Journal of Pharmacy and Alternative Medicine
ISSN 2222-5668 (Paper) ISSN 2222-4807 (Online)
Vol. 3, No. 3, 2014

Research Article

Prevalence of musculoskeletal disorder and work related associated factor among nurses of Allied and D.H.Q hospital, Faisalabad

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Accepted Date: 11 June 2014

Nurses as compared to any other occupation have the highest intensity of work- related musculoskeletal disorders (WMSD's), however, there were countless researches were done on the nurses worldwide but there is limited information on it prevalence in Faisalabad. This study sought to determine prevalence of musculoskeletal disorders and work related associated factors among nurses of Allied and D.H.Q hospital, Faisalabad.

Validated and Reliable Standardized Nordic Questionnaire was used to collect data from randomly 300 total forms were distributed among the nurses and 220 nurses returned the forms, within which only 100 complete forms were included in the study.

Mean age of respondents was (43.75). On analysis we found that Total 80% nurses have reported work related musculoskeletal pain and discomfort in their occupational life. Highest recorded pain due to work related stresses and awkward postures was headache (64%), followed by lower back pain (47%), shoulder pain (42%), neck pain (39%), knee pain (32%), ankle/foot pain (20%), elbow pain (16%), upper back pain (13%), hip pain (12%), abdominal pain (9%) and chest pain (7%). Association of pain was analyzed with age, workload and work experience of nurses, it was seen that age respond to WMSD's. Most of young nurses (up to 40) had low pain level, while majority of old aged (more than 50) suffered from moderate to severe pain (57.7%). Moreover, nurses with greater work experience had greater ratio of WMSD's most of nurses (47.4%) who had low experience (up to 10) respondents never had pain problem, while majority of the respondents who had more than 20 years working experience had some level of pain. Even though, association between work load and WMSD's pain also shows positive relationship.

It is evident that rate of WMSD's among nurses is very common which is accountable for limitation in performance of their duty efficiently in routine Headache, lower back pain, shoulder pain, neck pain are the most effected body regions whereas knee pain, ankle/foot pain, elbow pain, upper back pain, hip pain, abdominal pain and chest pain are the least affected areas. Work load, job experience and age also contribute to the occurrence of WMSD's.

Keywords: work related musculoskeletal disorders, nurses, Allied and D.H.Q hospital.

1. BACKGROUND

Musculoskeletal disorders (MSD's) at work are a collection of painful disorders of muscles, tendons, joints (Canadian Centre for Occupational Health and Safety, 2014). Which can affect whole body, however upper limb, back and neck are of supreme concern. The evidence suggested that work-related musculoskeletal disorder (WMSD's) results from activities such as exaggerated bending, awkward straightening, excessive turning, crouching and repetitive reaching. These movements are not particularly threatening in activities of daily life; however, repetition of a same task for longer duration makes it more hazardous. The factors such as force and speed of movement and the lack of recovery time between them are also known to contribute (Schneider and Irastorza, 2010).

Anap, Iyer, and Rao (2013) reported nurses are considered to be more prone to the occurrence of WMSD's as compare to any other occupation. Furthermore, Wiitavaara, Barnekow-Bergkvist and

Brulin (2007) stated that WMSD's are the main cause of the larger number of long-standing sick leave and early retirements among medical staff. Many psychosocial factors such as low control, high demand, lack of social support and personal characteristics like age, gander, and body mass index that may also predispose to WMSD's (Lorusso, Bruno and L abate, 2007).

According to Tinubu and Mbada, et al. (2010) in their research they reported that results of their study indicated 84.4% of nurses have had WMSD's at least one or more than once in the life due to workload. The incidence rate of 12 months and the occurrence of WMSD's in anybody region is found to be 78% and about 66.1%. WMSD's affect mostly the lower back region (44.1%), neck area (28%) besides knee joints (22.4%).

In early research on Greek nurses Alexopoulos and Burdorf, et al. (2003) concluded that extensive dealing with physical loads make them prone to risk for MSD's. These problems gradually progressed into chronic ones resulting into sick leaves; however, during evaluation of WMSD's physical fitness must also be evaluated. Alexopoulos and Burdorf, et al. (2006) then conducted a comparison between Greek and Dutch nurses and reported that Greek nurses suffers more from back pain in the last 12 months (75 versus 62%) than the Dutch workers, but chronicity of the pain (11 versus 12%) and absence from work is about (17 versus 15%) .

