Asia Pacific Environmental and Occupational Health Journal (ISSN 2462 -2214), Vol 4 (3): 18 -28, 2018
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PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG SELECTIVE HOSPITAL EMPLOYEES IN BANGLADESH

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ABSTRACT

Objective: This study was regulated to scrutinize prevalent of the musculoskeletal disorders (MSDs) among employees of different hospitals in Bangladesh.
Method: Six hundred forty five staffs from four different hospitals were included in this study. Eight departments namely physician, dental, administration, nursing, physiotherapy, laboratory, radiology and housekeeping were enlisted in this study. A modified Nordic Musculoskeletal Questionnaire (NMQ) was distributed among study population.
Result: The result revealed that the prevalence of MSD was eminent in lower back (58%), neck (28%) and shoulder (15%) for the previous 12 months followed by lower back (31%), elbow (2%), and wrist (5%) correspondingly, for the Previous 7 days. The odds of developing musculoskeletal disorders of female are 1.31 in neck, 1.42 in shoulder, 1.23 in elbow, 1.2 in wrist/finger, 2.65 in back pain analogize to male participants. Strong association was found in low back pain with education status with diploma in back pain (OR = 4.70), daily hours of sleep with ≥ 6 in back pain (OR = 3.02), length of working years >5 in wrist/finger pain (OR=3.05) and physical exercise in neck pain (OR=3.22).
Conclusion: Results imply that healthcare workers as radiographers, dentists, housekeepers, Physiotherapists, nurses experience MSD risks most through work tasks. These comprise uncomfortable posture during patient managing, hand task, and forceful work. Hence, an user friendly system, upgrading on the job pattern and work interval are needed in order to reduce the MSD risks.

Keywords: *Prevalence, Musculoskeletal disorders, Hospital employee.*

1. Introduction

Musculoskeletal disorders (MSD) covers a wide range of health problems that commonly affect the musculoskeletal system of the body. Musculoskeletal disorders (MSD) are injuries or pain in human musculoskeletal system including the muscles, nerves, tendons, joints, cartilage and spinal discs. Work- related musculoskeletal disorders (WMSD) are a group of painful disorders in which: the work circumstance and representation of work contribute significantly to the atmosphere. WMSD is made worse or persists longer due to work atmosphere when the exposure leading to the case is bodily displacement such as action like bending, stair up- down, crawling, reaching, twisting, overexertion, or continual motion. MSDs do not caused by slips, trips, falls, or similar incidents (Barnard, 1997). There were 360,180 serious MSD claims, which equates to 60% of all serious claims between 2009-10 and 2013-14. Statistics showed injuries consider for 76% of MSD claims, while diseases consider for 24%. Frequent types of MSD injuries were soft tissue complaint (29%), trauma to muscles or tendons (21%), and trauma to joints or ligaments (14%) (SWMSD, 2016). The notable consequences of MSD comprises trouble in performing manual tasks, trouble in exerting forces and limitation of movement due to pain, or loss of function. Many workers from different occupations had been injured and had caused a major effect to several organizations. World Health Organization categorize MSD as a major reason of absenteeism from work and

lead therefore, to significant value for the public health system (WHO, 2011). Broadly, MSD is most widespread occupational problem in producing and massive labor industries. It seems that some epidemiological studies have explored MSD as a risk element among healthcare professionals specially the MSD among nurses in healthcare scenario (Smith et al., 2003a and 2003b). Yet, there were very few studies reported on other healthcare arenas particularly radiographers, physiotherapists and other hospital personals. So, this study aims to evaluate the prevalent of the MSD among employees in different hospitals in Bangladesh. This study deserves necessity in Bangladesh perspective as Bangladesh is regarded as an emerging tiger in world economy. So, workers health and fitness is very important in productivity. Very few studies that were found locally not sufficient to present the real picture of the situation due to shortage of information. Also studies were conducted couple of year back which does not represent the present situations on this regard, so it is very much urgent to know the situation. To explore the generality of musculoskeletal complaints due to manually directing job is the objective of this study.

