



Determinants Of Work Related Musculoskeletal Disorders Among Tailors In Rivers East Senatorial District, Rivers State

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ABSTRACT

This study focused on the determinants of work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State. The population for this study comprised of all tailors in Rivers East Senatorial District, Rivers State. Descriptive cross-sectional survey design was adopted for the study. The sample size was eight hundred and eighty respondents. Data was collected using a self-structured questionnaire titled prevalence and determinants of work related musculoskeletal disorders with a reliability coefficient of 0.76 and was analyzed using descriptive statistics such as frequencies, percentages and Chi-square test was used for testing the hypotheses at 0.05 level of significance. The findings of the study showed significant difference in prevalence of work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State based on age (X^2 -value = 11.882; df =4; $p < 0.05$), gender (X^2 -value = 35.542; df =1; $p < 0.05$), work experience (X^2 -value = 67.046; df =4; $p < 0.05$), training (X^2 -value = 16.248; df =2; $p < 0.05$), and working hours (X^2 -value = 81.800; df =2; $p < 0.05$). It was concluded that tailors needs coping strategies for work related musculoskeletal disorders. It was recommended amongst others that training should be given by the Government and relevant stakeholders in areas such as hazards and risks in tailoring control measures to minimize risks, coping strategies and seeking medical advice.

Keywords: musculoskeletal disorders, socio-demographic, determinants, tailors

INTRODUCTION

Work-related musculoskeletal disorders (discomforts) are particularly common among Workers who spend much of their time in course of their work, and cloth making workers are no exception. Nwaogazie, Omuruka and Adaramola (2016) asserted that musculoskeletal disorders are named according to the body parts affected. The body parts frequently affected are arm, neck, shoulder and lower back, and diverse names are given to arm, neck and shoulder musculoskeletal disorders depending on the country of origin. For example cervicobrachial syndrome in Japan, repetitive strain injury in Australia, cumulative trauma disorders of the upper extremity in North America and work-related upper extremity musculoskeletal disorders.

The Center for Disease Control and Prevention (2016) defined Musculoskeletal disorders (MSDs) as injuries or pain in the human musculoskeletal system, including the joints, ligaments, muscles, nerves, tendons, and structures that support limbs, neck and back MSDs can arise from a sudden exertion (e.g., lifting a heavy object), or they can arise from making the same motions repeatedly repetitive strain, or from repeated exposure to force, vibration, or awkward posture. They also explained that injuries and pain in the musculoskeletal system caused by acute traumatic events like a car accident or fall are not considered musculoskeletal disorders.

Tailors are under pressure to keep up with the production demands, working long hours, at night and overtime. To achieve production targets, tailors usually operate machinery continuously at one

specified place. Tailors work as seamstresses operating sewing machines, scissors and ironers. The effects of long work- hour and monotonous, stressful work can be deleterious to both mental and physical health. With modern technology, many hazardous exposures at work have been reduced. The work load and the intensity of activity are the ergonomic factors that largely determine the effects of the work environment on health. However, harmful effects at work may not necessarily occur simultaneously, but may be consecutive or intermittent (Dwivedi & Kiran, 2013).

However, in Nigeria, studies on WMSDs among tailors are not easily available for referencing. A survey study on the prevalence, pattern, impact, risk factors and the most frequently affected anatomical parts of the body in musculoskeletal disorders among sewing machine operators revealed that a 12-months prevalence of musculoskeletal disorders was observed to be 92.0%. The result showed that the most commonly affected body part was the low back (78.6%). The four major job risk factors identified in this study were prolonged sitting (99.4%), sitting on a high chair (76.5%), sitting without back rest (71.5%) and sitting on a low chair (24.0%). The age, frequency of sewing and years of sewing experience on sitting to sew, standing to cut and ironing were significantly associated with prevalence of musculoskeletal disorders (Maduagwu et al, 2015).

Statement of the Problem

Poor identification and coping strategies of risk factors for musculoskeletal disorders have been observed among tailors especially amongst road side tailors in Nigeria. This prompts the question as to what is the prevalence, risk factors and coping strategies of work related musculoskeletal disorders among tailors, since this occupation has been identified to result in some health challenges. The commonest risk factors among tailors are adaptation of awkward posture due to poorly designed seating devices that lack adjustable seat heights and back rests, and repetitive nature of sewing machine operators' tasks such as pedalling, and extreme flexion of the trunk and neck. Hence, coping strategy is an effective tool for clarifying problems and identifying intervention. Therefore, it becomes necessary in order to clarify the problems faced by tailors in Rivers East Senatorial District with regards to determining work related issues so that appropriate interventions can be identified and designed for them. Rivers East Senatorial District has eight Local Government Areas and there are large numbers of tailors. However, the determinants of work related musculoskeletal disorders among tailors in Rivers East Senatorial District to the best of the researchers knowledge has not been documented, this study intends to fill that gap.

