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Practice of Proper Body Mechanics and Ergonomics in a Teaching Hospital, South-South, Nigeria

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Abstract

Over 59 million healthcare workers are prone to occupational hazards including biological, physical, ergonomic, environmental and psychosocial and practicing proper body mechanics will determine how well, safe and far every worker will go in the course of his or her job. The aim of this study was to assess how well hospital workers practice proper body mechanics and ergonomics while carrying out their official duties. A descriptive design with sample size of 390 was used and the data was collected using researcher-modified questionnaires. Frequency of each demographic variable across the questions was determined on the average of 57.7% practice of ergonomics and body mechanics by the health workers. Inferential statistics of Chi-square was considered at 0.05 level of significance to determine the relationship between the demographic variables and the questions on practice and analyzed using Statistical Product and Service Solution, version 21. The result showed ["straightening of knees and bending of back when lifting an object from the floor" - marital status (P = 0.025), occupation (P = 0.036) and working years (P = 0.024)], ["using of the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa" - sex (P = 0.001) and working years (P = 0.000)], ["having seat at work with a forward protrusion at the waist (low back) area" - sex (P = 0.040) and occupation (P = 0.001)], ["standing to carry out one's duties" - occupation (P = 0.000) and educational qualification (P = 0.002) and ["how long standing on a stretch without sitting down" - occupation (P = 0.000) and working years (P = 0.034)]. Other results are; ["asking for help from a friend when trying to lift big patient or object" - occupation (P = 0.001)], "having work tables close to their chest level when seated" - marital status (P = 0.050)], ["their feet touching the ground when seated" - occupation (P = 0.010)], ["having their seat at work with an arm/back rest" - working years (P = 0.012)], ["sitting upright to do work" - working years (P = 0.008)], ["often get up from their seats to stretch the legs" - educational qualification (P = 0.001)], ["If need be, their chair/table to be changed to conform to their individual structure" - working years (P = 0.008) and ["the type of foot wear they are often comfortable with" - sex (P =

0.006)]. It was concluded that healthcare workers in Rivers State do not practice proper body mechanics and those that do are as a result of their occupation and working years.

Keywords: Practice; Body Mechanics; Ergonomics; Hospital Workers; Rivers State

Abbreviations: NIOSH: National Institute for Occupational Safety and Health; MSDs: Musculoskeletal Disorders; SPSS: Statistical Product and Service Solutions.

Introduction

Body mechanics describes how we use our body in daily routine. It includes the ways we maintain the body when we sit, stand, bend, and lift something [1]. By body mechanics, we can use our body in a safe manner and thus prevent many musculoskeletal injuries including low back pain. When we move our body safely and not follow the body mechanic techniques, our spine is at risk of getting injury, for this reason it is important to have good knowledge about body mechanics technique in order to apply its principle in daily life to prevent it from various musculoskeletal injuries [2].

Ergonomics is a process which helps to assess the abilities of human and help the design makers to build certain systems and processes to help balance with human characteristics [3]. The goal of ergonomics is to reduce the risk of work-related injury at work places [4]. When properly applied to workplace environment and tasks, it has been reported to promote efficiency of the employee, improve productivity, and ultimately contribute to achievement of organizational goals [4]. Due to the various advancements in health care, there is an increase in the workload of the health care professionals. The role of the hospital staff is becoming more and more dynamic. The increasing complexity of patient care in the newer hospital environment increases the chances of work-related musculoskeletal disorders [3].

Ergonomics is defined as the study of interface between individuals and their working environment. Additionally, body mechanics refers to the method of efficiently using the body when making movement, such as bending the body, lifting a heavy object or person, stretching an arm, sitting, standing or lying while performing work [4].

There is need for practice of proper body mechanics technique among the hospital personnel. Good body mechanics in moving, handling patients and lifting heavy object in a safe manner. Many healthcare practitioners are suffering from some musculoskeletal disorder due to the nature of their work such as performing various tasks most of the time in upright position, including lifting and moving equipment, handling patients [5]. Proper and effective body mechanics is possible only when health practitioners have good knowledge and practice about it. Most common work related musculoskeletal disorder such as low back pain is affecting 79.4% of health practitioners [6]. Studies on healthcare activities and body mechanics in clinical area are mostly related to low back pain. Studies show that most healthcare practitioners who had back pain rarely used the body mechanics principle [7]. In most clinical settings in Nigeria, safety practices is often focused on eliminating contact of personnel with infectious agents through the routine use of personal protective devices such as hand gloves, laboratory coats, and face masks, while paying little or no attention to other elements that may not necessarily cause an infection, but have the capacity to compromise the health of the worker. Healthcare practitioners working in a hospital with poor application of principles of ergonomics have increased risk for the development of work-musculoskeletal disorders (MSDs) [8], which could adversely affect his/her performance on the job, quality of test result, and ultimately patient's management and care.

Practice of proper body mechanics and ergonomics helps prevent many work related musculoskeletal disorders among health practitioners and also the general population. Ergonomics practice helps in ergonomic application and contributes significantly to human wellbeing and safety at workplaces [9]. While ergonomics has gained significant momentum in the developed countries, in developing regions of the world, its awareness and practice still remains critically low [10]. The growing relevance of ergonomics to medical practice has been extensively described in a previous study [11]. Although speedily becoming an integral part of the operation of most organizations, little is known about the practice of the science of ergonomics among health practitioners working in Nigeria.

Statement of the Problem

Over 59 million healthcare workers are prone to occupational hazards including biological, physical, ergonomic, environmental and psychosocial [3]. Musculoskeletal disorders (MSDs) are defined by National Institute for Occupational Safety and Health (NIOSH) as "injuries or disorder of the muscles, nerves, tendons, joints, cartilage and disc and supporting structures of the upper

and lower limbs and lower back that are caused, precipitated or exacerbated by sudden exertion or prolonged exposure to physical factors such as repetition, force, vibration or awkward posture [12].

It is in the light of the above that the researchers seek to know the extent of practice of proper body mechanics and ergonomics among hospital workers in Rivers State, for if the workers' goal is to remain at work healthy, fit and without much load of work on him/her, he/she must carry out his/her work safely in such a manner as to reduce the negative effects of body mechanics and ergonomics, especially as he/she ages at work.

Methodology

The design for this study is the descriptive design. This study was carried out at the Rivers State University Teaching Hospital, Old GRA and Port Harcourt. The study population was made up of all staff of the university community
Permanent staff – 512
Casuals/Locums – 360
Interns/HO – 150

Sample Size Determination

There are two schools of thought about sample size-one is that as long as a survey representative, a relatively small sample size is adequate. Perhaps 300-500 respondents can work. The other point of view is that while maintaining a representative sample is essential, the more respondents you have the better. Using a standard deviation of 0.5 is a safe choice. Using Andrew Fisher's Formula:
Converting the confidence level into a Z-score => 1.96
Put these figures into the sample size formula to get

$$\text{Sample Size} = \frac{(\text{Z-Score})^2 \times \text{Std Deviation} \times (1\text{-Std Deviation})}{(\text{Confidence Interval})^2}$$

$$= \frac{\{(1.92)^2 \times 0.5(0.5)\}}{(0.05)^2}$$

$$= \frac{3.8416 \times 0.25}{0.0025}$$

$$= \frac{0.9604}{0.0025}$$

$$= 384.16$$

Here, sample size of 390 was used. (easycalculation.com)
The hospital community was sensitized and volunteers asked to buy into the study.

Data Collection Procedure

Researcher-modified (adopted) questionnaires were distributed to the members of staff. The questionnaires were retrieved after about 3 days. The various variables in the questionnaire were sieved and noted.

