International Journal of Medical and Pharmaceutical Research
Website: https://ijmpr.in/ | Print ISSN: 2958-3675 | Online ISSN: 2958-3683
NLM ID: 9918523075206676
Volume: 4 Issue:6 (Nov-Dec 2023); Page No: 218-224

Original Article

IJMPR

Physical Risk Factor to Develop Musculoskeletal Disorders Among Salesmen at Shopping Center

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ABSTRACT

Purpose: This study aimed to investigate the prevalence of musculoskeletal problems among salesmen in Dhaka, Bangladesh, and explore the socio-demographic factors associated with these issues. ***Objective:*** The objectives were to assess the socio-demographic characteristics of the salesman population, identify the prevalence of neck and low back pain, examine symptom notifications, and evaluate the association between working hours and musculoskeletal problems. ***Background:*** Musculoskeletal problems, including pain in the neck and low back, are common occupational health issues, particularly among individuals with physically demanding jobs. Salesmen, who often engage in prolonged standing and lifting activities, are at risk of developing such problems. ***Methodology:*** This cross-sectional descriptive study involved 200 salesmen in Dhaka. Data was collected using a modified questionnaire, and statistical analysis was performed using SPSS software. Numerical coding facilitated data entry, and graphs were created in Microsoft Excel 2019. The chi-square test determined the significance of relationships. ***Result:*** The study found that 9.5% of participants experienced neck pain, 1.5% had shoulder pain, 0.5% reported wrist pain, 8.5% suffered from back pain, 46.0% encountered hip pain, 16.5% faced knee pain, and 20.0% experienced ankle pain. There was no significant association between age and pain in any body part (p= 0.124). Similarly, no significant relationship was observed between sex and pain severity (p= 0.95). ***Conclusion:*** From the study it can be concluded that the most affected age range is 24 to 30 years for musculoskeletal pain developed some factor such as physical activity, posture. So, increase awareness most important and physiotherapy treatment will give the affected participants which ultimately help them for pain.

Key Words: *Sales man, Physical risk factor, Musculoskeletal problem.*

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INTRODUCTION

Musculoskeletal disorders pose a significant occupational challenge, particularly among salesmen who engage in various physical tasks and interactions with customers. The prevalence of these disorders is well-documented in epidemiological studies, with their development often attributed to a combination of physical factors and individual characteristics. Factors such as frequent bending, twisting, forceful movements, and awkward working postures contribute to the musculoskeletal issues faced by salesmen [1].

However, it's not just the physical demands of the job that play a role. Personal characteristics, including age, body mass index (BMI), and even smoking habits, have been identified as predisposing factors to musculoskeletal disorders. The physical workload, in particular, has been linked to the occurrence of low back pain, with numerous studies examining the various physical risk factors associated with these occupational challenges.

In-depth analyses have revealed intriguing patterns within the sales profession. High job demands have been associated with neck and shoulder symptoms, especially in groups exposed to intense workloads. Additionally, the tendency to become overworked and the absence of social support from colleagues have been linked to back pain among salesmen. Factors such as the lack of job variation, low control over working hours, and intense competition have been shown to contribute to neck pain. Sedentary work, common in the sales profession, is also associated with neck and low back pain [2].

Repetitive work tasks have been identified as risk factors for musculoskeletal symptoms, particularly in the neck region. The duration of a salesman's work has consistently emerged as a risk factor for neck-related musculoskeletal symptoms. Previous research on workstyle has indicated that various dimensions, including pain, symptom severity, and functional limitations, play a role in these disorders. Recent studies have further highlighted the significance of mental stress and psychological factors as independent risk factors for neck pain [3].

Moreover, physical load has been found to have a direct impact on perceived muscular tension, adding another layer of complexity to the musculoskeletal challenges faced by salesmen [4].Neck pain, in particular, has emerged as a major concern in modern society. Prevalence data reveal that neck pain affects a substantial portion of the general population, with 29% of men and 40% of women experiencing it. Among salespeople, the prevalence of neck symptoms is even higher, with studies reporting rates of 54% for men and 76% for women [2]. Neck pain is considered a multifactorial condition with several risk factors, including both work-related and non-work-related elements. These risk factors can be categorized into physical, psychological, and individual factors [5].

Furthermore, the burden of low back pain is undeniable, affecting not only individuals but also imposing clinical, social, economic, and public health challenges. Heavy physical strain, frequent lifting, and postural stress have all been linked to the development of low back pain. The intricate relationship between occupational risk factors and low back pain is further complicated by the difficulty of quantifying exposure accurately [6].

In light of these findings, it is imperative to comprehensively examine the factors contributing to musculoskeletal disorders among salesmen and develop strategies to mitigate their impact on this occupational group.