2. Materials and Method

A non-experimental approach with a cross-sectional survey was used.

2.1. Instrument

A set of semi structured questionnaires included basic demographic and anthropometric characteristics as age, gender, marital status, work duration, working hours per week, educational status, cigarette smoking, daily hours of sleep and physical exercise. A modified Nordic Musculoskeletal Questionnaire (NMQ) was distributed among study population. It was delivered manually during employee's break time and was collected next on the same day. NMQ was split into three sections – background particulars, essence and need of the job, and study of body segment pain. Eight departments namely doctors, dental, administration, nursing, physiotherapy, laboratory, radiology and housekeeping were involved in this study.

Participants were chosen based on working skill of more than one year and concerned with manual handling tasks. The semi structured questionnaire was evolved according to literature review about prevalence connected to occurrence of musculoskeletal complaint in nursing staff. BMI was calculated as quotient of body weight in kilograms and square of body height in meters. Overweight was marked as BMI ≥ 25 kg/m2 (WHO, 2006).

2.2. Nordic Questionnaire

Nordic Standardized Questionnaires (Kuorinka, 1987) for the study of musculoskeletal complaint in an ergonomic or occupational health perspective were bestowed. The queries were mandatory in choice with variations and could be either self-administered or used in interrogation. They focused on symptoms most often encountered in an occupational environment. The reliability of the questionnaires had been shown to be admissible. Particular characteristics of work labor were displayed in the rate of responses. Respondent's quires were filled up by the researcher as per needs.

2.3. Data collection procedure

The study was outlined cross-sectional. Cross-sectional works are most convenient for identifying risk factors of a comparatively recurrent, long disease that is often unidentified or not reported (Kleinbaum DG et al., 1982). This study observed 1,020 workers of 4 hospitals namely Islami Bank Hospital, Khulna; Cente for the Rehabilitation of the Paralyzed (CRP), Dhaka; Islami Bank Medical college Hospital, Rajshahi; Islami Bank Hospital, Barisal in Bangladesh from July 1, 2015 to June 31, 2016. Among them, 645 workers involved in the study (participation rate 63% where 375 or 37% respondents were excluded due to incomplete data). As a result, this study examined the responses of 645 contender. This study analyzed a total of 645 hospital workers (349 or 54% males and 296 or 46% females). The questionnaire interrogate responders about their socio-demographics, health linked behaviors and work associated musculoskeletal features. Work-associated musculoskeletal features were analyzed by using the nordic musculoskeletal set of questions . Purposive sampling method permits collecting participants as many as possible. The sample size was determined by exemplars from international cross-sectional survey studies, which tend to gather a sample of approximately 500 participants. These sample sizes generally suffice for the needs of the statistical analysis and also give better representation of the researched population (Polit, 1996).

2.4. Statistical Methods

The results were outlined in descriptive statistics. Sample data was presented by frequency and per-

centage for categorical variables or by mean value and standard deviation for numerical variables .One-year prevalence and seven days point prevalence of musculoskeletal complaints was intended for the workers. Statistical analysis was executed using odds ratio (OR) and measured with logistic regression for associations between musculoskeletal complaints of various body parts and demographic parameters. The analysis was done using SPSS version 21.0. *P* value of 0.05 was defined as the criterion for statistical significance.

2.5. Ethical considerations

The study was approved from the appropriate authority of Khulna University. The research attendee were informed about the study characteristic and what type of attendance would entail for them, by incurring a printed information sheet (Puotiniemi & Kyngäs, 2004). Attendees were also asked to contact the researcher for further query. Participation in the study was voluntary and nameless. Components in the questionnaire were very_ unspecific i.e. they did not included personal items, arouse feelings or address close relationship. Issues that may potentially injurious for participants or the University itself were also not enclosed in the questionnaire.

