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Frequency of Work-Related Musculoskeletal Disorders among Barbers

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A B S T R A C T

Background: The term Work related musculoskeletal disorders (WMSDs) indicates a disturbing condition including painful injury to the muscles, tendons, cartilage, nerves & supporting structures that is provoked by work & the conditions under which work has been performed. As the hairdresser job requires prolonged standing in awkward posture so it may cause effects on barbers.

Objective: This study was aimed to investigate the frequency of Work-related musculoskeletal disorders among barbers.

Methodology: The study was quantitative, descriptive cross-sectional survey that was conducted for 4 months at The University of Faisalabad. Total sample of 167 male barbers was taken using convenient sampling technique and their demographic data was collected. Nordic Questionnaire was used. Chi square test was applied for checking association between age and musculoskeletal disorders among barbers.

Results: Complaints of symptoms of lower back (55.1%), neck (50.3%) and shoulder (26.9%) were reported by barbers; most of the complains of troubles in last 7 days were reported for lower back (54.5%), knees (22.8%), neck (48.5%) & shoulder (25.7%), the most of the difficulty in performance in last 12 months were reported for lower back (27.8%), neck (18.6%), knees (9.8%) & shoulder (8.4%) & most of the visit to physicians were reported for lower back (48.6%), neck (40.7%), & shoulder (22.2%), while least complaints were reported for ankles, upper back, wrist/hands & elbows.

Conclusion: The frequency of work-related musculoskeletal disorders specifically in the lower back and neck was seen high among barbers. There was association found between the barber's ages with the frequency of WMSDs. The barbers need ergonomics education & workstation adjustments.

Keywords: Ergonomics; Questionnaire; Risk Assessment; Work Related Musculoskeletal Disorders (WMSDs)

Introduction

The musculoskeletal disorder is such an injury to the ligament, muscles, tendons, supporting structures etc. that occurs as a result of rapid or abnormal activity & can also be due to external stimulus, bad posture or traumatic injury .[1] The musculoskeletal disorders are considered as major source of physical disability, limitations, pain & other illnesses occurring in millions of people worldwide mainly among the workers involved in manual tasks, jobs to do in unnatural postures or requiring repetitive stress & poor psychological or social environment causing life-long pain or dysfunction. [2]

Some of the common musculoskeletal disorders are carpel tunnel syndrome, thoracic outlet syndrome, repetitive strain injury, rotator cuff tendonitis etc.[3] Such injuries to the musculoskeletal system caused or exacerbated by doing work are termed as Work-related musculoskeletal disorders (WMSDs).[4] The work associated musculoskeletal disorders (MSDs) can be managed or at least could be avoided by the use of proper strengthening technique as well as by modifying the workstation.[5]

WMSDs can cause damage to the soft tissues resulting in pain, numbness or altered sensation to the body region being affected.[6] These disorders are of much attention for the company owners, researchers & even workers because they can interfere in the work output by either reduced

production or sick leaves of the workers.[7] These can be reduced by the implementation of proper ergonomic precautions such as arm & back support in clerical or computer workers, foot rests in office workers etc. & by the stretching/strengthening strategies, little break while working or a walk in the office.[8] These WMSDs once ignored can cause lifelong disabilities depending upon the age & experience of the workers so in order to avoid permanent disabilities, there is a need for the application of the precautionary measures available.[9]

As the hairdresser job requires prolonged standing in awkward posture so the most common complaint is of the leg pain, wrist pain, neck and low back pain.[10] These physical factors cause high rate of musculoskeletal issues while other factors such as incongruity between the hairdresser & the environment can lead to psychological or emotional disturbances.[11] Gender, age, working hours, employment duration etc. can greatly interfere in the occurrence of WMSDs.[12] The MSK issues in barbers can be reduced by use of proper height adjusted client's chair, normal angle at the hand with no deviation, proper stretching/strengthening regime & by taking little breaks while working.[13]

Musculoskeletal disorders that are related to work is important in many occupations, which impose a greater effect on the individuals, vendors and society as a whole. Musculoskeletal disorders of muscles, joints and skeletal system and many others types of disorders are presents in many occupations.[14] Production of pain, numbness and muscular weakness are the major work-related complaints reported in many professions.[15] All these musculoskeletal conditions have been appeared to have a negative impact on wellbeing related personal satisfaction. A few examinations have indicated that those with joint inflammation report essentially lower wellbeing space scores than those who are not affected with arthritis. Considers have indicated that those with fibromyalgia and back agony report critical decrements in personal satisfaction. [16]

