

PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG TEACHING AND NON TEACHING STAFFS OF A REPUTED UNIVERSITY IN WEST BENGAL

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Abstract

Introduction: Musculoskeletal disorders are a main occupational health problem. It can have a rigorous consequence on quality of life and may result in work constraints, absenteeism or even the want to change jobs. The Nordic General Questionnaire is a standardized tool for assessing musculoskeletal issues in the context of ergonomics or occupational health. The Nordic Questionnaire is a standardized tool used to evaluate pain in the musculoskeletal system. It evaluates nine distinct body locations for one year and the last seven days for aches, pains, and discomforts. It also determines whether the pain has interfered with work during the previous twelve months.

Materials & Methods: A cross sectional study was done and purposive random sampling method was applied. A questionnaire focusing on demographic data and using standardized Nordic scale was prepared and was sent to all employees of the University, 250 employees responded. The data was collected and analyzed.

Data Analysis: Data analysis was done using SPSS Software and the test used was Chi square test.

Result: Among the respondents, 36.0% indicated experiencing neck discomfort, shoulders discomfort 34.4%, elbow discomfort 12.8%, wrist/hand discomfort 19.2%, Upper back issues were reported by 29.2%, and Lower back conditions were more prevalent with 44.8% reporting issues. Hips, knees, and ankle/feet also showed varying prevalence rates. Hips discomfort was reported by 16.8%, knees by 26.4%, and ankle/feet by 23.6. In terms of the impact on daily activities, 42.0% of respondents reported affected work due to musculoskeletal conditions. Additionally, 40.4% experienced aggravation of symptoms within 7 days. Notably, for neck issues, there is a significant association between gender and the presence of disorders ($\chi^2 = 6.944$, $p = 0.008$), with a higher proportion of females reporting neck problems compared to males. A similar trend is observed for upper back issues ($\chi^2 = 6.985$, $p = 0.008$), where females also exhibit a higher prevalence. The elbow region shows a significant association ($\chi^2 = 9.174$, $p = 0.002$), indicating that gender is related to the presence of elbow disorders, with a higher incidence among females. The hip ($\chi^2 = 9.272$, $p = 0.002$) and ankle & feet ($\chi^2 = 9.783$, $p = 0.002$) regions also display significant associations, suggesting that gender is linked to the prevalence of musculoskeletal issues in these areas, with females experiencing more hip and ankle & feet problems. However, for other body regions such as shoulder, wrist & hand, lower



back, knee, affected work, and aggravated conditions in the last 7 days, no statistically significant association with gender was observed. Body parts such as neck, shoulder, elbow, wrist & hand, upper back, lower back, hip, affected work, and conditions aggravated over 7 days do not demonstrate a significant association with age, height and weight, given their p-values >0.05.

Conclusion: In our study we can conclude that musculoskeletal disorders were common among all teaching as well as non teaching staffs of the University, 42% of staffs work schedule was affected due to musculoskeletal disorders and 40.4% experienced aggravation of symptoms within 7 days. All the body regions specified in the Nordic Questionnaire was affected out of which lower back issues were more prevalent and females had more prevalence of musculoskeletal disorders in comparison to males.

Keywords: Musculoskeletal disorders, Standardized Nordic Questionnaire.

INTRODUCTION

Any component of the musculoskeletal system may be impacted by a condition known as musculoskeletal disorders (MSD). It consists of the bones, muscles, and nerves, joints, spinal discs, and the connective tissues, tendons, ligaments, and cartilage that support blood vessels. The discomfort, burning, tingling, aching, stiffness, or numbness are among the symptoms. Over the past ten years, musculoskeletal diseases have become more prevalent worldwide. It not only lowers the standard of living for the workers but also places a heavy financial strain on society. It is also quite expensive in terms of health care costs and a major contributor to physical and occupational disability in both developed and developing nations^{1,9,10}. Technological developments and modern work practices have led to a range of health problems for workers, including as musculoskeletal and mental overloads, which are the main causes of occupational diseases, which are currently considered to be among the most important public health problems in the world^{2,11,14,15}. MSD is a main occupational health problem. MSD can have a rigorous consequence on quality of life and may result in work constraints, absenteeism or even the want to change jobs^{3,16,17,18}. The specific cause of musculoskeletal problems among professionals related to their work is still a subject of much unfinished research. Organizations experiencing issues with musculoskeletal disorders at work are discovering that, despite identical furniture, work activities, and electronic equipment, these disorders may manifest in one area but not in another. A wide range of factors related to occupational activities, personal physiology, the workplace, technology, management, sociology, and non-work surroundings can all contribute to musculoskeletal problems^{4,19}.