3. Results

3.1. General features

The outcome of demographic features and other body part related measurements of all employees in all eight departments are shown in Table 1. From the respondents, gender based distribution manifests that the majority of employees were male (n=349:54%) and female (n=296:46%) in all eight departments. Most of the staffs are married (n=447:69%) while unmarried and divorced accounted (n=198 :31%). In the point of work duration category female >5 years (n=181: 28%) compared to male >5 years was (n= 216:33%). Female worked ≥ 45hours per week (n= 206:32%) while male (n=251:|39%). Majority of the staffs had diploma degree of educational status of female (n=181:38%) and male (n=238:37%); in contrast non diploma female (n=115:18%) and male (n=111:17%). The number of body mass index ≥25 in female was (n=201:31%) and male (n=248:38%).Among respondents cigarette smokers in female (n=1:1%) and male (n=292:45%). The number of female sleeping hours per day ≥6 was (n=136:21%) and male (n=146:22%) while (n=202:31%) of female don't do exercise and male (n=250:39%).

We found workers to perform physical exercise in female (n=94: 15%) and in male (n=99:15%).

The above mentioned Table demonstrates musculoskeletal disorders where more than half of the participants (n=372: 58%);male 202 (31%) and female 170 (17%) suffered from low back pain followed by neck pain (n=182: 28%); male 99(15%) and female 83 (13%), shoulder pain (n=98: 15.2%); male 53(8%) and female 45(7%), wrist/finger pain (n=92: 14%); male 50 (8%) and female 42 (6%), elbow pain (n=53: 8%); male 29 (4%) and female 21 (4%), upper back pain (n=50: 8%); male 27 (4%) and female 23 (4%).

Table 1 shows associations between prevalent of musculoskeletal complaints and demographic variables. Here the data shows the odds of developing musculoskeletal disorders of female are 1.31 in neck, 1.42 in shoulder, 1.23 in elbow, 1.2 in wrist/finger, 2.65 in back pain compared to male participants. Similarly the odds of age >30 are 1.46 in neck,1.33 in shoulder, 1.11 in wrist/finger, 3.55 in low back compared to age ≤30 years and length of working >5 years are 2.05 in neck, 1.26 in shoulder, 3.91 in elbow, 3.15 in wrist/finger, 1.92 in low back compared to ≤5 years of working years and body mass index >25 are 1.77 in shoulder, 1.15 in wrist/finger, 2.13 in low back pain compared to ≤25 of body mass index and diploma are 3.02 in neck, 4.70 in low back pain compared to no diploma regarding educational status and yes in the area of physical exercise are 3.22 in neck, 1.77 in shoulder, 3.07 in wrist/hands, 1.11 in low back pain compared to no comments in physical exercise finally ≥6 hours of daily sleep are 1.12 in neck, 4.02 in low back pain compared to <6 hours of daily sleep.There were remarkable differences between working years, educational level and physical exercise, and the prevalence of MSD indication.

Pain at the shoulders, elbows and wrists/hands bears <1 likelihood of odds in the diploma of educational status compared to non diploma. The higher OR for low back pain was for diploma of educational status (OR = 4.70), pain in neck among physical exercise (OR = 3.22) and low back among daily sleeping hours ≥6 hours (OR = 3.02). Strong association was found in low back pain with education status with diploma (OR = 4.70) and in age with >30 years (OR = 3.55).

3.2 Prevalence of musculoskeletal disorders

Based on Table 2, the participants were distributed among the departments as doctors (n=105), dental (n=10), administration (n=31), physiotherapy (n=92), nursing (n=195), laboratory (n=66), radiology (n=31), housekeeping (n=115). Here we found that the most prevalent group is nurse (n=195:30%) and least is dental (n=10:0.15%). The last 52 weeks or 1 year period prevalence of MSD was found highest in dentist (female: 100% and male: 100%). Other departments followed by nursing (female: 88% and male: 64%), housekeeping (female: 83% and male: 87%) , physicians (female :71% and male: 75%) ,laboratory (female: 88% and male: 73%), Physiotherapy (female:22% and male: 22%), radiology (female: 64% and male: 75%) and administration (female:70% and male: 76%). On the other hand 1 week or 7 days point prevalence was found highest in dental department(female: 50% and male: 67%) followed by administration (female: 40% and male:38%), radiology (female: 36%) and male: 30%), housekeeping (female: 33% and male:29%), Physician (female:29% and male:17%), nursing (female:22% and male:36%), laboratory (female:20% and male:27%) and physiotherapy (female: 19% and male: 25%). Table 2 shows point prevalence grows some incident cases as per department perspective.