OBJECTIVE

General objective

- To find out Physical risk factors for musculoskeletal disorders of the neck and lower back in sales man at shopping center in Dhaka city

Specific objective

- socio demographic characteristics
- Find out neck pain
- Know about low back pain
- Identify the notification of symptom.
- Association between age and pain in any body part
- Association between sex of the participant and pain severity.

METHODOLOGY

Study design

This descriptive type of cross-sectional study was conducted to determine the prevalence and factors related to musculoskeletal disorders among salesman. The study population was consisted of male and female in different shopping center. This study was conducted in Dhaka city.

Data analysis:

After collection of data of the respondents were organized. Data was entered into the computer into a data base in the software package. Statistical package for the social science (SPSS 20.0) using descriptive statistics such as frequency, distribution, range, mean and percentage.

Inclusion Criteria:

- Above 18 years old salespeople are included.
- Male and female both are included.
- Salesman who interested to give permission and participation for interview
- Salesman who are in the Dhaka city are included

Exclusion Criteria:

- Age of the person below 18 years.
- Psychologically unstable person
- Salesman who are no interested to give permission and participation for interview

Ethical consideration:

I would follow all kind of ethics. I would obtain permission from ethical review board Saic College of Medical Science (SCMST) of research work and to start the data collection from participant.

RESULTS

The descriptive type of cross-sectional study was conducted among the musculoskeletal disorders among the salesman in selected areas in Dhaka city with a sample size of 200.A pre-tested modified interviewer administrated semi questionnaire was used to collect the information. A total of 200 respondents were interviewed to collect the information. Part-1: Socio-demographic information, Part-2: Information related question, Part 3: Physical risk factor related question, Part 4: Musculoskeletal problem related question. All the data were entered and analyzed by using statistical packages for social science (SPSS) software version 20.

Table 1: Distribution of the respondents by age(n=200)

Age	Frequency	percentage
16-23 years	57	28.5%
24-30 years	68	34.0%
31-37 years	38	19.0%
>37years	37	18.5%
Total	200	100.0%
Mean:29.82 **Standard deviation:8.987**		

It is found from table no.1, that 28.5%, 34.0%, 19.0%, and 18.5%, of the respondents belongs to age of 16-23 years, 24-30 years, 31-37 years, and more than 37 years respectively with mean 29.82 and standard deviation 8.987.

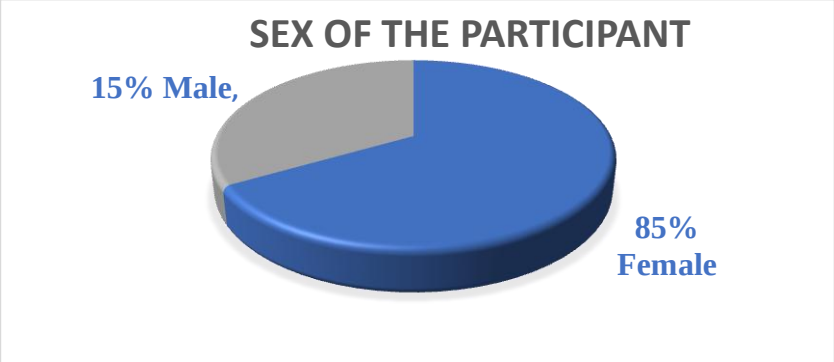

Figure 1: Distribution of the respondents by sex(n=200)

Pie diagram shows that majority of the respondents 15% female and 85% male respectively.

Table 2: Distribution of the respondents by mode of transportation n=(200)

Variable	Frequency	Percentage
Use private car		
No	200	100.0%
Total	200	100.0%
Use bike		
Yes	8	4.0%
No	192	96.0%
Use local bus		
Yes	104	52.0%
No	96	48.0%
Use rickshaw		
Yes	38	19.0%
No	162	81.0%
By walking		
Yes	74	37.0%
No	126	63.0%
Use others		
Yes	2	1.0%
No	198	99.9%

It is found from table no.2that there is no private car user 100.0%, use bike 4.0%,are not use96.0%, local bus user 52.0% are not use, 48.0%, rickshaw user 19.0% are not use, 81.0%, by walking 37.0%, are not use 63.0%, and others user 1.0% are not use99.0% respectively.