The most widely used symptom questionnaire is the Standardized Nordic questionnaire, which was first developed for all musculoskeletal illnesses, primarily for low back pain and published in 1987. The Nordic General Questionnaire is a standardized tool for assessing musculoskeletal issues in the context of ergonomics or occupational health. The Nordic Questionnaire is a standardized tool used to evaluate pain in the musculoskeletal system. Its specificity is 51.1–82.4 and its sensitivity is 82.3–100. It evaluates nine distinct body locations for one year and the last seven days for aches, pains, and discomforts. It also determines whether the pain has interfered with work during the previous twelve months^{5,20}. The Nordic Questionnaire is an indirect method commonly used and it can help in evaluation of the sustainability of a company^{12, 21, 22}.

AIMS AND OBJECTIVES

AIM:

- To identify the prevalence of musculoskeletal disorders among the teaching as well as non teaching staffs of a reputed University in West Bengal

OBJECTIVES:

- To find out the prevalence of musculoskeletal disorders among the staffs of a reputed University in West Bengal.

- To evaluate which location of the body is more affected for last one year.
- To evaluate whether the symptoms has interfered with work during the last one year.
- To evaluate whether the symptoms have increased in last seven days.
- To evaluate the association of the factors that is gender, age, height and weight with development of musculoskeletal problems.

NEED OF THE STUDY

- The purpose of the study is to determine the prevalence of musculoskeletal disorders among the teaching as well as non teaching staffs of a reputed University in West Bengal and identification of the risk factors.
- To provide benefit to relief the musculoskeletal disorders.

HYPOTHESIS

ALTERNATIVE HYPOTHESIS

- There will be significant prevalence of musculoskeletal disorders among the teaching as well as non teaching staffs of a reputed University in West Bengal
- There will be significant association of various musculoskeletal disorders with gender, age, height and weight
- There will be significant hampering of work schedule due to musculoskeletal disorders
- There will be significant aggravation of symptoms in last seven days

NULL HYPOTHESIS

- There will be no significant prevalence of musculoskeletal disorders among the teaching as well as non teaching staffs of a reputed University in West Bengal
- There will be no significant association of various musculoskeletal disorders with gender, age, height and weight
- There will be no significant hampering of work schedule due to musculoskeletal disorders
- There will be no significant aggravation of symptoms in last seven days

METHODOLOGY

Methods

The present study employs a cross-sectional research approach and focuses on the teaching as well as non-teaching staff of a reputed University in West Bengal. This study was approved by the Ethical Committee of The Neotia University. The objective of the study was explained to all participants. All participants gave their informed consent before participation and the participants have been taken from different departments of the university. Participants who were pregnant, who had recent surgeries, traumatic injuries, prior diagnosed orthopedic and neurologic conditions, physically handicapped were excluded from the study. The data collection period was from 1st November 2023 till 31st Dec 2023.

Outcome measure

- **Standardized Nordic Questionnaire**

A detailed questionnaire was prepared in English along with a well demarcated image of the human model signifying pain in different locations of the body. The component of the questionnaire provides information about nine different locations in the body. This includes neck, both shoulders, both elbows, both wrist/hands, upper back, lower back, both hips, both knees, both feet and both ankles. It evaluates nine distinct body locations for one year and the last seven days for aches, pains, and discomforts. It also determines whether the pain has interfered with work during the previous twelve months^{5,20,24,25}.

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Musculoskeletal Discomfort Form (Based on the Nordic Questionnaire (Kourinka et al. 1987)) Employee ID: _____

Job/Position: _____ Gender: M F Age: _____ Height: _____ ft. _____ in. Weight: _____
 How long have you been doing this job? _____ years _____ months How many hours do you work each week? _____

How to answer the questionnaire:
Picture: In this picture you can see the approximate position of the parts of the body referred to in the table. Limits are not sharply defined, and certain parts overlap. You should decide for yourself in which part you have or have had your trouble (if any).