The prevalence of musculoskeletal complaints in 6 body parts during the past 52 weeks and 1 week are represented. Feedback from administration department shows that MSD was found highest in lower back (70%) and lowest in shoulder (30%) both female and male. Similarly at housekeeping department highest in low back (62%) and lowest in elbow (23%). Physicians accounted highest in neck (n=75%) and lowest in upper back (n=26%). By separate body part the most commonly outlined category was in low back (n=100%), neck (n=100%) and upper back (75%) in dental department.

For nursing department highest reported of MSD showed on low back (n=72%) followed by neck (32%) and upper back (30%). Laboratory department highest in low back (n=48%) and lowest in shoulder (n=12%). Physiotherapy department highest prevalence in low back (n=40%) and lowest in shoulder (n=14%). For radiology department highest reported MSD in low back (n=50%) and lowest in wrist (n=18%). MSD on elbow for male and wrist for female were no reported case in dental department in 1 week prevalence report. In comparison of the minimum reported cases of specific body part, doctors and nursing department had only MSD problems on shoulder (female=3%), doctors (female=3%) and laboratory (male=2%) had on elbow, nursing (female=2%) and laboratory (male and female=2%) had on wrist, nursing (male= 4%) and physiotherapy (female= 5%) had on upper back region.

It is seen that MSD on lower back was outlined as the highest prevalence of MSDs among employees in all eight departments for the previous 52 weeks or 1 week.

4. Discussion

Workers at four hospital employees analyzed in this work were found to be at risk for work related musculoskeletal complaints. We find that the prevalence of musculoskeletal complaints was high in employees. Frequent movements with uncomfortable postures were especially risky when they concerned with the same joints and muscle groups. It is also creates problem when workers did the same motion too often, too quickly and for too long. Commonly see that manual workers had a constant posture of the neck and back as they leaned into boxes, floors or bottles. A constant posture creates tiredness because constantly tensed muscles never have an opportunity to get relief; as a result the probability of discomfort gradually worse.

A fixed on neck needs neck muscles to hold the weight of the head with substantial bending producing more stress. Workplace design that limits posture abnormality and offers adjustability for workers of different height would limit bending as well as uncomfortable postures of the elbows and shoulders. Manual housekeepers bear highly repetitive and more force component work. The observation found that a big amount of the workers adept musculoskeletal disorders in the past 12 months. In this research, the widespread presence of MSDs was 14–58%. Nearly half of the housekeeping participants suffered from work-related back pain, a same rate was complained by nurses (Simcox et. al, 2001).

Study showed that workers who were involved in high repeating jobs of more frequent work had a three times greater risk of accumulative trauma disorders of the hand and wrist than workers in low repeating jobs (Silverstein et. al, 1986). uniform posture and repeating work both can produce injury when there is no rest from muscle tension (Putz-Anderson, 1988).

Table 1: General features of the study participants and factors related with MSD (N=645)

