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SELF-REPORTED MUSCULOSKELETAL DISORDERS AMONG BANK EMPLOYEES IN BURAYDAH CITY

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ABSTRACT

Background and Objectives: Musculoskeletal disorders (MSDs) are the most common health problems encountered in the workplace around the globe, the burden of MSDs in bank employee in KSA have not been previously studied. This study aimed to measure the prevalence, impact on performance and associated factors of musculoskeletal disorders among bank employees in Buraidah, Saudi Arabia. **Methods and Material:** A cross-sectional study conducted on 42 bank in Burydah city using a self-administered standard Nordic questionnaire on Male bank employees in Buraydah city. Statistical analysis using Excel for windows 10 for entering data in forms while analysis was conducted using ''Statistical Package for Social Science'' (SPSS) V25. **Results:** Out of 397 employees, only 175 respondents completed the study questionnaire, giving a response rate of 44%. Mean respondents' age was 33.8 years (SD 5.9). Almost half of bank employees (48%) were smokers and about one third of them reported having at least one chronic disease, predominantly chronic joint pain reported as osteoarthritis (10.3%). One year reported prevalence of any MSDs of any body part among bank employees was 89.7%. The most commonly affected body part by MSDS during last 12 months was lower back; 66.9% followed by neck 59.4%, shoulder 51.4%, feet 43.4% and upper back 41.7%. Carrying out usual activities were mostly restricted by pain at lower back followed by neck. Finally, there were no significant associations between MSDs and job related factors. **Conclusions:** MSDS is highly prevalent among male bank employees in Buraydah. Further studies are needed to explore main factors and address essential preventive measures.

KEYWORDS: Musculoskeletal disorder, Bank, Computer, Qassim.

INTRODUCTION

The term "Musculoskeletal disorders (MSDs)" refers to any pain, discomfort, numbness, tingling, aching, stiffness, or burning of various parts of the body including low, upper back, neck, shoulder, elbow wrist, hands, hips, thigh, knee, ankle or foot.[1,2] Inappropriate seating, forceful or repetitive movement cause spasm or strain which eventually cause MSDs,[3,4] Making MSDs them the most typical occupational health issue.[7] Globally, MSDs are one among the foremost common work-related illnesses and inflicting substantial economic burden in terms of lost wages, treatment, and compensation and also liability to considerable impact on the quality of life.[8-10] Inappropriate body posture and eight hours setting before display screen may end up in several health hazards, including eye strain and fatigue and musculoskeletal disorders MSDS.[5] According to the Britain Labour Force Survey (2016), work-related musculoskeletal disorders represent 41% of the entire work-related illnesses.[6] MSDs increase sickness absence and early retirement leading to poor productivity at work[11,12] and are accounted for 34% of absence because of work-related illnesses.[6] In the U.S, MSDs represent 41.4% of all adult disabilities (41.2 million) during 1990.[13] Similarly, in the UK, approximately 1.1 million complained of MSDs caused by or made worse by work in 2001–02[7] and MSDs accounted for 11.6 million working days lost during 2006.[8] We search using Google scholar and PubMed for published articles addressing MSDs using key words; prevalence, work related musculoskeletal disorder, musculoskeletal disorders, bank workers, office workers, computer operators.

Our search included local and international studies. The result had yielded twelve surveys published during the last 17 years. Of these, nine studies were conducted on bankers. The twelve studies were conducted in eight countries, all of which were developing ones. Kuwait, India, Thailand, Ghana, Nigeria, Rwanda, Ethiopia, Iran.[4,16-20, 22-24] and one study from Saudi Arabia but it was on faculty staff.[15]