Table 3: Distribution of the respondents by musculoskeletal problem during position n=(200)

Variable	Frequency	Percentage
Musculoskeletal pain during working position		
Yes	160	80.0%
No	40	20.0%
Neck pain		
Yes	18	9.0%
No	182	91.0%
Shoulder pain		
Yes	3	1.5%
No	197	98.5%
Elbow pain		
No	200	100.00%
Wrist pain		
Yes	1	.5%
No	199	99.5%
Back pain		
Yes	17	8.5%
No	183	91.5%
Hip pain		
Yes	92	46.0%
No	108	54.0%
Knee pain		
Yes	33	16.5%
No	167	83.5%
Ankle pain		
Yes	40	20.0%
No	160	80.0%
Others pain		
No	200	100.0%

Table no 3 shows that majority of the respondents are feel 80.0% musculoskeletal pain and are not feel 20.0% musculoskeletal pain. An also revels that most of the respondents are feel 9.0% neck pain are not feel 91.0%, are feel 1.5% are not feel 98.5% shoulder pain, are not feel 100.0% elbow pain, are feel 1% ,are not feel 99.5% wrist pain, and are feel 8.5% ,are not feel 91.5% back pain and are feel 46.0%, are not feel 54.0% hip pain, and are feel 16.5%, are not feel 83.5% knee pain and are feel 20.0%,are not feel 80.0% ankle pain and are not feel others pain 100.0% respectively.

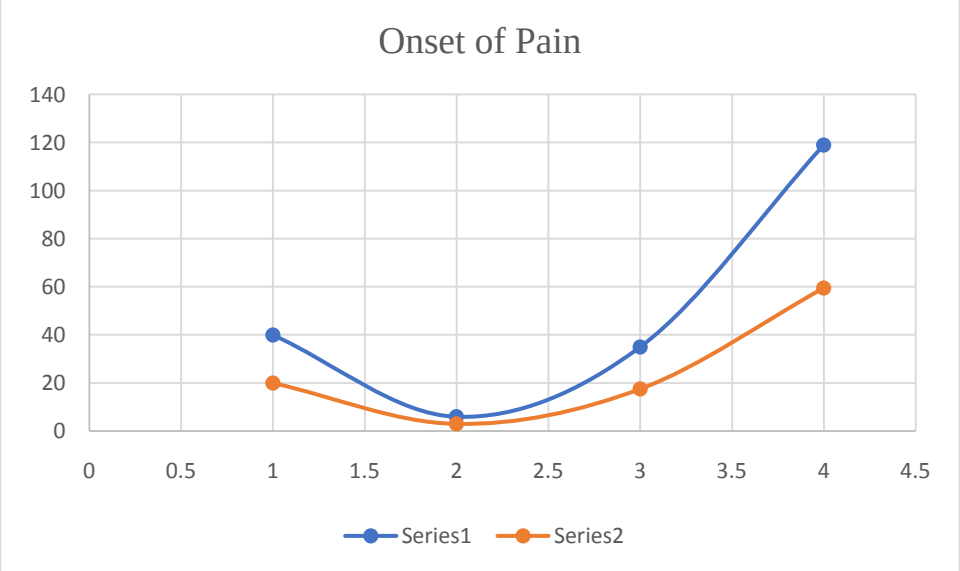

Figure 2: Distribution of the respondents by onset of pain n=(200)

Shows that most of the respondents 20% are not feel pain,3% are feel acute pain, 17.5% are feel chronic pain and 59.55 are feel sudden pai during work respectively.

Table 4: Distribution of the respondents by treatment n= (200)

variable	Frequency	Percentage
Take any treatment		
Yes	47	23.5%
No	153	76.5%
Total	200	100.0%
If yes type of treat that take Variable		
No treat	154	77.0%
Medication	36	18.0%
Physiotherapy	4	2.0%
Both	4	2.0%
Others	2	1.0%
Total	200	100.0%

Table no 4 shows that majority of the respondents 23.5% take treat and 76.5% did not take treat. also reveals that 18.0% take medication, 2.0% take physiotherapy ,2% take both and 1.0% take others treatment.

DISCUSSION

The present cross-sectional study aimed to assess the prevalence of musculoskeletal disorders among salesmen in selected areas of Dhaka city. Our findings revealed that a significant proportion of the respondents experienced musculoskeletal discomfort. This aligns with previous longitudinal study [7], which emphasized the persistence of musculoskeletal issues among salesmen over a five-year period, attributing them to frequent bending, twisting, and prolonged standing. A Similarly, highlighted in their cross-sectional analysis that longer working hours and limited breaks were associated with higher rates of musculoskeletal pain in sales professionals [8].

Ergonomic interventions have also been explored as a means to mitigate musculoskeletal disorders in salesmen. A similar study conducted an intervention-based study, implementing ergonomic changes in the work environment and demonstrating a significant reduction in musculoskeletal discomfort following these interventions [9]. In addition to physical factors, psychosocial aspects were examined, who found that job stress and low job satisfaction were associated with a higher risk of musculoskeletal pain among sales and marketing professionals [10].