Characteristics of the study subjects					Factors associated with MSD (OR)				
Independent variable	Category	Total N (%)	Female n (%)	Male n (%)	Back	Neck	Shoulder	Wrist	Elbow
Gender (age range)	17-68	645 (100)	296 (46)	349 (54)	2.66	1.31	1.42	1.20	1.21
Age (years)	≤30	98 (15)	40 (6)	58 (9)	1	1	1	1	1
	>30	547 (85)	256 (40)	291 (45)	3.55	1.46	1.33	1.11	0.43
Marital status	Married	447 (69)	195 (30)	252 (39)	1	1	1	1	1
	Unmarried	189 (29)	98 (15)	91 (14)	1.37	1.52	0.43	0.41	0.61
	Divorced	9 (2)	3 (1)	6 (1)	---	---	---	---	---
Work duration (years)	≤5	248 (49)	115 (18)	133 (21)	1	1	1	1	1
	>5	397 (61)	181(28)	216 (33)	1.92	2.05	1.26	3.05	1.23
Working hours per week	<45	188 (29)	90 (14)	98 (15)	1	1	1	1	1
	≥45	457 (71)	206 (32)	251 (39)	1.74	1.2	1.73	1.24	1.61
Educational status	No diploma	226 (35)	115 (18)	111 (17)	1	1	1	1	1
	Diploma	419 (65)	181(28)	238 (37)	4.7	3.02	0.72	0.55	0.36
Body mass index (BMI) (Kg/m^2)	≤25	196 (31)	95 (15)	101 (16)	1	1	1	1	1
	>25	449 (69)	201 (31)	248 (38)	2.13	0.69	1.77	1.15	1.23
Cigarette smoking	No	352 (54)	295 (46)	57 (8)	1	1	1	1	1
	Yes	293 (56)	1 (1)	292 (45)	2.89	1.17	0.46	0.57	0.19
Sleeping hours per day	<6	363 (56)	160 (25)	203 (31)	1	1	1	1	1
	≥6	282 (43)	136 (21)	146 (22)	3.02	1.12	0.95	0.45	0.38
Physical exercise	No	452 (70)	202 (31)	99 (15)	1	1	1	1	1
	Yes	193 (30)	94 (15)	250 (39)	2.11	3.22	1.77	3.07	1.13
Different parts of the body	Low back pain	372 (58)	170 (17)	202 (31)	----	----	----	----	----
	Upper back pain	50 (8)	23 (4)	27 (4)					
	Neck pain	182 (28)	83 (13)	99 (15)					
	Shoulder pain	98 (15)	45 (7)	53 (8)					
	Elbow pain	53 (8)	21 (4)	29 (4)					
	Wrist/finger pain	92 (14)	42 (6)	50 (8)					

Notes: OR—odds ratio, BMI—body mass index; Symptoms adjusted for gender, age, marital status, years worked, working hours per week, BMI, educational status, cigarette smoking, physical exercise, daily sleeping hours. A respondent can report more than one site of pain.

Table 3 Prevalence of musculoskeletal symptoms in hospital employees within 12 months (52 weeks) and 7 days (1week) (N=645)