Three studies were reported from India[17, 18, 26], two studies were reported from Nigeria,[19,25] while one study was reported from each of other countries.[4, 15, 16, 20, 23,24] Number of studied banks ranged from 2 to 36 bank branches. Sampling techniques were mostly convenient ones and used self-administered questionnaires. Sample size ranged between 50- 2576. Response rates ranged between 54.5-100% with a median of 71%.[4,15-20, 22, 23-26] Seven Eight studies looked at reported MSDs during last seven days and last 12 months using Nordic questionnaire[4, 15, 18-20, 22, 23, 26] while two three had used questionnaires that were developed

by researchers themselves.[16,17,25] Disability frequency was assessed by four studies[4,18-20], and three assessed the effect of MSDs on psychologic wellbeing using GHQ12.[4, 18, 20]

24 Awaji from Saudi Arabia reviewed 15 studies addressing low back pain prevalence. A high prevalence of low back pain was reported by all reviewed studies, range 53.2% to 79.17%.[27] While most of studies looked at MSDs prevalence for most of joints, the study form Rwanda measured the prevalence of back pain only.[16] All studies looked at MSDs associated factors.

Work related MSDs prevalence among bank employees was found to be between 33.8-83.5%. Low backache was the most frequently reported complaint with a median of 44 (range 17.71%-64.8%) followed by pain of the neck, median 42 (range 11.34-56.6 %).[4,15-20,22,23-26] Disability frequency was reported in different ways. The reported disability prevalence rates were highly variable, between 8.5% and 42%.[4,18-20] MSDs were positively associated with being female, high GHQ12 score, long working hours, computer use, experience, and unhealthy work conditions.[4,15-20,22,23] These reported associations were subject to small sample size effect and possible confounding.

OBJECTIVES

1. To measure the prevalence of self-reported musculoskeletal disorders among bank employees in Buraydah city, KSA.
2. To assess the impact of musculoskeletal disorders on Bankers and their duties.
3. To Explore the associated risk factors with musculoskeletal disorders among them.

SUBJECTS AND METHODS

Study design

Cross-sectional study design.

Study population

Male bank employees in Buraydah city.

Inclusion criteria

Male office workers involved in money transactions jobs, customer services or sales and bank managers.

Exclusion Criteria

Non office workers, those whom work duties were not relying on computers as well as those who were on vacation on the day of data collection and those who has recent fracture or sport injury were excluded from the study.

Study period

1 year (December 1st, 2019 – November 30, 2020).

Sample size

Sample size was calculated using WHO software for sample size determination. At 95% confidence level, 6% precision and an expected prevalence of at least 80% suffered one episode of MSDs during past 12 months[4], the minimum calculated sample size was 171 employees.

Sampling method

Estimating that the number of office workers using computer most of the time in each bank branch was 12-15 employees, we estimated that 15 bank branches are to be surveyed from the total number of 60 bank branches in Buraydah city. We used Google maps application to identify bank branches clusters in Buraydah. A convenient one stage cluster sampling technique was adopted and all bank branches in each cluster were approached for the survey.

Data collection tools: we designed a semi-structured self-administered questionnaire that included socio-demographic information, i.e. age, gender, marital status, and duration of experience in banking services as well as reported weight and height. Information about MSDs was collected using the Arabic version of the standardized Nordic musculoskeletal disorder Questionnaire.[3] We prepared two forms of the questionnaire, a hard printed copy and a Google electronic online one.

Ethical consideration

Ethical approval of the study proposal was obtained from Qassim regional research ethics committee approval number 1459080. The participation in the study was voluntary. Privacy and confidentiality were fully protected as no name or job identifiers were collected.

Field Implementation

We visited 44 bank branches. At each bank branch, we met the branch manager, oriented him about the study and took his permission to distribute the questionnaire to his staff. Two bank managers did not allow us to survey their employees.

At the 42 branches, we met each staff member and asked him to voluntarily participate in the study. A brief explanation about the questionnaire was given to those who agreed to participate. We initially decided to use the Google form only, but as the response rate was low, we shifted to the paper based form. Google form was sent through WhatsApp application while the written copy was directly handed to each participant at his desk. Completed questionnaires were reviewed for completeness and consistency then compiled and organized for data entry. We continued field work until we satisfied our sample size.