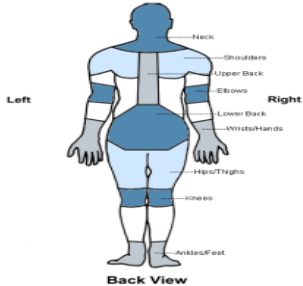


Table: Please answer by putting an "X" in the appropriate box - one "X" for each question. You may be in doubt as to how to answer, but please do your best anyway. Note that column 1 of the questionnaire is to be answered even if you have never had trouble in any part of your body; columns 2 and 3 are to be answered if you answered yes in column 1.

To be answered by everyone	To be answered by those who have had trouble	
Have you at any time during the last 12 months had trouble (ache, pain, discomfort, numbness) in:	Have you at any time during the last 12 months been prevented from doing your normal work (at home or away from home) because of the trouble?	Have you had trouble at any time during the last 7 days?
Neck <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Shoulders <input type="checkbox"/> No <input type="checkbox"/> Yes, right shoulder <input type="checkbox"/> Yes, left shoulder <input type="checkbox"/> Yes, both shoulders	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Elbows <input type="checkbox"/> No <input type="checkbox"/> Yes, right elbow <input type="checkbox"/> Yes, left elbow <input type="checkbox"/> Yes, both elbows	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Wrists/Hands <input type="checkbox"/> No <input type="checkbox"/> Yes, right wrist/hand <input type="checkbox"/> Yes, left wrist/hand <input type="checkbox"/> Yes, both wrists/hands	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Upper Back <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Lower Back (small of back) <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Hips/Thighs <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Knees <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Ankles/Feet <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes

Fig 1: Standardized Nordic Questionnaire

Procedure

The ethical approval for data collection has been received from the Institute. Purposive random sampling method was employed and questionnaire was sent to Three hundred fifteen employees of various departments out of which two hundred fifty individuals responded. Prior to obtaining the information through a questionnaire, participants were informed about the goal of the study and their consent was acquired.

A structured questionnaire was used in this study. The first part asked about the demographic details. The second part was the self-reported MSDs questionnaire. The questionnaire consists of four main questions: (1) pain, discomfort, numbness in neck, shoulders, elbows, wrist, hands, upper back, lower back, hips/thigh, knees, ankles/feet recorded during last 12 month (2) does any of the symptoms have prevented them from doing normal work in last 12 month, (3) any trouble or the symptoms have aggravated in last 7 days.

DATA ANALYSIS

All statistical evaluation was done using SPSS software and the data were tested using chi square test. While the p - value suggests the probability of tracking such a difference due to nothing more than random chance, the chi square value indicates the magnitude of the association that can be observed between the MSDs and gender, age, height, weight. This is done under the assumption that there is no real difference. The statistical significance of the findings can be evaluated using the p - value (≤ 0.05).

RESULT

Table 1 : Base line characteristics

Variable	Category	Frequency	Percent
Gender	Female	125	50.0
	Male	125	50.0
Age	24-43 years	148	59.2
	44-63 years	90	36.0
	64-73 years	12	4.8
Height	4ft-4ft.9inch	8	3.2
	5ft-5ft.9inch	228	91.2
	6ft-6ft.9inch	14	5.6
Weight	30-59 kg	45	18.0
	60-89 kg	185	74.0
	90 and above	20	8.0

The table 1 provides an overview of musculoskeletal disorders among staff, focusing on various demographic and physical characteristics. Gender distribution is balanced, with 50% female and 50% male participants. In terms of age, the majority of staff falls within the 24-43 years category (59.2%), followed by 36.0% in the 44-63 years range, and a smaller percentage of 4.8% in the 64-73 years category. Examining height, the majority of staff members are between 5ft and 5ft.9inch (91.2%), with a smaller proportion distributed in the 4ft-4ft.9inch (3.2%) and 6ft-6ft.9inch (5.6%) categories. Regarding weight, most participants fall within the 60-89 kg range (74.0%), while 18.0% are in the 30-59 kg range, and 8.0% weigh 90 kg and above.