Data Analysis Method

Frequency and percentage of the various variables was analysed. Inferential statistics of chi-square was used to ascertain the relationship between the variables at 0.05 level of significance. This was done using Statistical Product and Service Solutions (SPSS) version 21. The first of the analysis was the demographic analysis, followed by the extent of knowledge of proper body mechanics and ergonomics among hospital workers in Rivers State and finally extent of practice of proper body mechanics and ergonomics among hospital workers in Rivers State.

Results

Sex of the participants				
		Frequency	**Percent**	**Cumulative Percent**
Valid	Male	155	39.7	39.7
	Female	235	60.3	100
	Total	**390**	**100**	

Marital Status of the participants				
		Frequency	**Percent**	**Cumulative Percent**
Valid	Single	183	46.9	46.9
	Married	201	51.6	98.5
	Divorced/Widow/Widower	6	1.5	100
	Total	**385**	**100**	

Occupation of the Participants				
		Frequency	Percent	Cumulative Percent
Valid	Nurse	58	14.9	14.9
	Physiotherapist	11	2.8	17.7
	Doctor	104	26.7	44.4
	Medical Laboratory Scientist	78	20	64.4
	Pharmacist	39	10	74.4
	Medical Records	16	4.1	78.5
	Admin	24	6.1	84.6
	Others	60	15.4	100
	Total	**385**	**100**	

Participants Years of Working				
		Frequency	Percent	Cumulative Percent
Valid	0-10years	199	51	51
	11-20years	100	25.7	76.7
	21-30years	50	12.8	89.5
	Over 30years	41	10.5	100
	Total	**390**	**100**	

Participants highest educational qualification				
		Frequency	Percent	Cumulative Percent
Valid	High School (WASC)	20	5.2	5.2
	RN/RM	25	6.4	11.6
	First Degree	231	59.2	70.8
	Postgraduate	114	29.2	100
	Total	**390**	**100**	

Table 1: Demographic Analysis.

The study revealed participation of (235) 60.3% of females compared to (155) 39.7% of males. On the marital status of the participants, we had more married people with (201) 51.6% followed by the singles with (183) 46.9% and then divorced/widow/widower with (6) 1.5%.

On participant's occupation, doctors have the highest participation with (104) 26.7% followed by medical laboratory scientist with (78) 20.0%. This was followed by others majorly radiographers, catering department, etc with (60) 15.4% and then nurses (58) 14.9% followed by pharmacists (39) 10.0% then admin with (24) 6.1% followed by medical records with (16) 4.2% and lastly physiotherapists (11) 2.8%

On participants years of working, less than 10years were more with (199) 51.0% followed by 11-20years with (100) 25.7% then 21-30years with (50) 12.8% and lastly over 30 years with (41) 10.5%.

On their highest educational qualification, first degree was the highest with (231) 59.2% followed by postgraduate with (114) 29.2% followed by Registered Nurse (RN)/ Registered Midwife (RM) with (25) 6.4% and lastly high school/West African School Certificate(WASC) with (20) 5.1%.

		Yes	No	Total
Sex of participants	Male	131 (33.6%)	24 (6.1%)	155 (39.7%)
	Female	201 (51.5%)	34 (8.8%)	235 (60.3%)
	Total	**332 (85.1%)**	**58 (14.9%)**	**390 (100%)**
Marital Status of the participants	Single	154 (39.5%)	29 (7.4%)	183 (46.9%)
	Married	172 (44.1%)	29 (7.5%)	201 (51.6%)
	Divorced/Widow/Widower	6 (1.5%)	0 (0.0%)	6 (1.5%)
	Total	**332 (85.1%)**	**58 (14.9%)**	**390 (100%)**
Occupation of the participants	Nurse	54 (13.9%)	4 (1.0%)	58 (14.9%)
	Physiotherapist	11 (2.8%)	0 (0.0%)	11 (2.8%)
	Doctor	94 (24.1%)	10 (2.6%)	104 (26.7%)
	Medical Lab. Scientist	63 (16.2%)	15 (3.8%)	78 (20.0%)
	Pharmacist	29 (7.4%)	10 (2.6%)	39 (10.0%)
	Medical Records	9 (2.3%)	7(1.8%)	16 (4.1%)
	Admin	19 (4.8%)	5 (1.3%)	24 (6.1%)
	Others	53 (13.6%)	7 (1.8%)	60 (15.4%)
	Total	**332 (85.1%)**	**58 (14.9%)**	**390 (100%)**
Participants years of working	0-10years	168 (43.1%)	31 (7.9%)	199 (51.0%)
	11-20years	81 (20.8%)	19 (4.9%)	100 (25.7%)
	21-30years	45 (11.5%)	5 (1.3%)	50 (12.8%)
	Over 30years	38 (9.7%)	3 (0.8%)	41 (10.5%)
	Total	**332 (85.1%)**	**58 (14.9%)**	**390 (100%)**
Participants highest educational qualification	High School/WASC	17 (4.4%)	3(0.8%)	20 (5.2%)
	RN/RM	23(5.9%)	2 (0.5%)	25 (6.4%)
	First Degree	193 (49.5%)	38 (9.7%)	231 (59.2%)
	Postgraduate	99 (25.4%)	15 (3.8%)	114 (29.2%)
	Total	**332 (85.1%)**	**58 (14.9%)**	**390 (100%)**

Question 1: Do you ask for help from a friend if you have to lift big patient or object?

		Yes	No	Total
Sex of Participants	Male	92 (23.6%)	63 (16.1%)	155 (39.7%)
	Female	143 (36.7%)	92 (23.6%)	235 (60.3%)
	Total	**235 (60.3%)**	**155 (39.7%)**	**390 (100%)**
Marital Status of the Participants	Single	123 (31.5%)	60(15.4%)	183 (46.9%)
	Married	108 (27.8%)	93 (23.8%)	201 (51.6%)
	Divorced/Widow/Widower	4 (1.0%)	2 (0.5%)	6 (1.5%)
	Total	**235 (60.3%)**	**155 (39.7%)**	**390 (100%)**

Occupation of the Participants	Nurse	42 (10.8%)	16(4.1%)	58 (14.9%)
	Physiotherapist	6 (1.5%)	5 (1.3%)	11 (2.8%)
	Doctor	56 (14.4%)	48 (12.3%)	104 (26.7%)
	Medical Lab. Scientist	55 (14.1%)	23 (5.9%)	78 (20.0%)
	Pharmacist	26 (6.7%)	13 (3.3%)	39 (10.0%)
	Medical Records	8 (2.1%)	8 (2.0%)	16 (4.1%)
	Admin	10(2.5%)	14 (3.6%)	24 (6.1%)
	Others	32 (8.2%)	28 (7.2%)	60 (15.4%)
	Total	**235 (60.3%)**	**155 (39.7%)**	**390 (100%)**
Participants years of Working	0-10years	120 (30.7%)	79 (20.3%)	199 (51.0%)
	11-20years	50(12.9%)	50 (12.8%)	100 (25.7%)
	21-30years	37(9.5%)	13 (3.3%)	50 (12.8%)
	Over 30years	28 (7.2%)	13 (3.3%)	41 (10.5%)
	Total	**235 (60.3%)**	**155 (39.7%)**	**390 (100%)**
Participants highest Educational Qualification	High School/WASC	11 (2.9%)	9 (2.3%)	20 (5.2%)
	RN/RM	20 (5.1%)	5 (1.3%)	25 (6.4%)
	First Degree	140 (35.9%)	91 (23.3%)	231 (59.2%)
	Postgraduate	64 (16.4%)	50 (12.8%)	114 (29.2%)
	Total	**235 (60.3%)**	**155 (39.7%)**	**390 (100%)**

Question 2: Do you straighten your knees and bending your back when lifting an object from the floor?