Statistical analysis

All forms were entered using Excel for window 10 while analysis was conducted using ‘’Statistical Package for Social Science’’ (SPSS) V25 (Chicago). A descriptive analysis was displayed in the form of means and standard deviation for quantitative data and proportions for qualitative ones. Association between quantitative study variables such as age and years of experience with MSDS were estimated using independent sample t-test or one-way analysis of variance test (ANOVA) to compare means and Kruskal-Wallis test was used to compare medians. For qualitative variables Chi-square or Fisher's exact test were used for comparisons. P-value of < 0.05 was chosen as acceptable level for statistical significance.

RESULTS

We distributed 397 questionnaires at 42 Bank branches in Burydah. Only 175 respondents completed the study questionnaires, giving a response rate of 44%. Age range was 33 years (20-53 years) with a mean of 33.8 SD (5.9) years. All of the participants were Saudi males and majority were married, 70.3%.

Two thirds of participants were customer services staff while the rest were either managers or supervisors. Only one quarter of the participants had banking services experience of 15 years or more. The Median customer number served by each participant per day was 30. Majority (92.6%) had two or more breaks during duty with a total break duration of ≤ 40 minutes for 84% of them (Table 2).

Two thirds of participants were either obese or overweight and only one third of them practiced exercise regularly. Almost half of bank employee (48%) were smokers and about one third of the them reported having at least one chronic disease, predominantly chronic joint pain reported as osteoarthritis (10.3%).

One year reported prevalence of any MSDs of any body part among bank employees was 89.7%. The highest prevalence body part MSDs during last 12 months was of lower back; 66.9% followed by neck 59.4%; shoulder 51.4%; feet 43.4%, and upper back 41.7%. However, the proportion of upper back and shoulder pain combined was 62.9%.

Lower back was also the commonest MSDS related reason for physician or pharmacist consultation during previous 12 months; 21.1%, followed by neck 18.9%. Furthermore, lower back ailment was the most frequently reported body part preventing bank employees from carrying out usual activities, (e.g. job, housework, hobbies), 46.3%, followed by neck 36.6%, shoulder 29.7%, upper back 29.1%, and knees 28.6%. During last 12 months, MSDs lead to absences of 17.2% of participants from their bank duties for periods from 1 to 44 days. However, only 8 employees (4.6%) reported absence due to MSDs for more than 3 days (Table3).

Table 4 and Table 5 show association between selected participant characteristics and MSDs During last 7 days and last 12 months. There were no statistically significant relationships between participant MSDs during last 12 Months nor last 7 days and any of the studied factors.

Table 1: Participants Characteristics, musculoskeletal disorders (MSDs) among bank Employees in Burydah city 2020 (N =175).

Demographic characteristics		**Frequency**	**Valid Percent**
age (N=174)	≤ 30	65	37.4
-	31-40	88	50.6
-	>40	21	12.1
Nationality	Saudi	175	100.0
Gender	Male	175	100.0
Marital status	Married	123	70.3
-	Single	52	29.7
Chronic diseases/ Risk factors			
BMI (N=170)	Normal	55	32.4
-	Overweight	79	46.5
-	Obese	27	15.9
-	Extremely Obese	9	5.3

Exercise	Yes	53	30.3
-	No	122	69.7
Smoking	Yes	84	48.0
-	No	91	52.0
Chronic diseases	Asthma	8	4.6
-	DM	7	4.0
-	HTN	7	4.0
-	OA	18	10.3
-	Others*	11	6.3
-	None	133	76.0
Work characteristics			
Position	Customer service	61	34.9
-	Manager	59	33.7
-	Cashier	48	27.4
-	Public relation	7	4.0
Break frequency	2	162	92.6
	>2	13	7.4
Break duration (minutes)	≤40 min	148	84.6
	>40 min	27	15.4

Table 2: Prevalence of self-reported musculoskeletal disorders (MSDs) by affected body part among bank Employees in Burydah city during the previous week or year and prevalence of disabling disorders with Impact and response of participants 2020 (N =175).