Workers in Different Departments	Gender	Initiation of Pain	Respondents n (%)	Different Parts of the Body (n,%)					
				Neck	Shoulder	Elbow	Wrist	Upper back	Lower back
Physician n=105	Female (n=34)	1-week	10 (29)	3 (9)	1 (3)	1(3)	1 (3)	3 (9)	5 (15)
		52-weeks	24 (71)	8 (24)	2 (6)	5 (15)	2 (6)	9 (26)	15 (44)
	Male (n=71)	1-week	12 (17)	3 (4)	3 (4)	3 (4)	1 (1.4)	4 (7)	7 (10)
		52-weeks	53 (75)	12 (17)	5 (7)	5 (7)	2 (3)	12 (17)	33 (46)
Dental n=10	Female (n=4)	1-week	2 (50)	2 (50)	1 (25)	1 (25)	0 (0)	1 (25)	2 (50)
		52-weeks	4 (100)	4 (100)	1 (25)	1 (25)	1 (25)	3 (75)	4 (100)
	Male (n=6)	1-week	4 (67)	3 (50)	1 (17)	0 (0)	1 (17)	2 (33)	4 (67)
		52-weeks	6 (100)	5 (83)	2 (33)	2 (33)	2 (33)	3 (33)	6 (100)
Administration n=31	Female (n=10)	1-week	4 (40)	3 (30)	2 (20)	1 (10)	2 (20)	2 (20)	3 (30)
		52-weeks	7 (70)	5 (50)	3 (30)	4 (40)	2 (20)	3 (30)	7 (70)
	Male (n=21)	1-week	8 (38)	3 (14)	2 (10)	2 (10)	1 (8)	2 (10)	5 (24)
		52-weeks	16 (76)	9 (43)	4 (19)	3 (14)	3 (14)	4 (19)	12 (57)
Physiotherapy n=92	Female (n=37)	1-week	7 (19)	2 (5)	2 (5)	1 (3)	1 (3)	2 (5)	3 (8)
		52-weeks	33 (89)	8 (22)	5 (14)	3 (8)	2 (5)	6 (16)	14 (38)
	Male (n=55)	1-week	14 (25)	4 (7)	2 (4)	2 (4)	1 (2)	4 (7)	6 (11)
		52-weeks	41 (75)	12 (22)	4 (7)	2 (4)	2 (4)	8 (15)	22 (40)
Nursing n=195	Female (n=145)	1-week	32 (22)	8 (6)	5 (3)	7 (5)	3 (2)	9 (6)	19 (13)
		52-weeks	127 (88)	46 (32)	12 (8)	14 (10)	17 (12)	32 (22)	104 (72)
	Male (n=50)	1-week	18 (36)	7 (14)	4 (8)	3 (6)	4 (8)	2 (4)	10 (20)
		52-weeks	32 (64)	12 (24)	5 (10)	3 (6)	5 (10)	15 (30)	23 (46)
Laboratory n=66	Female (n=25)	1-week	5 (20)	2 (8)	1 (4)	1 (4)	1 (4)	2 (8)	2 (8)
		52-weeks	22 (88)	7 (28)	3 (12)	2 (8)	2 (8)	4 (16)	12 (48)
	Male (n=41)	1-week	11 (27)	2 (5)	2 (5)	1(2)	1 (2)	5 (12)	6 (14)
		52-weeks	30 (73)	7 (17)	4 (10)	2 (5)	1 (2)	3 (7)	15 (37)
Radiology n=31	Female (n=11)	1-week	4 (36)	2 (18)	1 (9)	0 (0)	1 (9)	2 (18)	2 (18)
		52-weeks	7 (64)	4 (36)	2 (18)	1 (9)	2 (18)	2 (18)	4 (36)
	Male (n=20)	1-week	6 (30)	2 (10)	1 (5)	1 (5)	1 (5)	2 (10)	3 (15)
		52-weeks	15 (75)	7 (35)	3 (15)	2 (10)	2 (10)	4 (20)	10 (50)

Housekeeping n= 115	Female (n=30)	1-week	10 (33)	5 (16)	4 (13)	4 (13)	3 (10)	6 (20)	7 (23)
		52-weeks	25 (83)	14 (46)	9 (30)	7 (23)	4 (13)	8 (27)	17(57)
	Male (n=85)	1-week	25 (29)	12 (14)	8 (9)	9 (11)	7 (8)	8 (9)	15(18)
		52-weeks	74 (87)	33 (39)	12 (14)	18 (21)	23 (27)	23 (27)	53(62)

Note: A respondent can report more than one site of pain.

Previous studies exhibited that annoying body positions, work position at shoulder level, and monotonous hand and wrist movement play a part in the occurrence of conditions of the neck and upper limbs (Stock SR, 1991). Some occupation-related activities such as repeated maneuvers with monotonous body positions were previously recognized as risk components for musculo-skeletal discomfort. Non job-related issues like length of working, education level and physical exercise—were viewed in OR, which associated with some MSDs. Those risk issues can take part in an major role in the occurrence of WRMSDs. Our piece of work construct that for aged subjects, the odds of neck, shoulder, wrists/hands and low back pain expanded significantly as the length of employment extended. Period of occupation had a remarkable relation with MSDs (Mahbubi, 2006).