Table 2 : Frequency and percentage of MSDs

		Frequency	Percent
NECK	no	160	64.0
	yes	90	36.0
SHOULDERS	no	164	65.6
	yes	86	34.4
ELBOW	no	218	87.2
	yes	32	12.8
WRIST/HAND	no	202	80.8
	yes	48	19.2
UPPER BACK	no	177	70.8
	yes	73	29.2
LOWER BACK	no	138	55.2
	yes	112	44.8
HIPS	no	208	83.2
	yes	42	16.8
KNEES	no	184	73.6
	yes	66	26.4
ANKLE/FEET	no	191	76.4
	yes	59	23.6
Affected work	no	145	58.0
	yes	105	42.0
Aggravated in 7days	no	149	59.6
	yes	101	40.4

The presented data of table 2 outlines the frequency and percentage distribution of reported musculoskeletal conditions across various body parts, as well as their impact on daily activities. Among the respondents, 36.0% indicated experiencing neck discomfort, with 64.0% reporting no such issues. Similarly, shoulders exhibited a prevalence of 34.4%, with 65.6% reporting no shoulder-related concerns. Elbow conditions were reported by 12.8% of participants, while 87.2% reported no issues in that area. Concerning the wrist/hand, 19.2% of respondents reported discomfort, with 80.8% reporting no problems. Upper back issues were reported by 29.2%, contrasting with the 70.8% who reported no upper back discomfort. Lower back conditions were more prevalent, with 44.8% reporting issues and 55.2% reporting no problems. Hips, knees, and ankle/feet also showed varying prevalence rates. Hips discomfort was reported by 16.8%, knees by 26.4%, and ankle/feet by 23.6%, with the majority in each case reporting no issues (83.2%, 73.6%, and 76.4%, respectively). In terms of the impact on daily activities, 42.0% of respondents reported affected work due to musculoskeletal conditions, while 58.0% reported no such impact. Additionally, 40.4% experienced aggravation of symptoms within 7 days, while 59.6% did not report worsening conditions during that period.

Table 3: Association of MSDs with Gender

		GENDER			Chi square	p value
		Female	Male	Total		
Neck	No	70(56)	90(72)	160(64)	6.944	0.008
	Yes	55(44)	35(28)	90(36)		
Shoulder	No	74(59.2)	90(72)	164(65.6)	4.538	0.033
	Yes	51(40.8)	35(28)	80(34.4)		
Elbow	No	101(80.8)	117(93.6)	218(87.2)	9.174	0.002
	Yes	24(19.2)	8(6.4)	32(12.8)		
wrist & Hand	No	95(76)	107(85.6)	202(80.8)	3.713	0.057
	Yes	30(24)	18(14.4)	48(19.2)		
Upper Back	No	79(63.2)	98(78.4)	177(70.8)	6.985	0.008
	Yes	46(36.8)	27(21.6)	73(29.2)		
Lower Back	No	69(55.2)	69(55.2)	138(55.2)	-	-
	Yes	56(44.8)	56(44.8)	112(44.8)		
Hip	No	95(76)	113(90.4)	208(83.2)	9.272	0.002
	Yes	30(24)	12(9.6)	42(16.8)		
knee	No	85(68)	99(79.2)	184(73.6)	4.035	0.045
	Yes	40(32)	26(20.8)	66(26.4)		
Ankle & Feet	No	85(68)	106(84.8)	191(76.4)	9.783	0.002
	Yes	40(32)	19(15.2)	59(23.6)		
Affected Work	No	69(55.2)	76(60.8)	145(58)	0.805	0.37
	Yes	56(44.8)	49(39.2)	105(42)		
Aggravated 7days	No	74(59.2)	75(60)	149(59.6)	0.017	0.897
	Yes	51(40.8)	50(40)	101(40.4)		

