combination with physical postures and movements with more stress on the muscles [23]. Hair straightening with a round brush required high mechanical overload with strain over the upper limb on repetitive movement [4]. Thus the female subjects are reported majorly neck and shoulder pain. In male workers the potentially harmful task was cutting the hair and this activity was also associated with higher risks [28]. During this procedure the wrist was permanently held in non-neutral position with scissors and comb held precisely for prolonged period [29]. More than six hours repeated usage of wrist and elbow with

static position causes increased strain in musculoskeletal system [21].

In comparison with other occupational groups hairdressers are frequently exposed to manual and static physical stress. Sickness absenteeism due to various musculoskeletal complaints is seen in hairdressers [27]. Prevention of musculoskeletal disorders relies upon identification of risk factors by self-report, job observation and regular analysis of posture. Encourage the use of proper ergonomics that includes both matching the physical ability of the worker with the correct job and also designing the equipment correct to the task [10]. Observations made during the study suggested that poor posture and lack of awareness are leading to musculoskeletal problems. To reduce that, the workers are recommended to maintain a good posture, avoid repetitive and prolonged exposure over a particular task, use of regular breaks and maintenance of proper fitness are advised repetitive and prolonged exposure over a particular task, use of regular breaks and maintenance of proper fitness are advised.

Conclusion

This prevalence study showed that hairdressers working condition needs to be modified. Occupational risk factors associated with the development of work related musculoskeletal disorders are related to biomechanical, organizational and psychological work factors. It can be prevented with regards to the provision of suitable furniture, equipment and work tools, environmental conditions, size of the workplace, work organization. To raise the awareness, it is necessary to organize the training courses about professional ergonomic intervention.

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