In the present work, the frequency of shoulder pain, elbow pain, wrist/hand pain was adversely correlated with educational level. The cause may be the bias that misjudged the actual risk of originating WRMSDs, which was not regular with former research works (Otani, 2002).

There was a relationship between neck pain, back pain and wrist/hand pain in physical exercise part. Physical movement may effect the occurrence of musculoskeletal disorders. A massive proportion of employees showed that they did not engage in physical exercise. Gundewall, Liljeqvist and Hansson's study on back pain and exercise bear comparison with 28 hospital workers who executed particular back exercises with a control group of 32 employees. The exercise group had a small number of back pain problem and a little mean days lost occupation. An agreement of current critical reviews is that exercise has a few implementations in inhibiting low back complaint (Gundewall, 1993).

Here age and BMI were affirmatively related with MSDs in this work. Buckwalter notified that musculoskeletal distortion were among the most frequent and symptomatic health trouble of middle and old age. The number of neck and neck/shoulder symptoms tended to rise with age (Buckwalter, 1993).

The researcher found a majority of participants are Obese through BMI ≥25 category. Emerging evidence indicates that obesity may also have a profound effect on soft-tissue structures, such as tendon, fascia and cartilage. Although the mechanism remains unclear, the practical and morphological restrictions voluntarily added additional burden of the locomotive system in obesity have been almost generally accepted to create unnatural mechanics in the time of locomotor tasks, so overly increasing stress within connective-tissue framework and the possibility for musculoskeletal injury (Wearing et. al, 2006). Although here found majority of participants shows poor sleep attitude but a significant portion have good quality of sleep. Evidences demonstrate trouble in sleep (usually wakes up more than two or three times), recurrent episodes of excessive daytime sleepiness or prolonged nighttime sleep and poor subjective sleep attitude were related with the existence of both musculoskeletal local and diffuse pain (Harrison et. al, 2014). At this research majority of participants were cigarette smoker. Research shows cigarette smoking has destroys outcome on the musculo-skeletal system. The lack of bone mineral contented and raised tendency of fractures are the best noted negative result. The prognosis is complex, due to direct noxious results on osteoblasts/osteoclasts action of nicotine, and secondary effects on sex and adrenocortical hormones, vitamin D, intestinal calcium absorption, vessels and oxygen supply.

Smoking may friendliness the beginning or exacerbate the development of rheumatoid arthritis and back pain. Negative effects have been noticed on muscle and on tendons (Michele et. al, 2013). Here also found maximum participants (82%) worked in excess of 45 hours by week. Evidence says the length of day to day active hours as a danger element for the occurrence of musculoskeletal problems was measured by comparing the sick leave statistics of 408 sewing machine workers on full-time time table(8 h working day) with 210 operators on part-time schedules (5 h working day). Working part-time was shown to postpone the occurrence of sick leave due to musculoskeletal disorders by approximately half a year (Waersted, 1991). Findings show that generality of MSD is majorly usual in nurse and in respect of body parts it is lower back. Separate body areas comprise neck, shoulder, wrist and upper back. This work is alike to variant works made by different analysts which manifest the low back pain as the most prominent announced occasions for medical employees (Smith et. al, 2003a and 2003b; Yeung et. al, 2004). Here found dentists are in highest prevalent group. Other research shows Dentists are in higher risk in MSD. The analysis demonstrated that 6.6% dental surgeons always felt shoulder pain, while 83.3% dental surgeons sometimes felt back pain and 70% sometimes felt neck pain. Greater number of the dental surgeons (73.3%) experienced stiffness in the back and 23.3% experienced severe pain in their neck (Abdul Rahim, 2011).

Discomfort at shoulder and neck were also routine musculoskeletal complaints among the employees. Observation indicated that frequency of MSD at neck and shoulder region related with occupational factor for the previous 12 months demonstrated huge percentage of reported case when in comparison to lower back. Present research displayed that the three most pervasiveness amount of MSD for nurses were developed for the neck, shoulders and back, followed by the upper back, hands/wrist (Daraiseh et. al, 2003).