The chi-square analysis was conducted to examine the association between gender and the prevalence of musculoskeletal disorders across various body regions among the staff in table 3. The results reveal statistically significant associations for several anatomical areas. Notably, for neck issues, there is a significant association between gender and the presence of disorders ($\chi^2 = 6.944$, $p = 0.008$), with a higher proportion of females reporting neck problems compared to males. A similar trend is observed for upper back issues ($\chi^2 = 6.985$, $p = 0.008$), where females also exhibit a higher prevalence. The elbow region shows a significant association ($\chi^2 = 9.174$, $p = 0.002$), indicating that gender is related to the presence of elbow disorders, with a higher incidence among females. The hip ($\chi^2 = 9.272$, $p = 0.002$) and ankle & feet ($\chi^2 = 9.783$, $p = 0.002$) regions also display significant associations, suggesting that gender is linked to the prevalence of musculoskeletal issues in these areas, with females experiencing more hip and ankle & feet problems. However, for other body regions such as shoulder, wrist & hand, lower back, knee, affected work, and aggravated conditions in the last 7 days; no statistically significant association with gender was observed.

Table 4: Association of MSDs with Age

		AGE			Chi square	p value
		24-43yr	44-63yr	64-73yr		
Neck	No	87(58.8)	63(70)	10(83.3)	5.101	0.078
	Yes	61(41.2)	27(30)	2(16.7)		
Shoulder	No	92(62.2)	63(70)	9(75)	2.017	0.365
	Yes	56(37.8)	27(30)	3(25)		
Elbow	No	126(85.1)	81(90)	11(91.7)	1.412	0.494

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	Yes	22(14.9)	9(10)	1(8.3)		
	No	119(80.4)	72(80)	11(91.7)		
Wrist & Hand	Yes	29(19.6)	18(20)	1(8.3)	0.965	0.617
	No	108(73)	60(66.7)	9(75)		
Upper Back	Yes	40(27)	30(33.3)	3(25)	1.184	0.553
	No	80(54.1)	49(54.4)	9(75)		
Lower Back	Yes	68(45.9)	41(45.6)	3(25)	2.002	0.368
	No	122(82.4)	75(83.3)	11(91.7)		
Hip	Yes	26(17.6)	15(16.7)	1(8.3)	0.679	0.712
	No	115(77.7)	63(70)	6(50)		
Knee	Yes	33(22.3)	27(30)	6(50)	5.322	0.070
	No	111(75)	69(76.7)	11(91.7)		
Ankle & Feet	Yes	37(25)	21(23.3)	1(8.3)	1.716	0.070
	No	83(56.1)	52(57.8)	10(83.3)		
Affected work	Yes	65(43.9)	38(42.2)	2(16.7)	3.387	0.184
	No	82(55.4)	58(64.4)	9(75)		
Aggravated 7 days	Yes	66(44.6)	32(35.6)	3(25)	3.141	0.208

From table 4 body parts such as neck, shoulder, elbow, wrist & hand, upper back, lower back, hip, affected work, and conditions aggravated over 7 days do not demonstrate a significant association with age groups, given their p-values >0.05.

Table 5: Association of MSDs with Height

		HEIGHT			Chi square	p value
		4-4.9"	5-5.9"	6-6.9"		
Neck	No	8(100)	143(62.7)	9(64.3)	4.663	0.097
	Yes	0(0)	85(37.3)	5(35.7)		
SHOULDERS	No	7(87.5)	145(63.6)	12(85.7)	4.616	0.099
	Yes	1(12.5)	83(36.4)	2(14.3)		
ELBOW	No	7(87.5)	198(86.8)	13(92.9)	0.428	0.807
	Yes	1(12.5)	30(13.2)	1(7.1)		
WRIST & HAND	No	8(100)	182(79.8)	12(85.7)	2.259	0.323
	Yes	0(0)	46(20.2)	2(14.3)		
UPPERBACK	No	7(87.5)	159(69.7)	11(78.6)	1.613	0.446
	Yes	1(12.5)	69(30.3)	3(21.4)		
LOWERBACK	No	4(50)	124(54.4)	10(71.4)	1.64	0.441
	Yes	4(50)	104(45.6)	4(28.6)		
HIPS	No	8(100)	187(82)	13(92.9)	2.778	0.249
	Yes	0(0)	41(18)	1(7.1)		
KNEES	No	8(100)	166(72.8)	10(71.4)	2.977	0.226
	Yes	0(0)	62(27.2)	4(28.6)		
ANKLE & FEET	No	7(87.5)	171(75)	13(92.9)	2.897	0.235
	Yes	1(12.5)	57(25)	1(7.1)		
Affected work	No	6(75)	130(57)	9(64.3)	1.267	0.531
	Yes	2(25)	98(43)	5(35.7)		
Aggravated 7days	No	6(75)	135(59.2)	8(57.1)	0.837	0.658
	Yes	2(25)	93(40.8)	6(42.9)		