Aim of the study

The aim of this study is to determine work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State. Specifically, the study aim to:

RESEARCH METHODS

The study adopted a descriptive research design. The population of the study consisted of tailors in Rivers East Senatorial District, Rivers State. A sample size of 800 respondents was used for the study. Simple random sampling techniques was used to select two wards from each Local Government Areas, 50 tailors were selected from 2 wards each using non proportionate sampling techniques. This gave a total of 100 tailors from each Local Government Area. The respondents were selected through accidental sampling since tailors have no functional union as at the time of this study. A self-developed and structured questionnaire was composed to extract information on the variables of the study. The researcher personally administered the questionnaire to respondents. The questionnaire was designed to obtain responses using alternative responses pattern. Data collected were entered into the computer using Statistical Package for Social Science (SPSS 20.0) software for analysis and data were presented using frequency tables and percentages and chi-square.

RESULTS

Table 1: Socio-demographic Characteristics

Variables	Frequency (n=740)	percentages
Age		
20 years	111	15.0
21-30 years	260	35.1
31-40 years	251	33.9
41-50 years	81	10.9
50 years and above	37	5.0
Gender		
Male	380	51.4
Female	360	48.6
Education		
Primary	38	5.1
Secondary	408	55.1
Tertiary	294	39.7
Marital status		
Married	295	39.9
Single	348	47.0
Divorced/separated	81	10.9
Widowed	16	2.2
Work experience		
Less than 5 years	375	50.7
5-10 years	68	9.2
11-15 years	193	26.1
Above 15 years	104	14.1
Training		
By a road side tailor	258	34.9
Skill acquisition/craft center	391	52.8
Technical college	91	12.3
Working hour per day		
5 hours	324	43.8
6-10 years	257	34.7
Above 10 years	159	21.5

Table 1 shows the socio demographic data of respondents. The results showed that 15% of the respondents are aged 20 years, 35.1% 21-30 years, 33.9% 31-40 years, 10.9% 41-50 years and 5.0% 50 years and above. 380(51.4%) were males while 360(48.6%) were females. On education, 294(39.7) had tertiary education, 408(55.1) had secondary education while 38(5.1) had primary education. 295(39.3%) were married, 348(47%) single, 81(10.9%), divorced/separated while 16(2.2%) were widowed. For work experience, 375(50.7%) of respondents had less than 5 years of experience, 68(9.2%) 5-10 years, 193(26%) 11-15 years while 104(14%) had above 15 years. 91(12.3%) were trained in technical college, 391(52.8%) had skill acquisition/craft centre training while 258(34.9%) were trained by road side tailors. The results also showed that 324(43.8%) work for less than 5 hours, 257(34.7%) work for 6-10 hours while 159(21.5) work for more than 10 hours.

Research question 1: *What is the relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State?*

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Table 2: Chi-square test showing significant relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Age	WRMDs Prevalence		Total	Df	X ² -value	p-value	Decision
	High F(%)	Low F(%)					
20 years	66(13.0)	45(19.3)	111(15.0)	4	11.882	.018	Rejected
21-30 years	175(34.5)	85(36.5)	260(35.1)				
31-40 years	179(35.3)	72(30.9)	251(33.9)				
41-50 years	65(12.8)	16(6.9)	81(10.9)				
>50 years	22(4.3)	15(4.6)	37(5.0)				
Total	507 (100)	233(100)	740(100)				

*Significant. p<0.05.

Table 2 shows the chi-square test of significant relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State based on age. The result showed that there is a significant relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State (X²-value = 11.882; df =4; p<0.05). Thus, the null hypothesis which states that there is no significant relationship between age and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State was rejected and accepted by the alternate hypothesis.

Hypothesis 2: There is no significant relationship between gender and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Table 3: Chi-square test showing significant relationship between gender and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Gender	WRMDs Prevalence		Total	Df	X ² -value	p-value	Decision
	High F(%)	Low F(%)					
Male	298(58.8)	82(35.2)	380(51.4)	1	35.542	.000	Rejected
Female	209(41.2)	151(64.8)	360(48.6)				
Total	507 (100)	233(4.2)	740(100)				

*Significant. p<0.05.

Table 3 shows the chi-square test of significant relationship between gender and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State. The result showed that there is a significant relationship between gender and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State (X²-value = 35.542; df =1; p<0.05). Thus, the null hypothesis which states that there is no significant work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State was rejected and accepted by the alternate hypothesis.