The rationale in carrying out this study was to find out the frequency of musculoskeletal issues among barbers. This study was conducted to help the barbers working independently or in a salon, in prevention of the WMSDs & to understand which body region (neck, back, shoulder, elbow, arm, hands, hip, knees, feet) is most prone to get suffer from such disorders. Moreover, this study will help us to find whether there is any association between barber's ages with the frequency of WMSDs. This study will also help the researchers to understand the most common affecting body part of the barbers.

The barbers whether working in an independently or in hair salon will be able to understand what region of their body is prone to damage and what improvements are required in the workstation or daily routine to prevent getting suffered from the musculoskeletal disorders.

Methodology

The study was descriptive, cross-sectional survey. The research was conducted among male barbers/hairdressers. The duration of the study was march-2022 to June 2022 4 months after the ethical approval was taken from the university of Faislabad (Ref no. TUF/ERC/2022/29). Non-probability, convenient sampling technique was used in selection of study sample after screening with inclusion & exclusion criteria. Barbers between the ages of 20-60 years were included. Only male barbers/hairdressers willing to participate were included. Barbers spending more than 5 hours of standing setting hair and working for more than 1 year after the practice/training sessions. Barbers working independently in small shops or in hair salons. Barbers with any prior history of fracture or surgery. Those they had any diagnosed tumor and with any previously diagnosed musculoskeletal disorder. They had with anxiety or stress disorders and diabetes were excluded. The data was collected by using questionnaires-based survey containing questions regarding musculoskeletal disorders. The permission letter along with the consent form in Urdu was given, the process of study started after the consent being signed by the barbers. Standardized Nordic Questionnaire for the assessment of musculoskeletal disorders was used for conducting the survey.[17] Nordic Musculoskeletal Questionnaire consist of sections including the 12 months history of workers in 9 main body regions. The questionnaire includes the symptoms, limitations, visit to physician in last 12 months and any trouble in last 7 days. The data was evaluated in SPSS Version 23.0. Descriptive statistics, Pearson Chi-Square were used for finding the association of different factors with the occurrence of musculoskeletal issues.

Sample Size: Calculated by margins of error = 7%, confidence level = 95% and population is expected to be 1100 and response redistribution is 50% sample size will be 167 male barbers.(http://www.raosoft.com/samplesize.html). The project was approved from internal committee of The University of Faisalabad. The consent form was fully explained to the barbers in simple language. All the data collected from the patients was kept confidential. No living being was harmed during the course of the study.

Results

Data was collected from 167 barbers of the nearby areas. The age distribution shows that the mean age of the barbers was 38.72 years and the ages of the barbers were divided into 4 ranges as shown in (Table I).

Table I: Distribution of barbers on the basis of age group.

Age Groups	Frequency	%
21-30	32	19.2%
31-40	75	44.9%
41-50	45	26.9%
51-60	15	9%
Total	167	100

Talking about the heights of the barbers then the mean height of the barbers was 5.691 feet and the height of the barbers was divided into 3 categories i.e. 5.1-5.6 feet, 5.7-6.0 feet and 6.1-6.6 feet height. The distribution as shown in (Figure 1).

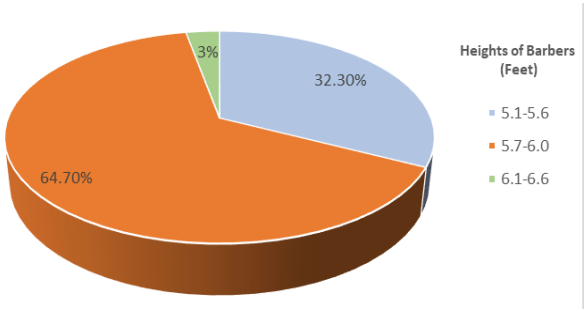

Figure 1. Distribution of barbers on the basis of height.

During the last 12 months most of the barbers experienced symptoms related to the lower back, neck, shoulder, ankle/foot, knees & the least of the barbers experienced elbow, upper back hip/thighs and wrist/hands.