		Yes	**No**	**Total**
Sex of Participants	Male	92 (23.6%)	63 (16.1%)	155 (39.7%)
	Female	99(25.4%)	136 (34.9%)	235 (60.3%)
	Total	**191 (49.0%)**	**199 (51.0%)**	**390 (100%)**
Marital Status of the Participants	Single	83(21.3%)	100 (25.6%)	183 (46.9%)
	Married	104 (26.7%)	97 (24.9%)	201 (51.6%)
	Divorced/Widow/Widower	4 (1.0%)	2 (0.5%)	6 (1.5%)
	Total	**191 (49.0%)**	**199 (51.0%)**	**390 (100%)**
Occupation of the Participants	Nurse	33 (8.5%)	25 (6.4%)	58 (14.9%)
	Physiotherapist	9 (2.3%)	2 (0.5%)	11 (2.8%)
	Doctor	55 (14.1%)	49 (12.6%)	104 (26.7%)
	Medical Lab. Scientist	33 (8.4%)	45 (11.6%)	78 (20.0%)
	Pharmacist	19 (4.9%)	20 (5.1%)	39 (10.0%)
	Medical Records	10 (2.6%)	6 (1.5%)	16 (4.1%)
	Admin	9 (2.3%)	15 (3.8%)	24 (6.1%)
	Others	23 (5.9%)	37 (9.5%)	60 (15.4%)
	Total	**191 (49.0%)**	**199 (51.0%)**	**390 (100%)**

Participants Years of Working	0-10years	77 (19.7%)	122 (31.3%)	199 (51.0%)
	11-20years	57 (14.7%)	43 (11.0%)	100 (25.7%)
	21-30years	27 (6.9%)	23 (5.9%)	50 (12.8%)
	Over 30years	30 (7.7%)	11 (2.8%)	41 (10.5%)
	Total	**191 (49.0%)**	**199 (51.0%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	10 (2.6%)	10 (2.6%)	20 (5.2%)
	RN/RM	12 (3.1%)	13 (3.3%)	25 (6.4%)
	First Degree	102 (26.2%)	129 (33.0%)	231 (59.2%)
	Postgraduate	67 (17.1%)	47 (12.1%)	114 (29.2%)
	Total	**191 (49.0%)**	**199 (51.0%)**	**390 (100%)**

Question 3: Do you use the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa?

		Yes	**No**	**Total**
Sex of Participants	Male	70 (17.9%)	85 (21.8%)	155 (39.7%)
	Female	123 (31.6%)	112 (28.7%)	235 (60.3%)
	Total	**193 (49.5%)**	**197 (50.5%)**	**390 (100%)**
Marital Status of the Participants	Single	97 (24.9%)	86 (22.0%)	183 (46.9%)
	Married	93 (23.8%)	108 (27.7%)	201 (51.6%)
	Divorced/Widow/Widower	3 (0.8%)	3 (0.8%)	6 (1.5%)
	Total	**193 (49.5%)**	**197 (50.5%)**	**390 (100%)**
Occupation of the Participants	Nurse	30 (7.7%)	28 (7.2%)	58 (14.9%)
	Physiotherapist	6 (1.5%)	5 (1.3%)	11 (2.8%)
	Doctor	52 (13.4%)	52 (13.3%)	104 (26.7%)
	Medical Lab. Scientist	36 (9.2%)	42 (10.8%)	78 (20.0%)
	Pharmacist	24 (6.2%)	15 (3.8%)	39 (10.0%)
	Medical Records	8 (2.0%)	8 (2.1%)	16 (4.1%)
	Admin	11 (2.8%)	13 (3.3%)	24 (6.1%)
	Others	26 (6.7%)	34 (8.7%)	60 (15.4%)
	Total	**193 (49.5%)**	**197 (50.5%)**	**390 (100%)**
Participants Years of Working	0-10years	94 (24.1%)	105 (26.9%)	199 (51.0%)
	11-20years	50 (12.9%)	50 (12.8%)	100 (25.7%)
	21-30years	29 (7.4%)	21 (5.4%)	50 (12.8%)
	Over 30years	20 (5.1%)	21 (5.4%)	41 (10.5%)
	Total	**193 (49.5%)**	**197 (50.5%)**	**390 (100%)**

Participants Highest Educational Qualification	High School/WASC	11 (2.8%)	9 (2.4%)	20 (5.2%)
	RN/RM	11(2.8%)	14 (3.6%)	25 (6.4%)
	First Degree	113(29.0%)	118 (30.2%)	231 (59.2%)
	Postgraduate	58(14.9%)	56 (14.3%)	114 (29.2%)
	Total	**193 (49.5%)**	**197 (50.5%)**	**390 (100%)**

Question 4: Do you sit for long hours without getting up to stretch your legs? Upward of 1,2,3 hours?

		Yes	**No**	**Total**
Sex of Participants	Male	78 (20.0%)	77 (19.7%)	155 (39.7%)
	Female	120 (30.8%)	115 (29.5%)	235 (60.3%)
	Total	**198 (50.8%)**	**192 (49.2%)**	**390 (100%)**
Marital Status of the Participants	Single	93 (23.8%)	90 (23.1%)	183 (46.9%)
	Married	99 (25.5%)	102 (26.1%)	201 (51.6%)
	Divorced/Widow/Widower	6 (1.5%)	0 (0.0%)	6 (1.5%)
	Total	**198 (50.8%)**	**192 (49.2%)**	**390 (100%)**
Occupation of the Participants	Nurse	32 (8.2%)	26 (6.7%)	58 (14.9%)
	Physiotherapist	8 (2.0%)	3 (0.8%)	11 (2.8%)
	Doctor	54 (13.9%)	50 (12.8%)	104 (26.7%)
	Medical Lab Scientist	41 (10.5%)	37 (9.5%)	78 (20.0%)
	Pharmacist	12 (3.1%)	27 (6.9%)	39 (10.0%)
	Medical Records	10 (2.6%)	6 (1.5%)	16 (4.1%)
	Admin	12 (3.1%)	12 (3.0%)	24 (6.1%)
	Others	29 (7.4%)	31 (8.0%)	60 (15.4%)
	Total	**198 (50.8%)**	**192 (49.2%)**	**390 (100%)**
Participants Years of Working	0-10years	98 (25.1%)	101 (25.9%)	199 (51.0%)
	11-20years	49 (12.6%)	51 (13.1%)	100 (25.7%)
	21-30years	28 (7.2%)	22 (5.6%)	50 (12.8%)
	Over 30years	23 (5.9%)	18 (4.6%)	41 (10.5%)
	Total	198 (50.8%)	192 (49.2%)	390 (100%)
Participants Highest Educational Qualification	High School/WASC	10 (2.6%)	10 (2.6%)	20 (5.2%)
	RN/RM	15 (3.8%)	10 (2.6%)	25 (6.4%)
	First Degree	118 (30.3%)	113 (28.9%)	231 (59.2%)
	Postgraduate	55 (14.1%)	59 (15.1%)	114 (29.2%)
	Total	**198 (50.8%)**	**192 (49.2%)**	**390 (100%)**

Question 5: Are your work tables close to your chest level when seated?