Hypothesis 3: There is no significant relationship between working experience and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Table 4: Chi-square test showing significant relationship between working experience and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

working experience	WRMDs Prevalence		Total	Df	X ² -value	p-value	Decision
	High F(%)	Low F(%)					
< 5 years	259(51.1)	116(49.8)	375(50.7)	3	67.046	.000	Rejected
6-10 years	22(4.3)	46(19.7)	68(9.2)				
11-15 years	163(32.1)	30(12.9)	193(26.1)				
>15 years	63(12.4)	41(17.6)	104(14.1)				
Total	507 (100)	233(100)	740(100)				

*Significant. p<0.05.

Table 4 shows the chi-square test of significant relationship between working experience and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State. The result showed that there is a significant relationship between working experience and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State (X²-value = 67.046; df =4; p<0.05). Thus, the null hypothesis which states that there is no significant relationship between working experience and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State was rejected and accepted by the alternate hypothesis.

Hypothesis 4: There is no significant relationship between training and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Table 5: Chi-square test showing significant relationship between training and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State

Training	WRMDs Prevalence		Total	Df	X ² -value	p-value	Decision
	High F(%)	Low F(%)					
Roadside tailor	187(36.9)	71(30.5)	258(34.9)	2	16.248	.000	Rejected
Skill acquisition	245(48.3)	146(62.7)	391(52.8)				
Technical college	75(14.8)	16(6.9)	91(12.3)				
Total	507 (100)	233(4.2)	740(100)				

*Significant. p<0.05.

Table 5 shows the chi-square test of significant relationship between training and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State. The result showed that there is a significant relationship between training and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State (X²-value = 16.248; df =2; p<0.05). Thus, the null hypothesis which states that there is no significant relationship between training and work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State was rejected and accepted by the alternate hypothesis.

DISCUSSION OF FINDINGS

The result shows a significant relationship between age and work related musculoskeletal disorders among tailors which indicate that age is actually related with work related musculoskeletal disorders among tailors. The findings of the study is in line with the study of Banerjee et al (2016) who reported that age is significantly associated with work related musculoskeletal disorders among tailors. The study of Hossan et al (2018) also confirms the finding of the present study as it found out that age is related with work related musculoskeletal disorders among tailors. However, the result further shows that there was a low relationship between age and prevalence of work related musculoskeletal disorders among tailors. This agrees with the studies of Wang et al (2007), Maduagwu et al (2015) and Berberoglu and Tokuc (2013) whose studies reported a relationship between age and prevalence of work related musculoskeletal disorders among tailors. This may be attributed to the fact that as people progress in age, there is the tendency that they may grow weary and become easily tired physiologically. Hence, the prevalence of work related musculoskeletal disorders. However, doing same thing over and over again can play an important role.

The result shows a significant relationship between gender and work related musculoskeletal disorders among tailors. The findings of the study corroborates with that of Berberoglu and Tokuc (2013) and Kazemi et al (2018) who reported that age is related with prevalence of work related musculoskeletal disorders among tailors. The studies of Hossan et al (2018) also agrees with the finding of the present study as it reports that age is related to the prevalence of work related musculoskeletal disorders. This is in line with the study of Maduagwu et al (2015) and Banerjee et al (2016) who reported the association between age and prevalence of work related musculoskeletal disorders. However, in the present study males had the prevalence of work related musculoskeletal disorders than females. This may mean that men are more involved in repetitive activities in tailoring compared to the women. Another factor may be attributed to the fact that women do not really want to continue in what may give them stress hence, will have some rest but the men may likely continue even when tired which might contributed to the findings of the study.

The findings of the study corroborates with that of Kebede-Deyyas (2014) and Jakobsen et al (2018) who reported that working experience determines the prevalence of work related musculoskeletal disorders. However, less than 5 years working experienced had high prevalence of work related musculoskeletal disorders. This means that they might not have gotten the appropriate knowledge of work related musculoskeletal disorders and the appropriate method of preventing these disorders. The result further shows that there was a very low relationship between working experience and prevalence of work related musculoskeletal disorders among tailors. The finding of the study attests to that of Upasana and Deepa (2019) and Hossain et al (2018) who reported the relationship between work experience and the prevalence of work related musculoskeletal disorders. This is so because working for a long time exposes workers to be familiar with risks factors associated with certain ill-health and appropriate ways of coping with them.