From table 5 we can find out that Chi-square tests were employed to assess the independence between height categories and the presence of musculoskeletal conditions. No significant associations were observed for body parts, including neck, elbow, wrist & hand, upper back, lower back, hips, knees, ankle & feet, as well as conditions affecting work and those aggravated over 7 days. The p-values >0.05.

Table 6: Association of MSDs with Weight

		WEIGHT			Chi square	p value
		30-59	60-89	>=90		
Neck	No	22(48.9)	123(66.5)	15(75)	5.007	0.085
	Yes	23(51.1)	62(33.5)	5(25)		
Shoulder	No	29(64.4)	122(65.9)	13(65)	0.04	0.980
	Yes	16(35.6)	63(34.1)	7(35)		
Elbow	No	37(82.2)	164(88.6)	17(85)	1.434	0.488
	Yes	8(17.8)	21(11.4)	3(15)		
wrist & hand	No	32(71.1)	153(82.7)	17(85)	3.382	0.184
	Yes	13(28.9)	32(17.3)	3(15)		
upper back	No	28(62.2)	133(71.9)	16(80)	2.527	0.283
	Yes	17(37.8)	52(28.1)	4(20)		
lower back	No	19(42.2)	105(56.8)	14(70)	5.018	0.081
	Yes	26(57.8)	80(43.2)	6(30)		
hips	No	34(75.6)	157(84.9)	17(85)	2.295	0.317
	Yes	11(24.4)	28(15.1)	3(15)		
knee	No	32(17.1)	136(73.5)	16(80)	0.566	0.754
	Yes	13(28.9)	49(26.5)	4(20)		
ankle & feet	No	31(68.9)	145(78.4)	15(75)	1.831	0.400
	Yes	14(31.1)	40(21.6)	5(25)		
affected work	No	23(51.1)	112(60.5)	10(50)	1.892	0.388
	Yes	22(48.9)	73(39.5)	10(50)		
aggravated 7 days	No	23(51.1)	117(63.2)	9(45)	4.137	0.126
	Yes	22(48.9)	68(36.8)	11(55)		

From table 6 we can find out that Chi-square tests were employed to assess the independence between weight categories and the presence of musculoskeletal conditions. No significant associations were observed for body parts, including neck, elbow, wrist & hand, upper back, lower back, hips, knees, ankle & feet, as well as conditions affecting work and those aggravated over 7 days. The p-values >0.05.

DISCUSSION

In our study gender distribution was balanced, with 50% female and 50% male participants. In terms of age, the majority of staff falls within the 24-43 years category (59.2%), followed by 36.0% in the 44-63 years range, and a smaller percentage of 4.8% in the 64-73 years category. Examining height, the majority of staff members are between 5ft and 5ft.9inch (91.2%), with a smaller proportion distributed in the 4ft-4ft.9inch (3.2%) and 6ft-6ft.9inch (5.6%) categories. Regarding weight, most participants fall within the 60-89 kg range (74.0%), while 18.0% are in the 30-59 kg range, and 8.0% weigh 90 kg and above. Among the respondents, 36.0% indicated experiencing neck discomfort, shoulders discomfort 34.4%, elbow discomfort 12.8%, wrist/hand discomfort 19.2%, Upper back issues were reported by 29.2%, and Lower back conditions were more prevalent with 44.8% reporting issues. Hips, knees, and ankle/feet also showed varying prevalence rates. Hips discomfort was