The barbers were asked about if they had any difficulty in performing any activity. The table above shows that the most of the barbers had difficulty in performing activities due to lower back, neck, knees, shoulder and the least barbers had difficulty due to elbows, wrist/hands, ankle/foot and upper back issues. This shows that most of them had the difficulty due to the issues of the lower back. Similarly, the barbers were also asked if they ever visited the physician in last 12 months due to following body regions. The table above shows that the most of the barbers visited physician due to issues related to lower back, neck, shoulders, knees while least of the barbers visited the physician regarding upper back, elbows, wrist/hands, hip/thigh and ankle/foot issues. (Table II)

The cross tabulation showed that the most of the barbers who suffered symptoms in neck in past 12 months lied in the age category of 31-40 years, the one who suffered symptoms in shoulder in past 12 months lied in the age category of 31-40 years. Most of the barbers who suffered symptoms in upper back in past 12 months lied in the age category of 21-30 & 41-50 years and those who suffered symptoms in elbows in past 12 months lied in the age category of 31-40 years. Most of the barbers who suffered symptoms in wrist/hands in past 12 months lied in the age category of 31-40 years while those who suffered symptoms in lower back in past 12 months lied in the age category of 31-40 & 41-50 years. Most of the barbers who suffered symptoms in hip/thighs in past 12 months lied in the age category of 31-40 years and those who suffered symptoms in knees in past 12 months lied in the age category of 41-50 years. Most of the barbers who suffered symptoms in ankle feet in past 12 months lied in the age category of 41-50 years. The above results showed that the most prone age to be suffered by symptoms in different body segments in barbers is 31-40 years. Next lies the 41-50 years of age category to be suffered by musculoskeletal symptoms according to the data collected as shown in (Table III)

Chi square test was applied to check the significance. The P-value being less than 0.05 explains that the musculoskeletal issues in different body regions in barbers is correlated with the age of the barbers as the data appeared to be significant. There occurs association between the

Table II: Region wise frequencies of symptoms, difficulty in performance, and visit to physician during last 12 months.

Regions	Any symptoms in last 12 months (N=167)		Any difficulty in performance in last 12 months (N=167)		Visit to physician in last 12 months (N=167)	
	Yes	No	Yes	No	Yes	No
Neck	84 (50.3 %)	83 (49.7 %)	31(18.6%)	136(81.4%)	68(40.7%)	99(59.3%)
Shoulder	45 (26.9 %)	122 (73.1 %)	14(8.4%)	153(91.6%)	37(22.2%)	130(77.8%)
Upper back	24 (14.4 %)	143(85.6 %)	13(7.8%)	154(92.2%)	23(13.8%)	144(86.2%)
Elbows	27(16.2%)	140(83.8 %)	9(5.4%)	158(94.6%)	22(13.2%)	145(86.8 %)
Wrist/hands	10 (6%)	157 (94%)	3(1.8%)	164(98.2%)	10(6.0%)	157(94%)
Lower back	92 (55.1%)	75 (45%)	38(22.8%)	129(77.2%)	81(48.5%)	86(51.5%)
Hip/thigh	30 (18%)	137 (82%)	9(5.4%)	158(94.6%)	25(15.0%)	142(85%)
Knees	36 (21.6%)	131 (78.4)	16(9.8%)	151(90.2%)	35(21.0%)	132(79%)
Ankle/foot	38(22.8%)	129 (77.2%)	13(7.6%)	154(92.4%)	33(19.8%)	134(80.2%)

musculoskeletal symptoms and the ages of the barbers. This proves that age is associated with the musculoskeletal issues in different body regions of barbers.

Table III: Distribution of age wise symptoms of MSK- disorders in last 12 months among barbers.