The result shows a significant relationship between work experience and work related musculoskeletal disorders among tailors indicating that work experience is related with musculoskeletal disorders. This shows that training is related with the prevalence of work related musculoskeletal disorders. The finding of the study is in line with that of Dwivedi and Kiran (2013) who reported that training determines the prevalence of work related musculoskeletal disorders. The study of Banerjee et al (2016) also corroborates with the finding of the present study. The result further shows that there was a low relationship between training and prevalence of work related musculoskeletal disorders among tailors. The finding of the study is in line with that Hossain et al (2018) and Wang et al (2007) who reported that training determines the prevalence of work related musculoskeletal disorders. However, the present study showed that those who had skill acquisition had more prevalence of work related musculoskeletal disorders. The similarities that may be noted among these studies might be attributed to the fact that respondents did not practice preventive measures. However, it is worth noting that training helps people to actually recognize what is appropriate and obtainable in the working environment. Hence, the need of proper training among tailors to help cope with the prevalence of work related musculoskeletal disorders.

CONCLUSION

Based on the findings of the study, it was concluded that tailors needs coping strategies for work related musculoskeletal disorders. Socio-demographic characteristics such as age, gender, educational level, training and years of working experience influences work related musculoskeletal disorders among tailors in Rivers East Senatorial District, Rivers State.

RECOMMENDATIONS

In view of the findings of this study, the following recommendations were made:

1. Education, training and prevention are the best methods for the managing the adverse health effects that are common among tailors. Training should be given by the Government and relevant stakeholders in areas such as hazards and risks in tailoring control measures to minimize risks, coping strategies and seeking medical advice.
2. Ministries in charge of labour and productivity from time to time should go for inspection of tailors workshop to ascertain work related musculoskeletal disorders prevalent and the method of coping strategies adopted
3. The government, ministries of health/environment and other relevant agencies should embark on health education and awareness campaign on work related musculoskeletal disorders among tailors to enhance safety precautions among tailors
4. Tailors should be encouraged to attend seminars and workshop on the use of their equipment in order to prevent accident and injury.
5. Technical Colleges, Polytechnics and Universities where tailoring programmes are organized should be properly equipped with required personnel (man power) and equipment

REFERENCES

- Akanbi, O. G. & Ikemefuna, A. N. (2010). Tailor's chair and musculoskeletal disorders in Nigeria. *Ergon Soc* 22: 14-32
- Banerjee, S., Bandyopadhyay, L., Dasgupta, A., Paul, B., & Chattopadhyay, O. (2016). Work Related Musculoskeletal Morbidity among Tailors: A Cross Sectional Study in a Slum of Kolkata. *Kathmandu Univ Med J*, 56(4), 305-10.
- Berberoğlu, U., & Tokuç, B. (2013). Work-related musculoskeletal disorders at two textile factories in Edirne, Turkey. *Balkan medical journal*, 30(1), 23.
- Centers for Disease Control and Prevention (2016). "CDC - Workplace Health - Implementation - Work-Related Musculoskeletal Disorders (WMSD) Prevention". www.cdc.gov.
- Hossain, M. D., Aftab, A., Al Imam, M. H., Mahmud, I., Chowdhury, I. A., Kabir, R. I., & Sarker, M. (2018). Prevalence of work related musculoskeletal disorders (WMSDs) and ergonomic risk assessment among readymade garment workers of Bangladesh: A cross sectional study. *PLoS one*, 13(7), e0200122.
- Jakobsen, E. L. T., Biering, K., Kærgaard, A., & Andersen, J. H. (2018). Neck–Shoulder Pain and Work Status among Former Sewing Machine Operators: A 14-year Follow-up Study. *Journal of occupational rehabilitation*, 28(1), 80-88.
- Kazemi, S., Asgari, A., Khatib, M., Poyafar, L., & Mohammadi, M. (2018). Determining the Prevalence of Musculoskeletal Disorders in Tailors in Kermanshah, Iran Using the Nordic Questionnaire (2018). *International Journal of Health and Life Sciences*, 5(1).
- Kebede Deyyas, W., & Tafese, A. (2014). Environmental and organizational factors associated with elbow/forearm and hand/wrist disorder among sewing machine operators of garment industry in Ethiopia. *Journal of environmental and public health*, 2014.
- Maduagwu, S. M., Sokunbi, G. O., Bwala, M. P., Akanbi, O. A., Jajere, A. M., Jaiyeola, O. A., & Ojiakor, A. C. (2015). Work-related musculoskeletal disorders among self employed sewing machine operators in Maiduguri, Nigeria. *Occupational Medicine & Health Affairs*.
- Sealetsa, O. J. & Thatcher, A. (2011). Ergonomics issues among sewing machine operators in the textile manufacturing industry in Botswana. *Work*, 38: 279-289.
- Wang, P. C., Rempel, D. M., Harrison, R. J., Chan, J., & Ritz, B. R. (2007). Work-organisational and personal factors associated with upper body musculoskeletal disorders among sewing machine operators. *Occupational and environmental medicine*, 64(12), 806-813.