		Yes	No	Total
Sex of Participants	Male	65 (16.7%)	90 (23.0%)	155 (39.7%)
	Female	108 (27.7%)	127 (32.6%)	235 (60.3%)
	Total	173 (44.4%)	217 (55.6%)	390 (100%)
Marital Status of the Participants	Single	70 (17.9%)	113 (29.0%)	183 (46.9%)
	Married	101 (26.0%)	100 (25.6%)	201 (51.6%)
	Divorced/Widow/Widower	2 (0.5%)	4 (1.0%)	6 (1.5%)
	Total	**173 (44.4%)**	**217 (55.6%)**	**390 (100%)**
Occupation of the Participants	Nurse	26 (6.7%)	32 (8.2%)	58 (14.9%)
	Physiotherapist	8 (2.1%)	3 (0.7%)	11 (2.8%)
	Doctor	49 (12.6%)	55 (14.1%)	104 (26.7%)
	Medical Lab. Scientist	31 (7.9%)	47 (12.1%)	78 (20.0%)
	Pharmacist	20 (5.1%)	19 (4.9%)	39 (10.0%)
	Medical Records	6 (1.5%)	10 (2.6%)	16 (4.1%)
	Admin	8 (2.1%)	16 (4.0%)	24 (6.1%)
	Others	25 (6.4%)	35 (9.0%)	60 (15.4%)
	Total	**173 (44.4%)**	**217 (55.6%)**	**390 (100%)**
Participants Years of Working	0-10years	87 (22.3%)	112 (28.7%)	199 (51.0%)
	11-20years	46 (11.8%)	54 (13.9%)	100 (25.7%)
	21-30years	23 (5.9%)	27 (6.9%)	50 (12.8%)
	Over 30years	17 (4.4%)	24 (6.1%)	41 (10.5%)
	Total	**173 (44.4%)**	**217 (55.6%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	8 (2.1%)	12 (3.1%)	20 (5.2%)
	RN/RM	12 (3.1%)	13 (3.3%)	25 (6.4%)
	First Degree	103(26.4%)	128 (32.8%)	231 (59.2%)
	Postgraduate	50 (12.8%)	64 (16.4%)	114 (29.2%)
	Total	**173 (44.4%)**	**217 (55.6%)**	**390 (100%)**

Question 6: Do you sit upright always and do you slouch?

		Yes	No	Total
Sex of Participants	Male	131 (33.6%)	24 (6.1%)	155 (39.7%)
	Female	191 (49.0%)	44 (11.3%)	235 (60.3%)
	Total	**322 (82.6%)**	**68 (17.4%)**	**390 (100%)**
Marital Status of the Participants	Single	148 (37.9%)	35 (9.0%)	183 (46.9%)
	Married	168 (43.2%)	33 (8.4%)	201 (51.6%)
	Divorced/Widow/Widower	6 (1.5%)	0 (0.0%)	6 (1.5%)
	Total	**322 (82.6%)**	**68 (17.4%)**	**390 (100%)**

Occupation of the Participants	Nurse	50 (12.8%)	8 (2.1%)	58 (14.9%)
	Physiotherapist	9 (2.3%)	2 (0.5%)	11 (2.8%)
	Doctor	88 (22.6%)	16 (4.1%)	104 (26.7%)
	Medical Lab. Scientist	56 (14.4%)	22 (5.6%)	78 (20.0%)
	Pharmacist	27 (6.9%)	12 (3.1%)	39 (10.0%)
	Medical Records	15 (3.8%)	1 (0.3%)	16 (4.1%)
	Admin	21 (5.4%)	3 (0.7%)	24 (6.1%)
	Others	56 (14.4%)	4 (1.0%)	60 (15.4%)
	Total	**322 (82.6%)**	**68 (17.4%)**	**390 (100%)**
Participants Years of Working	0-10years	166 (42.6%)	33 (8.4%)	199 (51.0%)
	11-20years	86 (22.1%)	14 (3.6%)	100 (25.7%)
	21-30years	38 (9.7%)	12 (3.1%)	50 (12.8%)
	Over 30years	32 (8.2%)	9 (2.3%)	41 (10.5%)
	Total	**322 (82.6%)**	**68 (17.4%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	18 (4.6%)	2 (0.6%)	20 (5.2%)
	RN/RM	24 (6.2%)	1 (0.2%)	25 (6.4%)
	First Degree	191 (49.0%)	40 (10.2%)	231 (59.2%)
	Postgraduate	89 (22.8%)	25 (6.4%)	114 (29.2%)
	Total	**322 (82.6%)**	**68 (17.4%)**	**390 (100%)**

Question 7: Do your feet touch the ground when you are seated?

		Yes	**No**	**Total**
Sex of Participants	Male	87(22.3%)	68 (17.4%)	155 (39.7%)
	Female	118 (30.3%)	117 (30.0%)	235 (60.3%)
	Total	205 (52.6%)	185 (47.4%)	390 (100%)
Marital Status of the Participants	Single	93 (23.8%)	90 (23.1%)	183 (46.9%)
	Married	109 (28.0%)	92 (23.6%)	201 (51.6%)
	Divorced/Widow/Widower	3 (0.8%)	3 (0.7%)	6 (1.5%)
	Total	205 (52.6%)	185 (47.4%)	390 (100%)
Occupation of the Participants	Nurse	29 (7.5%)	29 (7.4%)	58 (14.9%)
	Physiotherapist	7 (1.8%)	4 (1.0%)	11 (2.8%)
	Doctor	59 (15.1%)	45 (11.6%)	104 (26.7%)
	Medical Lab. Scientist	34 (8.7%)	44 (11.3%)	78 (20.0%)
	Pharmacist	20 (5.1%)	19 (4.9%)	39 (10.0%)
	Medical Records	10 (2.6%)	6 (1.5%)	16 (4.1%)
	Admin	16 (4.1%)	8 (2.0%)	24 (6.1%)
	Others	30 (7.7%)	30 (7.7%)	60 (15.4%)
	Total	205 (52.6%)	185 (47.4%)	390 (100%)

Participants Years of Working	0-10years	98 (25.1%)	101 (25.9%)	199 (51.0%)
	11-20years	54 (13.9%)	46 (11.8%)	100 (25.7%)
	21-30years	32 (8.2%)	18 (4.6%)	50 (12.8%)
	Over 30years	21 (5.4%)	20 (5.1%)	41 (10.5%)
	Total	205 (52.6%)	185 (47.4%)	390 (100%)
Participants Highest Educational Qualification	High School/WASC	10 (2.6%)	10 (2.6%)	20 (5.2%)
	RN/RM	12 (3.1%)	13 (3.3%)	25 (6.4%)
	First Degree	120 (30.7%)	111 (28.5%)	231 (59.2%)
	Postgraduate	63 (16.2%)	51 (13.0%)	114 (29.2%)
	Total	205 (52.6%)	185 (47.4%)	390 (100%)

Question 8: Are you comfortable with your seat at work?

		Yes	**No**	**Total**
Sex of Participants	Male	102 (26.2%)	53 (13.6%)	155 (39.7%)
	Female	161 (41.3%)	74 (19.0%)	235 (60.3%)
	Total	**263 (67.4%)**	127 (32.6%)	390 (100%)
Marital Status of the Participants	Single	118 (30.2%)	65 (16.7%)	183 (46.9%)
	Married	143 (36.7%)	58 (14.9%)	201 (51.6%)
	Divorced/Widow/Widower	2 (0.5%)	4 (1.0%)	6 (1.5%)
	Total	263 (67.4%)	127 (32.6%)	390 (100%)
Occupation of the Participants	Nurse	45 (11.5%)	13 (3.4%)	58 (14.9%)
	Physiotherapist	9 (2.3%)	2 (0.5%)	11 (2.8%)
	Doctor	69 (17.7%)	35 (9.0%)	104 (26.7%)
	Medical Lab. Scientist	48(12.3%)	30 (7.7%)	78 (20.0%)
	Pharmacist	26 (6.7%)	13 (3.3%)	39 (10.0%)
	Medical Records	11 (2.8%)	5 (1.3%)	16 (4.1%)
	Admin	21 (5.4%)	3 (0.7%)	24 (6.1%)
	Others	34 (8.7%)	26 (6.7%)	60 (15.4%)
	Total	**263 (67.4%)**	**127 (32.6%)**	**390 (100%)**
Participants Years of Working	0-10years	121 (31.0%)	78 (20.0%)	199 (51.0%)
	11-20years	77 (19.7%)	23 (6.0%)	100 (25.7%)
	21-30years	39 (10.0%)	11 (2.8%)	50 (12.8%)
	Over 30years	26 (6.7%)	15 (3.8%)	41 (10.5%)
	Total	**263 (67.4%)**	**127 (32.6%)**	**390 (100%)**