Body parts affected by MSDs	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
	Previous 7 days		Previous 12 months		Previous 12 months Consult Physician or Pharmacist		Disabling attack	
Neck	61	**34.9**	**104**	**59.4**	**33**	**18.9**	**64**	**36.6**
Shoulder	44	**25.1**	**90**	**51.4**	**29**	**16.6**	**52**	**29.7**
Upper Back	43	**24.6**	**73**	**41.7**	**25**	**14.3**	**51**	**29.1**
Elbow	10	**5.7**	**28**	**16.0**	**6**	**3.4**	**14**	**8.0**
Lower back	68	38.9	117	66.9	37	21.1	81	46.3
Hand/ Wrist	12	6.9	47	26.9	11	6.3	36	20.6
Knee	35	20.0	59	33.7	19	10.9	50	28.6
Hip/ Thigh	22	12.6	46	26.3	6	3.4	30	17.1
Feet	38	21.7	76	43.4	21	12.0	45	25.7

Table 3: Relationship between MSDs and characteristics During last 7 days, musculoskeletal disorders (MSDs) among bank Employees in Burydah city 2020 (N =175).

Risk/variable		Any MSDs	No MSDs	OR (95% CI)**	P value
Age group	>40	24 (18%)	7 (17.1%)	0.9 (0.37-2.36)	0.88
	≤ 39	109 (82%)	34 (82.9%)		
Position	Customer Service	43 (32.1%)	18 (43.9%)		
	Manager	44 (32.8%)	15 (36.6%)		
	Puplic Relation	7 (4%)	0		
BMI	Normal	43 (33.1%)	12 (30%)	1.1 (0.53-2.5)	0.71
	Obese	87 (66.9%)	28 (70%)		
Exercise	Yes	41 (30.6%)	12 (29.3%)	1 (0.5-2.3)	0.87
	No	93 (69.4%)	29 (70.7%)		

Table 4: Relationship between MSDs and characteristics During last 12 months, musculoskeletal disorders (MSDs) among bank Employees in Burydah city 2020 (N =175).

Risk/variable		Any MSDs	No MSDs	OR (95%CI)**	P value
Age group	≤ 39	127 (81.4%)	16 (88.9%)	0.54(0.11-2.51)	0.43
	>40	29 (18.6%)	2 (11.1%)		
Marital status	Married	112 (71.3%)	11 (61.1%)	1.5 (0.5-4.34)	0.36
	Single	45(28.7%)	7 (38.9%)		
Position	Cashier	43 (27.4%)	5 (27.8%)		0.82
	Customer service	54 (34.4%)	7 (38.9%)		
	Manager	53 (33.8%)	6 (33.3%)		
	Public relation	7 (4.5%)	0		
BMI	Normal	46(30.3%)	9 (50%)	0.4 (0.16-1.16)	0.05
	Obese	106(69.7%)	9 (50%)		
Exercise	Yes	47 (29.9%)	6 (33.3%)	0.85 (0.3-2.41)	0.76
	No	110 (70.1%)	12 (66.7%)		
Smoking	Yes	75 (47.8%)	9 (50%)	0.9 (0.3-2.42)	0.85
	No	82 (52.2%)	9 (50%)		
Chronic diseases	Other CD	25 (15.9%)	4 (22.2%)		0.39
	No	119 (75.8%)	14 (77.8%)		
	OA	13 (8.3%)	0		
Break frequency	>2	12 (7.6%)	1 (5.6%)	1.4 (0.17-11.5)	0.74
	2	145 (92.4%)	17 (94.4%)		
Break duration (minutes)	≤40 min	134 (85.4%)	14 (77.8%)	1.6 (0.5-5.5)	0.4
	>40 min	23 (14.6%)	4 (22.2%)		
Think to Quit	Yes	49 (31.4%)	4 (22.2%)	1.6 (0.5-5.12)	0.42
	No	107 68.6%)	14 (77.8%)		
Absence	> 2 days	13	8.3%		0.33
	1- 2 days	17	10.8%		
	No absence	127	80.9%		
Median experience		8	8.5		0.77

(years)*					
Median customer number *		30	30		0.84

* Wilcoxon test. ** Mantel-Haenszel.