reported by 16.8%, knees by 26.4%, and ankle/feet by 23.6. In terms of the impact on daily activities, 42.0% of respondents reported affected work due to musculoskeletal conditions. Additionally, 40.4% experienced aggravation of symptoms within 7 days. Notably, for neck issues, there is a significant association between gender and the presence of disorders ($\chi^2 = 6.944$, $p = 0.008$), with a higher proportion of females reporting neck problems compared to males. A similar trend is observed for upper back issues ($\chi^2 = 6.985$, $p = 0.008$), where females also exhibit a higher prevalence. The elbow region shows a significant association ($\chi^2 = 9.174$, $p = 0.002$), indicating that gender is related to the presence of elbow disorders, with a higher incidence among females. The hip ($\chi^2 = 9.272$, $p = 0.002$) and ankle & feet ($\chi^2 = 9.783$, $p = 0.002$) regions also display significant associations, suggesting that gender is linked to the prevalence of musculoskeletal issues in these areas, with females experiencing more hip and ankle & feet problems. However, for other body regions such as shoulder, wrist & hand, lower back, knee, affected work, and aggravated conditions in the last 7 days, no statistically significant association with gender was observed. Body parts such as neck, shoulder, elbow, wrist & hand, upper back, lower back, hip, affected work, and conditions aggravated over 7 days do not demonstrate a significant association with age, height and weight, given their p -values >0.05 .

A similar study was done by Nabeela Nazish, Monisha Jennifer Charles et al.(2020) among 100 women of age group of 25-40yrs among which 50 were housewives and 50 working women, Standard Nordic questionnaire has been employed to assess prevalence of MSD's among the groups. They found that house wives were more prone for shoulder pain than working women and for other joint regions, there is no marked significant difference among housewives and working women but both are prone for getting musculoskeletal pain⁶. Another study was done by Archipe Mohamadou Tami, Elysée Claude Bika Lele(2021) to assess the epidemiology of musculoskeletal disorders (MSDs) among the teaching staff of the University of Douala and determine their association with physical activity (PA) practice. The Nordic questionnaire was used to assess MSDs. Ricci-Gagnon questionnaire was used to determine the level of PA. The study was done on 104 participants of mean-age 42 ± 8 years, 80% male. Previous 7 days and 12 months prevalence were 56.7% and 80.8%, respectively. The most affected body regions were neck, shoulders and lower back. No significant association was found between MSDs and PA. Celibacy was significantly associated with previous 7-days MSDs ($p = 0.048$) while age ≥ 45 years and job seniority ≥ 10 years were significantly associated with a reduced risk of previous 12-months MSDs ($p = 0.039$ and $p = 0.016$, respectively). The prevalence of MSDs among university of Douala teaching staff showed no significant effect with the practice of PA⁷. A cross sectional survey was executed by Obinna Chinedu Okezue, Tooohukwu Henry Anamezie(2020) among 217 office workers The overall prevalence rate of WMSDs was 71.9% among these staff. The lower back, wrists/hands and shoulders were the most reported body regions for these disorders. WMSD prevalence had significant associations with sex ($p = 0.004$), age ($p = 0.028$), working hours ($p = 0.003$) and work experience ($p = 0.014$). There were significant positive relationships ($p < 0.05$) between WMSD prevalence and these risk factors: awkward posture, sustained body position, improper bending, workplace stress, inappropriate furniture and inadequate rest breaks⁸. Work related musculoskeletal disorders are common complaint at workplace and is a leading cause of illness. A kitchen worker's work consists of continuous long standing hours, awkward positions, lifting heavy loads and repetitive activities. The prevalence of musculoskeletal disorders is related to demographic factors, occupational, psychosocial factors and ergonomic risk factors at workplace. Canteen staffs are considered to be at higher risk of having musculoskeletal disorders. A Cross sectional study was carried out by Shakya, N. R., & Shrestha, S. (2018) among 40 canteen staffs of Kathmandu and found out that out of 40 participants, 60% reported having at least one work related musculoskeletal symptoms in the past 12 month. Back pain (35%) was most commonly reported disorder followed by neck (27.5%) and ankle pain (27.5%)¹³.

CONCLUSION

In our study we can conclude that musculoskeletal disorders were common among all teaching as well as non teaching staffs of The Neotia University, 42% of staffs work schedule was affected due to musculoskeletal disorders and 40.4% experienced aggravation of symptoms within 7 days. All the

body regions specified in the Nordic Questionnaire was affected out of which lower back issues were more prevalent and females had more prevalence of musculoskeletal disorders in comparison to males.

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