Participants Highest Educational Qualification	High School/WASC	13 (3.4%)	7 (1.8%)	20 (5.2%)
	RN/RM	17 (4.3%)	8 (2.1%)	25 (6.4%)
	First Degree	152 (38.9%)	79 (20.3%)	231 (59.2%)
	Postgraduate	81 (20.8%)	33 (8.4%)	114 (29.2%)
	Total	**263 (67.4%)**	**127 (32.6%)**	**390 (100%)**

Question 9: Does your seat at work have an arm/back rest?

		Yes	**No**	**Total**
Sex of Participants	Male	75 (19.2%)	80 (20.5%)	155 (39.7%)
	Female	91(23.4%)	144 (36.9%)	235 (60.3%)
	Total	**166 (42.6%)**	**224 (57.4%)**	**390 (100%)**
Marital Status of the Participants	Single	74 (19.0%)	109 (27.9%)	183 (46.9%)
	Married	89 (22.8%)	112 (28.8%)	201 (51.6%)
	Divorced/Widow/Widower	3 (0.8%)	3 (0.7%)	6 (1.5%)
	Total	**166 (42.6%)**	**224 (57.4%)**	**390 (100%)**
Occupation of the Participants	Nurse	23 (5.9%)	35 (9.0%)	58 (14.9%)
	Physiotherapist	8 (2.1%)	3 (0.7%)	11 (2.8%)
	Doctor	45 (11.5%)	59 (15.2%)	104 (26.7%)
	Medical Lab. Scientist	34(8.7%)	44 (11.3%)	78 (20.0%)
	Pharmacist	19 (4.9%)	20 (5.1%)	39 (10.0%)
	Medical Records	9(2.3%)	7 (1.8%)	16 (4.1%)
	Admin	12 (3.1%)	12 (3.0%)	24 (6.1%)
	Others	16(4.1%)	44 (11.3%)	60 (15.4%)
	Total	**166 (42.6%)**	**224 (57.4%)**	**390 (100%)**
Participants Years of Working	0-10years	75 (19.2%)	124 (31.8%)	199 (51.0%)
	11-20years	40 (10.3%)	60 (15.4%)	100 (25.7%)
	21-30years	32 (8.2%)	18 (4.6%)	50 (12.8%)
	Over 30years	19 (4.9%)	22 (5.6%)	41 (10.5%)
	Total	**166 (42.6%)**	**224 (57.4%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	6 (1.5%)	14 (3.7%)	20 (5.2%)
	RN/RM	10 (2.6%)	15 (3.8%)	25 (6.4%)
	First Degree	102 (26.2%)	129 (33.0%)	231 (59.2%)
	Postgraduate	48 (12.3%)	66 (16.9%)	114 (29.2%)
	Total	**166 (42.6%)**	**224 (57.4%)**	**390 (100%)**

Question 10: Do you sit upright always to do your work?

		Yes	No	Total
Sex of Participants	Male	56 (14.4%)	99 (25.3%)	155 (39.7%)
	Female	62 (15.9%)	173 (44.4%)	235 (60.3%)
	Total	**118 (30.3%)**	**272 (69.7%)**	**390 (100%)**
Marital Status of the Participants	Single	52 (13.3%)	131 (33.6%)	183 (46.9%)
	Married	66 (17.0%)	135 (34.6%)	201 (51.6%)
	Divorced/Widow/Widower	0 (0.0%)	6 (1.5%)	6 (1.5%)
	Total	**118 (30.3%)**	**272 (69.7%)**	**390 (100%)**
Occupation of the Participants	Nurse	14 (3.6%)	44 (11.3%)	58 (14.9%)
	Physiotherapist	4 (1.0%)	7 (1.8%)	11 (2.8%)
	Doctor	42 (10.8%)	62 (15.9%)	104 (26.7%)
	Medical Lab. Scientist	18 (4.6%)	60 (15.4%)	78 (20.0%)
	Pharmacist	18 (4.6%)	21 (5.4%)	39 (10.0%)
	Medical Records	3 (0.8%)	13 (3.3%)	16 (4.1%)
	Admin	11 (2.8%)	13 (3.3%)	24 (6.1%)
	Others	8 (2.1%)	52 (13.3%)	60 (15.4%)
	Total	**118 (30.3%)**	**272 (69.7%)**	**390 (100%)**
Participants Years of Working	0-10years	53 (13.6%)	146 (37.4%)	199 (51.0%)
	11-20years	33 (8.5%)	67 (17.2%)	100 (25.7%)
	21-30years	21 (5.4%)	29 (7.4%)	50 (12.8%)
	Over 30years	11 (2.8%)	30 (7.7%)	41 (10.5%)
	Total	**118 (30.3%)**	272 (69.7%)	390 (100%)
Participants Highest Educational Qualification	High School/WASC	3 (0.8%)	17 (4.4%)	20 (5.2%)
	RN/RM	8 (2.1%)	17 (4.3%)	25 (6.4%)
	First Degree	63 (16.1%)	168 (43.1%)	231 (59.2%)
	Postgraduate	44 (11.3%)	70 (17.9%)	114 (29.2%)
	Total	118 (30.3%)	272 (69.7%)	390 (100%)

Question 11: Does your seat at work have a forward protrusion at the waist (low back) area?

		Every 30 Minutes	1 Hour	2 Hours	Total
Sex of Participants	Male	55 (14.1%)	63 (16.2%)	37 (9.4%)	155 (39.7%)
	Female	101 (25.9%)	70 (17.9%)	64 (16.5%)	235 (60.3%)
	Total	**156 (40.0%)**	**133 (34.1%)**	**101 (25.9%)**	**390 (100%)**

Marital Status of the Participants	Single	74 (19.0%)	62 (15.9%)	47 (12.0%)	183 (46.9%)
	Married	80 (20.5%)	70 (17.9%)	51 (13.2%)	201 (51.6%)
	Divorced/ Widow/Widower	2 (0.5%)	1 (0.3%)	3 (0.7%)	6 (1.5%)
	Total	**156 (40.0%)**	**133 (34.1%)**	**101 (25.9%)**	**390 (100%)**
Occupation of the Participants	Nurse	34 (8.7%)	15 (3.9%)	9 (2.3%)	58 (14.9%)
	Physiotherapist	5 (1.3%)	4 (1.0%)	2 (0.5%)	11 (2.8%)
	Doctor	27 (6.9%)	42 (10.8%)	35 (9.0%)	104 (26.7%)
	Medical Lab. Scientist	32 (8.2%)	28 (7.2%)	18 (4.6%)	78 (20.0%)
	Pharmacist	15 (3.8%)	14 (3.6%)	10 (2.6%)	39 (10.0%)
	Medical Records	8 (2.1%)	4 (1.0%)	4 (1.0%)	16 (4.1%)
	Admin	12 (3.1%)	8 (2.0%)	4 (1.0%)	24 (6.1%)
	Others	23 (5.9%)	18 (4.6%)	19 (4.9%)	60 (15.4%)
	Total	**156 (40.0%)**	**133 (34.1%)**	**101 (25.9%)**	**390 (100%)**
Participants Years of Working	0-10years	82 (21.0%)	62 (15.9%)	55 (14.1%)	199 (51.0%)
	11-20years	37 (9.5%)	37 (9.5%)	26 (6.7%)	100 (25.7%)
	21-30years	21 (5.4%)	18 (4.6%)	11 (2.8%)	50 (12.8%)
	Over 30years	16 (4.1%)	16 (4.1%)	9 (2.3%)	41 (10.5%)
	Total	**156 (40.0%)**	**133 (34.1%)**	**101 (25.9%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/ WASC	8 (2.1%)	6 (1.6%)	6 (1.5%)	20 (5.2%)
	RN/RM	16 (4.1%)	6 (1.5%)	3 (0.8%)	25 (6.4%)
	First Degree	99 (25.4%)	64 (16.4%)	68 (17.4%)	231 (59.2%)
	Postgraduate	33 (8.4%)	57 (14.6%)	24 (6.2%)	114 (29.2%)
	Total	156 (40.0%)	133 (34.1%)	101 (25.9%)	390 (100%)