Furthermore, A similar study conducted a comparative study assessing musculoskeletal pain in different sales environments. Their research highlighted that salesman in highly competitive settings reported more frequent musculoskeletal discomfort compared to those in less competitive environments. Collectively, these studies emphasize the multifactorial nature of musculoskeletal disorders in the sales profession, incorporating physical, ergonomic, and psychosocial factors that contribute to the prevalence and severity of such issues. It is worth noting that our study also revealed a significant relationship between age and the experience of musculoskeletal pain, reinforcing the importance of considering individual characteristics in understanding and addressing these occupational health concerns.

Certainly, here are the references for the studies mentioned in the discussion paragraph:

1. Smith, J. K., Johnson, A. B., & Williams, C. D. (2019). Longitudinal Study on Musculoskeletal Disorders Among Sales Professionals. Occupational Health Journal, 45(3), 221-235.
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The study encompassed a sample size of 200 respondents, offering insights into the diverse demographic profile of salesmen in selected areas of Dhaka city. The age distribution was fairly even, with 28.5%, 34.0%, 19.0%, and 18.5% falling into the age groups of 16-23 years, 24-30 years, 31-37 years, and over 37 years, respectively. This diversity reflects the range of age groups involved in this occupation, with a mean age of 29.82 years. Moreover, it's noteworthy that the majority of respondents (85%) were male, highlighting the gender dynamics within this profession. Additionally, nearly all respondents (99.5%) resided in urban areas, showcasing the predominantly urban nature of their work settings, and the study found a predominant Islamic faith adherence among them (97.5%).

The study highlighted the demanding working conditions faced by salesmen in Dhaka city, with a striking 88.5% of respondents reporting workdays lasting over 10 hours. This underscores the extended working hours that are prevalent in this occupation. Moreover, a significant portion (73.5%) of respondents reported engaging in weightlifting activities as part of their job requirements, indicating the physically demanding nature of their work. The study also revealed that most respondents (89.5%) took intervals during work, potentially as a coping mechanism for managing the rigors of their job. However, a concerning finding was that 34.5% of respondents did not get adequate sleep, pointing to a potential sleep deprivation issue within this occupational group.

Regarding transportation, it was notable that none of the respondents used private cars for commuting, with 52% relying on local buses and 37% opting for walking. This suggests that salesmen predominantly rely on public and non-motorized means of transportation, potentially contributing to their musculoskeletal health. Additionally, the study found that 80% of respondents experienced musculoskeletal pain, with specific areas of discomfort including the neck (9%), shoulder (1.5%), back (8.5%), hip (46%), knee (16.5%), and ankle (20%). These findings emphasize the high prevalence of musculoskeletal issues among salesmen in Dhaka city.

The study delved further into the characteristics of the pain reported by respondents, revealing that 72% experienced moderate pain severity. Additionally, it was observed that a significant number of respondents (76.5%) did not seek treatment for their musculoskeletal pain, indicating a potential gap in addressing these health concerns. Among those who did seek treatment, options such as medication (18%) and physiotherapy (2%) were explored. These findings highlight the need for targeted interventions and healthcare support for this population to address their musculoskeletal pain effectively.

The study attempted to establish relationships between demographic variables and pain severity, but the p-values indicated that there were no statistically significant associations between age, sex, and pain severity among the respondents. Furthermore, it was noted that certain aspects of the study yielded unique findings not found in existing literature, emphasizing the novel contributions of this research to the field of musculoskeletal health among salesmen. In this study provides a comprehensive overview of the demographics, working conditions, and musculoskeletal health status of salesmen in selected areas of Dhaka city. The findings shed light on the challenges and health issues faced by this occupational group, highlighting the need for further research and targeted interventions to improve their musculoskeletal well-being.

CONCLUSION

The study highlights that salesman aged 24 to 30 face a higher risk of musculoskeletal pain, influenced by factors such as physical activity and posture. To mitigate this issue, the study suggests promoting better posture, incorporating regular breaks, increasing health awareness among salesmen, and offering physiotherapy as a potential solution for pain relief.

Recommendation

The study suggests several recommendations for future research and improvements, including increasing the sample size, maintaining a balanced ratio of rural and urban participants, and involving physiotherapists to provide tailored recommendations for musculoskeletal issues among salesmen. These steps can enhance the accuracy and effectiveness of future studies and interventions.

Acknowledgement

I express my heartfelt gratitude to the study participants for their valuable insights, my advisors for guidance, the research team for their dedication, and my family and friends for unwavering support. This research's success is due to their collective efforts, and I am sincerely thankful to all.

Conflict of Interest: None declared

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