		21-30 years	31-40 years	41-50 years	51-60 years	Total	P-value
Any symptoms in last 12 months in neck	No	12	38	25	8	83	0.002
	Yes	20	37	20	7	84	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in shoulder	No	25	52	35	10	122	0.000
	Yes	7	23	10	5	45	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in upper back	No	25	69	38	11	143	0.011
	Yes	7	6	7	4	24	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in elbows	No	27	62	39	12	140	0.916
	Yes	5	13	6	3	27	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in wrist/hand	No	30	68	44	15	157	0.310
	Yes	2	7	1	0	10	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in lower back	No	29	35	5	6	75	0.006
	Yes	3	40	40	9	92	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in hip/thigh	No	30	62	35	10	137	0.114
	Yes	2	13	10	5	30	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in knees	No	31	69	23	8	131	0.011
	Yes	1	6	22	7	36	
	Total	32	75	45	15	167	
Any symptoms in last 12 months in ankle/feet	No	29	62	31	7	129	0.009
	Yes	3	13	14	8	38	
	Total	32	75	45	15	167	

Discussion

The study by Aweto, Tella [18], which was conducted to investigate the prevalence of work-related musculoskeletal disorders among hairdressers. It was a cross-sectional study been conducted on 299 hairdressers by using 27-item questionnaire, there was a high incidence of the musculoskeletal disorders in past 12 months. The most damaged region were the low back, shoulder and neck whereas our study showed that most suffering part were lower back and the neck. Our study showed opposite results regarding the fact that they showed the age was directly associated with the symptoms of pain but in our study there was association found between the ages of the barbers and the complaints of musculoskeletal disorders.

A study conducted in Tehran showed the prevalence of musculoskeletal disorders in male barbers which revealed that the most affected regions were waist, neck, legs, knees, and wrist. This study was in accordance of our study in which the most affected region was neck but on contrary our study has not shown waist, legs knees and wrist as the most affected region, the difference in methods of collecting data and research participants could be to reason for the differences. [19]

The results of the study by Cruz and Dias-Teixeira[20], which was a cross-sectional survey on 30 professional hairdressers in Portugal to find the frequency of WMSDs was aimed to investigate which body region is in more discomfort due to work. Self-reported questionnaire was used for evaluation. The study resulted that all of the participants complaint of spine discomfort, shoulder pain, wrist issues as well as lower back problems whereas similarly our study showed that there was high prevalence of musculoskeletal issues among barber and most common of them were lower back and the neck.

In line with our studies Best, French[21] conducted study on 204 hairdressers in Australia, 70% of them suffered from musculoskeletal disorders and discomforts in different parts of the body similarly this study has shown that there is high prevalence of musculoskeletal issues among the barbers most of them affecting the lower back and neck of the barbers.

A study from Ethopia has shown results in which neck, shoulder, elbow, and wrist/hands were the most common sites of pain of barbers. [22] Our study has also shown different regions of the body of the barbers which are affected by musculoskeletal disorders out of which the most affected regions were neck and lower back but contrary to our study, the study from Ethopia has shown more affects in upper extremities.

In our study positive relation was seen in the frequency of symptoms of musculoskeletal disorders in different regions of barbers with age but, no significant association between age and the prevalence of WMSDs was seen in study by Frootan et al., 2012.[23] Likewise, another study discovered no correlation between persons' age and the incidence of pain in any of the regions of body.[24]

Conclusion

It is concluded from this research that most of the barbers had the issues regarding lower back and neck so care is to be taken to avoid any lifelong impairment of these body parts. Moreover, there occurs association between the musculoskeletal symptoms and the ages of the barbers. This proves that age is associated with the musculoskeletal issues in different body regions of barbers.

Limitations: Almost all of the studies ever conducted have some of the limitations and our study is one of them where there are minor limitations. Our study was conducted over a very small sample size from a small population so the study couldn't be generalized. Most of the barbers were high school passed and they did not have the knowledge of ergonomics and proper posturing. So, it took a lot time to even explain and ask them even a simpler question about body regions. The time was much shorter as compared to the population so got very little time to interact with the barbers. Only male barbers were included in our research. English version of Nordic questionnaire was used in our research which made data collection very difficult.

Recommendations: Further study would be recommended to work on prevention strategies for musculoskeletal disorders as in our study lower back and neck were at risk. To develop different prevention strategies to overcome these work-related disorders. To educate them about their ergonomic posture during work and to take rest during the hours of working. Seminars and joined workshops should be organized for awareness of barbers regarding musculoskeletal disorders prevention strategies. Recommendations to one who will further do research on this topic is that he/she should take a great sample size from a larger population and not staying limited to just one area. He/she should have enough time to cooperate with the barbers and should note their every single complain.

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