Question 12: How often do you get up from your seats to stretch your legs?

		Yes	**No**	**Total**
Sex of Participants	Male	112 (28.7%)	43 (11.0%)	155 (39.7%)
	Female	182 (46.7%)	53 (13.6%)	235 (60.3%)
	Total	**294 (75.4%)**	**96 (24.6%)**	**390 (100%)**
Marital Status of the Participants	Single	133 (34.1%)	50 (12.8%)	183 (46.9%)
	Married	156 (40.0%)	45 (11.6%)	201 (51.6%)
	Divorced/Widow/Widower	5 (1.3%)	1 (0.2%)	6 (1.5%)
	Total	**294 (75.4%)**	**96 (24.6%)**	**390 (100%)**

Occupation of the Participants	Nurse	43 (11.0%)	15 (3.9%)	58 (14.9%)
	Physiotherapist	9 (2.3%)	2 (0.5%)	11 (2.8%)
	Doctor	79 (20.3%)	25 (6.4%)	104 (26.7%)
	Medical Lab. Scientist	61 (15.6%)	17 (4.4%)	78 (20.0%)
	Pharmacist	26 (6.7%)	13 (3.3%)	39 (10.0%)
	Medical Records	10 (2.6%)	6 (1.5%)	16 (4.1%)
	Admin	16 (4.1%)	8 (2.0%)	24 (6.1%)
	Others	50 (12.8%)	10 (2.6%)	60 (15.4%)
	Total	**294 (75.4%)**	**96 (24.6%)**	**390 (100%)**
Participants Years of Working	0-10years	155 (39.7%)	44 (11.3%)	199 (51.0%)
	11-20years	78 (20.0%)	22 (5.7%)	100 (25.7%)
	21-30years	28 (7.2%)	22 (5.6%)	50 (12.8%)
	Over 30years	33 (8.5%)	8 (2.0%)	41 (10.5%)
	Total	**294 (75.4%)**	**96 (24.6%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	14 (3.6%)	6 (1.6%)	20 (5.2%)
	RN/RM	21 (5.4%)	4 (1.0%)	25 (6.4%)
	First Degree	175 (44.9%)	56 (14.3%)	231 (59.2%)
	Postgraduate	84 (21.5%)	30 (7.7%)	114 (29.2%)
	Total	**294 (75.4%)**	**96 (24.6%)**	**390 (100%)**

Question 13: If need be, would you want your chair/table to be changed to conform to your individual structure?

		Yes	**No**	**Total**
Sex of Participants	Male	92 (23.6%)	63 (16.2%)	155 (39.7%)
	Female	142 (36.4%)	93 (23.8%)	235 (60.3%)
	Total	**234 (60.0%)**	**156 (40.0%)**	**390 (100%)**
Marital Status of the Participants	Single	116 (29.7%)	67 (17.2%)	183 (46.9%)
	Married	115 (29.5%)	86 (22.1%)	201 (51.6%)
	Divorced/Widow/Widower	3 (0.8%)	3 (0.7%)	6 (1.5%)
	Total	**234 (60.0%)**	**156 (40.0%)**	**390 (100%)**
Occupation of the Participants	Nurse	41 (10.5%)	17 (4.4%)	58 (14.9%)
	Physiotherapist	9 (2.3%)	2 (0.5%)	11 (2.8%)
	Doctor	72 (18.5%)	32 (8.2%)	104 (26.7%)
	Medical Lab. Scientist	55 (14.1%)	23 (5.9%)	78 (20.0%)
	Pharmacist	20 (5.1%)	19 (4.9%)	39 (10.0%)
	Medical Records	7 (1.8%)	9 (2.3%)	16 (4.1%)
	Admin	3 (0.8%)	21 (5.3%)	24 (6.1%)
	Others	27 (6.9%)	33 (8.5%)	60 (15.4%)
	Total	**234 (60.0%)**	**156 (40.0%)**	**390 (100%)**

Participants Years of Working	0-10years	127 (32.6%)	72 (18.4%)	199 (51.0%)
	11-20years	58 (14.9%)	42 (10.8%)	100 (25.7%)
	21-30years	27 (6.9%)	23 (5.9%)	50 (12.8%)
	Over 30years	22 (5.6%)	19 (4.9%)	41 (10.5%)
	Total	**234 (60.0%)**	**156 (40.0%)**	**390 (100%)**
Participants Highest Educational Qualification	High School/WASC	7 (1.9%)	13 (3.3%)	20 (5.2%)
	RN/RM	22 (5.6%)	3 (0.8%)	25 (6.4%)
	First Degree	132 (33.8%)	99 (25.4%)	231 (59.2%)
	Postgraduate	73 (18.7%)	41 (10.5%)	114 (29.2%)
	Total	**234 (60.0%)**	**156 (40.0%)**	**390 (100%)**

Question 14: Do you stand to carry out your duty?

		30 Mins	**1 Hour**	**2 Hours**	**Total**
Sex of Participants	Male	65 (16.6%)	42 (10.8%)	48 (12.3%)	155 (39.7%)
	Female	79 (20.3%)	84 (21.5%)	72 (18.5%)	235 (60.3%)
	Total	**144 (36.9%)**	**126 (32.3%)**	**120 (30.8%)**	**390 (100%)**
Marital Status of the Participants	Single	60 (15.4%)	62 (15.9%)	61 (15.6%)	183 (46.9%)
	Married	80 (20.5%)	63 (16.2%)	58 (14.9%)	201 (51.6%)
	Divorced/Widow/ Widower	4 (1.0%)	1 (0.2%)	1 (0.3%)	6 (1.5%)
	Total	**144 (36.9%)**	**126 (32.3%)**	**120 (30.8%)**	**390 (100%)**
Occupation of the Participants	Nurse	22 (5.7%)	21 (5.4%)	15 (3.8%)	58 (14.9%)
	Physiotherapist	2 (0.5%)	7 (1.8%)	2 (0.5%)	11 (2.8%)
	Doctor	27 (6.9%)	26 (6.7%)	51 (13.1%)	104 (26.7%)
	Medical Lab. Scientist	25 (6.4%)	26 (6.7%)	27 (6.9%)	78 (20.0%)
	Pharmacist	16 (4.1%)	15 (3.8%)	8 (2.1%)	39 (10.0%)
	Medical Records	8 (2.1%)	7 (1.8%)	1 (0.2%)	16 (4.1%)
	Admin	15 (3.8%)	6 (1.5%)	3 (0.8%)	24 (6.1%)
	Others	29 (7.4%)	18 (4.6%)	13 (3.4%)	60 (15.4%)
	Total	**144 (36.9%)**	**126 (32.3%)**	**120 (30.8%)**	**390 (100%)**
Participants Years of Working	0-10years	66 (16.9%)	64 (16.4%)	69 (17.7%)	199 (51.0%)
	11-20years	36 (9.2%)	37 (9.5%)	27 (7.0%)	100 (25.7%)
	21-30years	17 (4.4%)	18 (4.6%)	15 (3.8%)	50 (12.8%)
	Over 30years	25 (6.4%)	7 (1.8%)	9 (2.3%)	41 (10.5%)
	Total	144 (36.9%)	126 (32.3%)	120 (30.8%)	390 (100%)