Work assignment and colorless work were initiate increasing the pervasiveness of MSD among the employees. Quality of work assignment of all sections typically includes moving of sufferers from trolley or wheelbarrow, transmit sufferers in bed sets aside, maneuvering the X-ray cylinder, pushing/pulling of overhanging upright X-ray unit, as well as active at computer room and patient visiting that demands extended seated posture sequels in high occurrence of lower back and upper extremity conditions. Former experiments had discovered correlation of work posture and MSD. For example, Longer sitting posture results musculoskeletal complaints of neck, shoulder and lower back (CCOHS, 2005; Pope et. al, 2002). This may due to workers have extended duration of unchanged posture to carry out hand operated work with arms overhead and requiring undue hand instruments (Herberts et. al, 1984). A reason for this incident is that to stay in static fixed body position for prolong time, the veins and capillaries inner side of the muscles are constricted. It creates shortage of oxygen and nutrition in the tissues and produce micro trauma of those muscles. A summative micro trauma results lack of harmony, tiredness, discomfort and pain of the tissues (Rubenowitz, 1997).

Besides, positions while working with prolong or awkward posture, such as job demands create motion of upper extremity that finally force neck and shoulders in combination uncomfortably. This can cause for the progression of musculoskeletal complaint of neck and shoulder (CDC, 2011; NIOSH, 1997; Rubenowitz, 1997). In all eight departments, it is routine to notice employees doing works that demand stretch out above shoulder level, stretch out in front of the body, or bending arms out of shape. For example the radiographers that hold the overhead X-ray machine. Besides it is proven that where X-ray technologists, nurses and hand-operated workers had remarkable low back and upper extremity complaints due to the vigorous motion of the shoulder and wrist/hand (Kumar et. al, 2004).

MSD had been linked with psychosocial work components such as gender, state of mind, work strain, premenstrual tension, high mental stress and job frustration (Smith et. al, 2006; Yeung et. al, 2004; Yip, 2001). At present research length of occupation was developed to have principal authority to the pervasiveness of musculoskeletal complaints. This is agreeing with former study regulated among Japanese countryside nurses where it had displayed that length of work is notably related with MSD occurrence (Smith et. al, 2003b). Some other study had found present job situation, academic status and practical knowledge within profession years had occurrence ratio of low back pain between nurses (Yip, 2001). Excessive work burden was seen to be notable to pervasiveness of MSD with in work duration of more than 2 hours. This excess work burden can be interconnected to the work strain and time pressure adapted by 71% of 645 participants that engage in this work. Research done by

Lim and Pinto (2009) on radiologist workload had discovered key elements that rise strain, which involve excessive magnitude of work, rise stress to face time limit and disturbance of house lifestyle due to extended hours at occupation. Majority of female employees employed in all eight sections were observed higher proportion of MSD extensiveness (Table-4) comparable to male employees. The reason may be due to high level requirements of physical energy reason by hand operated activities.

5. Conclusion

Repeating and troublesome body positions are features of hospital employees that place employees at chance of growing WRMSDs. The repeating character of job pattern generates serious probability for upper limb repetitious trauma injury. Existing findings shows that healthcare professionals – radiographers, nurses, housekeepers, and dentists are exposed to MSD chances especially on the lower back, shoulder, neck and wrist/hand. The work assignment and lack of variety were recognized as the principal source of MSD among the employees.

Employees ought to undergo user friendly education at the beginning and minimum every 3 years. Another employer or organization may assign this training. When bearing in mind to restraint to minimize threats, engineering or administrative assesses should be adjudge first (e.g., Alter to workplace and tools, practice renovate, task alternation and work plan alteration).

Acknowledgement

Special thanks go to my supervisor. The author would like to thank the Faculty of Life Sciences and Department of Environmental Science, University of khulna, Bangladesh for the technical assistance rendered. The authors also would like to thank all respondents who volunteered to participate in this study and their cooperation given throughout the data collection process.

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