DISCUSSION

Despite focused field data collection efforts, the response rate was low. This was possibly due to the busy nature of the banking jobs. Employee responses were relatively improved by shifting from online questionnaire to the hard copy one. This was in contrast to what we expected. With the universal use of social media and the feasibility of building and distributing online questionnaires, the interest to participate in online surveys may be negatively affected by the huge number of surveys. Low response rate by bank employees was also attributed to lack of time by one previous study.[20]

Our sample was homogenous in many characteristics; including age, gender, and nationality. We think that it is representative of male bank staff in the kingdom.

Compared to the background community of the similar age range, our sample had similar obesity prevalence but less diabetics and hypertensives while smoking was more frequently reported by our sample.[21] Being diabetic or hypertensive may discourage individuals from applying to a bank job or more frequently quit their banking jobs. Banks may not prefer employees who are suffering from chronic diseases in general.

Musculoskeletal disorders prevalence among our sample was very high, as vast majority of them (almost 9 out of 10) reported a MSDS during last 12 months and 3 out 4 reported one during last 7 days. These rates made our findings the highest among similar studies.[4,15-20,22,23-26]

The highest single MSDS prevalence was of backache. Backache is a highly prevalent ailment among adults[15,24], and of more prevalence among long seated employees.[4,16-20,22,23-26] Bankers were found by other researchers to frequently report backache in 34% - 65%. Similarly, pain at the neck, shoulder, and upper back were frequently documented among computer operators, including bank staff.[4,5,17-20,22,23-26]

Disability, measured by the impact of MSDS on routine activities, was prevalent for most of joints. Although low back was the most affected body part (46.3%), about one in three

respondents reported neck, upper back and shoulder pain. Hand disability was also of noticeable prevalence as about one in five employees reported it. We propose that neck, shoulder, elbow and hand/wrist involvement may be more related to activities peculiar to computer personnel. This, however needs larger studies that compare computer related jobs to computer-free ones.

As our sample had very high prevalence of MSDs; only 30 participants were free of any disorder, any comparison between MSDS reporters and MSDS free individuals is expected to be weak as numbers in each subgroup are small, hindering efforts to assess possible risk factors. This was clearly shown by either failure to find an association or finding a weak one and was further reflected by wide confidence interval and large P-value. It was seen throughout examined risk factors and proposed protective ones. Age, BMI, chronic diseases, or work related factors, e.g. customer number lacked sensible positive association. Similarly, protective factors, e.g. exercise, break frequency, and break duration were quite similar between the two groups. Few previous studies had not found significant association between age and MSDS. The association with age was weak in one study[4] and negative in another one.[22] Longer job tenure was also repeatedly found to be positively associated with MSDs.[4,18-20] While limited or lack of work break was associated with MSDs in two previous studies.[19,23] We could not found any association of significance for these variables.

Contrary to our expectation, advancing age was also not associated with more consultations or absence from work as a result of MSDS.

LIMITATIONS

Our study was limited to male bankers, making extrapolation to female gender employees difficult. We also had a relatively low response rate. Bankers with more suffering may be more likely to respond. On the other hand, participants may not be willing to uncover their ailments due to social or administrative reasons.

MSDs may be more common among employees who are frequent users of their own smart phones or personal computers for purposes not related to bank duties, an issue that was not measured in our study.

CONCLUSION

MSDS is highly prevalent among male bank employees in Buraydah. This finding is likely to be seen throughout banking industry in the kingdom as bank branches are expected to be similar in resources and environment. Most frequently affected reported body part was lower back followed by neck, shoulder, feet and upper back. MSDS prevalence was higher than that reported by previous studies. While previous studies found significant relationships between some risk factors and MSDS, we could not found any.

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