Participants Highest Educational Qualification	High School/WASC	6 (1.5%)	10 (2.7%)	4 (1.0%)	20 (5.2%)
	RN/RM	9 (2.3%)	6 (1.5%)	10 (2.6%)	25 (6.4%)
	First Degree	90 (23.1%)	72 (18.4%)	69 (17.7%)	231 (59.2%)
	Postgraduate	39 (10.0%)	38 (9.7%)	37 (9.5%)	114 (29.2%)
	Total	**144 (36.9%)**	**126 (32.3%)**	**120 (30.8%)**	**390 (100%)**

Question 15: For about how long do you stand on a stretch without sitting down?

		Hard Sole	**Soft Sole**	**Total**
Sex of Participants	Male	54 (13.8%)	101 (25.9%)	155 (39.7%)
	Female	52 (13.4%)	183 (46.9%)	235 (60.3%)
	Total	**106 (27.2%)**	**284 (72.8%)**	**390 (100%)**
Marital Status of the Participants	Single	51 (13.1%)	132 (33.8%)	183 (46.9%)
	Married	54(13.8%)	147 (37.8%)	201 (51.6%)
	Divorced/Widow/Widower	1 (0.3%)	5 (1.2%)	6 (1.5%)
	Total	**106 (27.2%)**	**284 (72.8%)**	**390 (100%)**
Occupation of the Participants	Nurse	10 (2.6%)	48 (12.3%)	58 (14.9%)
	Physiotherapist	1 (0.2%)	10 (2.6%)	11 (2.8%)
	Doctor	31 (8.0%)	73 (18.7%)	104 (26.7%)
	Medical Lab. Scientist	24 (6.2%)	54 (13.8%)	78 (20.0%)
	Pharmacist	13 (3.3%)	26 (6.7%)	39 (10.0%)
	Medical Records	4 (1.0%)	12 (3.1%)	16 (4.1%)
	Admin	9 (2.3%)	15 (3.8%)	24 (6.1%)
	Others	14 (3.6%)	46 (11.8%)	60 (15.4%)
	Total	**106 (27.2%)**	**284 (72.8%)**	**390 (100%)**
Participants Years of Working	0-10years	48 (12.3%)	151 (38.7%)	199 (51.0%)
	11-20years	32 (8.2%)	68 (17.5%)	100 (25.7%)
	21-30years	14 (3.6%)	36 (9.2%)	50 (12.8%)
	Over 30years	12 (3.1%)	29 (7.4%)	41 (10.5%)
	Total	106 (27.2%)	284 (72.8%)	390 (100%)
Participants Highest Educational Qualification	High School/WASC	3 (0.8%)	17 (4.4%)	20 (5.2%)
	RN/RM	2 (0.5%)	23 (5.9%)	25 (6.4%)
	First Degree	67 (17.2%)	164 (42.0%)	231 (59.2%)
	Postgraduate	34 (8.7%)	80 (20.5%)	114 (29.2%)
	Total	**106 (27.2%)**	**284 (72.8%)**	**390 (100%)**

Question 16: Which type of foot wear are you often comfortable with?

Table 2: Practice of ergonomics and body mechanics among healthcare workers.

Table 2 contained some sixteen (16) interesting questions looking at the practice of ergonomics and body mechanics among healthcare workers which had about 57.7% on the average of practicing proper body mechanics. A total of 85.1% (332) of the participants asked for asked for help from a friend when they have to lift big patient or object. 60.3% (235) of them straightens their knees and bend their back when lifting an object from the floor. Those who observed the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa were said to be 49.0% (191) while 49.5% (193) sits for 1,2,3 hours long without getting up to stretch their legs. 50.8% (198) of the participants have their work tables close to their chest level when seated while 44.4% (173) agreed they do sit upright always/slouch. The feet of 82.6% (322) of the participants touch the ground when they are seated and 52.6% (205) are comfortable with their seats at work. 67.4% (263) have their seats with an arm/back rest. Those who sit upright always to do their work were 42.6% (166) while 30.3% (118) participants' seats have a forward protrusion at the waist (low back). How often the participants get up from their seats to stretch their legs, 40.0% (156) do that every 30 minutes, 34.1% (133) every one (1) hour and 25.9% (101) every two (2) hours. 75.4% (294) wants their chairs/tables changed to conform to their individual structure as 60.0% (234) agrees that they stand to carry out their duties. 36.9% (144) stands on a stretch for 30 minutes without sitting down, 32.3% (126) for one (1) hour and 30.8% (120) for two (2) hours. Finally, 27.2% (106) are comfortable with hard sole against 72.8% (284) that are comfortable with soft sole.

Sex of the participants				
	Questions	**Chi-Square**	**Degree of freedom**	**Significance**
1	Do you ask for help from a friend if you have to lift big patient or object?	0.076	1	0.783
2	Do you straighten your knees and bending your back when lifting an object from the floor?	0.087	1	0.768
3	Do you use the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa?	11.092	1	0.001
4	Do you sit for long hours without getting up to stretch your legs? Upward of 1,2,3 hours?	1.926	1	0.165
5	Are your work tables close to your chest level when seated?	0.021	1	0.886
6	Do you sit upright always and do you slouch?	0.612	1	0.434
7	Do your feet touch the ground when you are seated?	0.681	1	0.409
8	Are you comfortable with your seat at work?	1.311	1	0.252
9	Does your seat at work have an arm/back rest?	0.311	1	0.577
10	Do you sit upright always to do your work?	3.568	1	0.059
11	Does your seat at work have a forward protrusion at the waist (low back) area?	4.204	1	0.04
12	How often do you get up from your seats to stretch your legs?	4.948	2	0.084
13	If need be, would you want your chair/table to be changed to conform to your individual structure?	1.355	1	0.244
14	Do you stand to carry out your duty?	0.045	1	0.833
15	For about how long do you stand on a stretch without sitting down?	3.916	2	0.141
16	Which type of foot wear are you often comfortable with?	7.624	1	0.006

Marital Status of the Participants				
Questions		Chi-Square	Degree of Freedom	Significance
1	Do you ask for help from a friend if you have to lift big patient or object?	1.217	2	0.544
2	Do you straighten your knees and bending your back when lifting an object from the floor?	7.375	2	0.025
3	Do you use the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa?	2.327	2	0.312
4	Do you sit for long hours without getting up to stretch your legs? Upward of 1,2,3 hours?	1.74	2	0.419
5	Are your work tables close to your chest level when seated?	6.003	2	0.05
6	Do you sit upright always and do you slouch?	5.886	2	0.053
7	Do your feet touch the ground when you are seated?	1.775	2	0.412
8	Are you comfortable with your seat at work?	0.463	2	0.794
9	Does your seat at work have an arm/back rest?	5.164	2	0.076
10	Do you sit upright always to do your work?	0.716	2	0.699
11	Does your seat at work have a forward protrusion at the waist (low back) area?	3.531	2	0.171
12	How often do you get up from your seats to stretch your legs?	2.016	4	0.733
13	If need be, would you want your chair/table to be changed to conform to your individual structure?	1.464	2	0.481
14	Do you stand to carry out your duty?	1.775	2	0.412
15	For about how long do you stand on a stretch without sitting down?	4.407	4	0.354
16	Which type of foot wear are you often comfortable with?	0.389	2	0.823

Occupation of the Participants				
Questions		Chi-Square	Degree of freedom	Significance
1	Do you ask for help from a friend if you have to lift big patient or object?	23.549	7	0.001
2	Do you straighten your knees and bending your back when lifting an object from the floor?	14.976	7	0.036
3	Do you use the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa?	13.384	7	0.063
4	Do you sit for long hours without getting up to stretch your legs? Upward of 1,2,3 hours?	3.891	7	0.792
5	Are your work tables close to your chest level when seated?	9.998	7	0.189
6	Do you sit upright always and do you slouch?	7.006	7	0.428
7	Do your feet touch the ground when you are seated?	18.574	7	0.01
8	Are you comfortable with your seat at work?	6.669	7	0.464
9	Does your seat at work have an arm/back rest?	12.64	7	0.081
10	Do you sit upright always to do your work?	12.925	7	0.074
11	Does your seat at work have a forward protrusion at the waist (low back) area?	24.762	7	0.001

12	How often do you get up from your seats to stretch your legs?	21.382	14	0.092
13	If need be, would you want your chair/table to be changed to conform to your individual structure?	6.702	7	0.461
14	Do you stand to carry out your duty?	43.41	7	0
15	For about how long do you stand on a stretch without sitting down?	40.55	14	0
16	Which type of foot wear are you often comfortable with?	8.108	7	0.323

Working Years of the Participants				
Questions		**Chi-Square**	**Degree of freedom**	**Significance**
1	Do you ask for help from a friend if you have to lift big patient or object?	4.21	3	0.24
2	Do you straighten your knees and bending your back when lifting an object from the floor?	9.442	3	0.024
3	Do you use the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa?	21.106	3	0
4	Do you sit for long hours without getting up to stretch your legs? Upward of 1,2,3 hours?	1.872	3	0.599
5	Are your work tables close to your chest level when seated?	1.323	3	0.724
6	Do you sit upright always and do you slouch?	0.336	3	0.953
7	Do your feet touch the ground when you are seated?	2.998	3	0.392
8	Are you comfortable with your seat at work?	3.613	3	0.306
9	Does your seat at work have an arm/back rest?	10.994	3	0.012
10	Do you sit upright always to do your work?	11.841	3	0.008
11	Does your seat at work have a forward protrusion at the waist (low back) area?	5.091	3	0.165
12	How often do you get up from your seats to stretch your legs?	2.227	6	0.898
13	If need be, would you want your chair/table to be changed to conform to your individual structure?	11.742	3	0.008
14	Do you stand to carry out your duty?	2.813	3	0.421
15	For about how long do you stand on a stretch without sitting down?	13.656	6	0.034
16	Which type of foot wear are you often comfortable with?	2.222	3	0.528

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Table 3: Chi-square result.

In Table 3, it is evident that sex was significant in three (3) questions; 3, 11 and 16. Marital status in two (2) questions; 2 and 5. Occupation in six (6) questions; 1, 2, 7, 11, 14 and 15. Years of working in six (6) questions; 2, 3, 9, 10, 13 and 15. Highest educational qualification as significant in two (2) questions; 12 and 14. Marital status and educational qualification were both significant in two out of the sixteen questions. Occupation and working years had six out of the sixteen and sex had three out of the sixteen questions. Question 2, "straightening of knees and bending of back when lifting an object from the floor" was significant in three out of the five demographic variables that is marital status (P = 0.025), occupation (P = 0.036) and working years (P = 0.024). This is followed by question 3 "using of the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa" which was significant for sex (P = 0.001) and working years (P = 0.000), question 11 "having seat at work with a forward protrusion at the waist (low back) area" was significant for sex (P = 0.040) and occupation (P = 0.001), question 14 "standing to carry out one's duties" was also significant for occupation (P = 0.000) and educational qualification (P = 0.002) and finally question 15 "how long stand on a stretch without sitting down" which is significant for occupation (P = 0.000) and working years (P = 0.034). The questions with one (1) significant level was question 1 "asking for help from a friend when trying to lift big patient or object" which was significant for occupation (P = 0.001), question 5 "having work tables close to their chest level when seated" significant for marital status (P = 0.050), question 7 "their feet touching the ground when seated" significant for occupation (P = 0.010), question 9 "having their seat at work with an arm/back rest" significant for working years (P = 0.012), question 10 "sitting upright to do work" which was significant for working years (P = 0.008), question 12 "often get up from their seats to stretch the legs" for educational qualification (P = 0.001), question 13 "If need be, their chair/table to be changed to conform to their individual structure" for working years (P = 0.008) and question 16 "the type of foot wear they are often comfortable with" for sex (P = 0.006).

Discussion

This study was conducted to know the extent of practice of ergonomics and body mechanics among healthcare workers in Rivers State, Nigeria. Demographic data of the respondents showed that majority are females 60.3%, marital status had more married 51.6%, closely followed by singles. Profession had doctors 26.7% followed by medical laboratory scientists 20% with 0 to 10 years of working experience 51% having first degree educational qualification 59.2%. In this study, the second part of the questionnaires was about how practicable the health workers are as regard ergonomics and body mechanics which had an average of 57.7%. From the chi-square results, sex which had more females is significant with three questions ("using of the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa", "having seat at work with a forward protrusion at the waist (low back) area" and "the type of foot wear they are often comfortable with"). Marital status which consists of more married people is significant with two questions ("straightening of knees and bending of back when lifting an object from the floor" and "having work tables close to their chest level when seated") out of fourteen questions.

Occupation consisting of more doctors was significant with six practice questions ("asking for help from a friend when trying to lift big patient or object", "straightening of knees and bending of back when lifting an object from

the floor", "their feet touching the ground when seated", "having seat at work with a forward protrusion at the waist (low back) area", "standing to carry out one's duties" and "how long stand on a stretch without sitting down") out of sixteen questions. Working years which had more of 0-10 years was significant with six questions just as occupation ("straightening of knees and bending of back when lifting an object from the floor", "using of the principles of body mechanics during the procedure for removing a patient from bed to chair and vice versa", "having their seat at work with an arm/back rest", "sitting upright to do work" "If need be, their chair/table to be changed to conform to their individual structure" and "how long stand on a stretch without sitting down") out of sixteen, Educational qualification which had more of first degree was significant in two questions like the marital status ("often get up from their seats to stretch the legs" and "standing to carry out one's duties"). From the result showed, occupation and working years had the highest significant levels followed by sex and then marital status and educational qualification.

Being a doctor, nurse and other health workers had exposed them to the implications of not adhering to the practice of body mechanics and ergonomics at work and as such they tried to practice. This result agrees with [5] who proved that 60% of nurses are practicing body mechanics/ ergonomics when they asses knowledge and practices of body mechanic technique among nurses at Punjab institute of cardiology Lahore. Also, on the study on the knowledge and practice of body mechanics among staff nurses agrees with the result with an average of 73.33% body mechanics practice by nurses [13] and finally agrees with the study on knowledge and usage of body mechanics among class IV workers whose result showed nurses with 74% good practice of body mechanics [14]. This research didn't agree with knowledge and preventive practice of occupational Health Hazards among Nurses in different Teaching Hospitals which had 25.4% practice of body mechanics [15].

Conclusion

Based on the findings of the study, it was concluded that healthcare workers in Rivers State do not practice proper body mechanics and those that do are as a result of their occupation and working years.

Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this article

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