Barbini and Squadroni (2003) worked to figure out the organizational characteristics that results in WMSD's they reported that pain that effect the most nurses is back then upper limbs and the least to be reported lower limb that are less involved (81%, 39% and 54%) respectively and more than 50% of the nurses reported pain in 2 regions at a time. There was also a theory that these pains are the effect of ageing in the nurses as theses pains starts before the age of 40 in some cases. As par conducted ergonomic analysis it states that people who were connected with health care or caregiving fields had to obtain some awkward postures such as stoop postures, bend forward coupling with twisted trunk suffers more from WMSD's, as longer durations of times more than 5 hours consecutively that is the biggest risk factor to trigger WMSD's.

2. METHODOLOGY

Total 300 consent forms were distributed among nurses working in DHQ and AHF during day time shift in respective Hospitals. Nurses working during day time shift were selected because that time was considered as heavy workload hours of the Hospital. 220 nurses than returned the forms, from which 88 forms received were incomplete and hence discarded for the study.

Furthermore, from 140 forms only 100 forms fulfill the eligibility on the basis of inclusion and exclusion criteria are then included in the study. Cross-sectional survey was conducted and non-experimental sampling technique was used to collect data and our research was Quantitative.

Modified Nordic questionnaire of musculoskeletal symptoms and Nordic job demand questionnaire was used for the examination of the WMSD's in selected participants. It includes questions related to sign and symptoms of pain in 9 regions of the body. From upper limb it includes shoulder, elbow, and hand. From Lower limb it includes hip, knee, foot/ ankle. Other than that neck, upper back, lower back, chest and abdomen is also include in the questionnaire.

Nordic questionnaire of musculoskeletal symptoms: This questionnaire give reliable information on MSD's and provides in-depth hits for preventive measures (Kuorinka, et al., 1987).

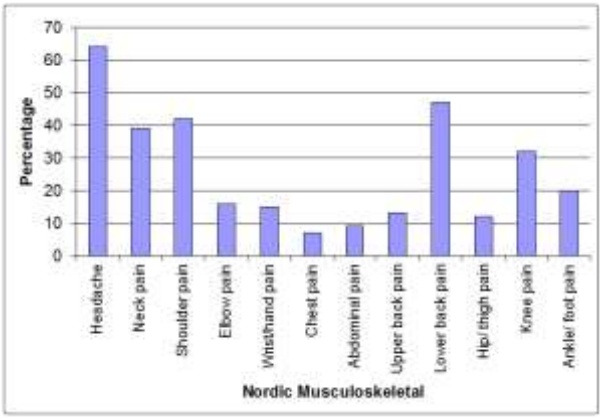
Nordic job demand questionnaire: The measurement of psychological and social factors at work may use for the assessment and improvement of health and safety, organization climate, quality as well as management (Wännström, 2009).

After collecting the data from participants, for the purpose of statistical analysis we compiled data and were shifted to the computer on software that is SPSS 16.

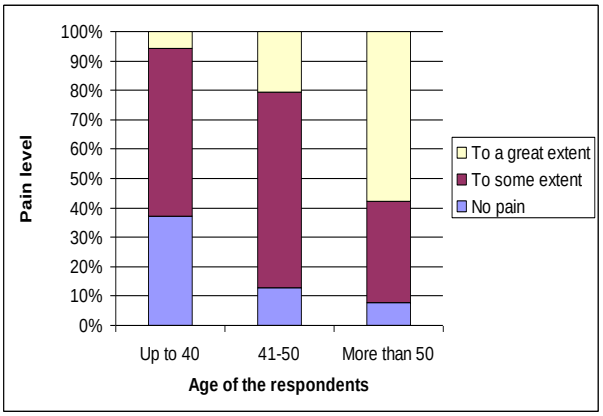
Method used in this study is descriptive statistics. Descriptive statistics mainly deals with mean, standard deviation, percentage and ranking. Pearson's Chi-square was also helpful in analyzing the association between WMSD's with work experience and physical demands at job.

3. RESULTS

Highest recorded pain due to work related stresses and awkward postures is headache 64%, followed by lower back pain (47%), shoulder pain (42%), neck pain (39%), knee pain (32%), ankle/foot pain (20%), elbow pain (16%), upper back pain (13%), hip pain (12%), abdominal pain (9%) and chest pain (7%)



Graph 1: Graphical representation of pain recorded



Graph 2: Association between age of the nurses and their pain level

Table 1: Nurses age with their pain level.

Age of the respondents	Pain level			Total
	No pain	To some extent	To a great extent	
Up to 40	13	20	2	35
	37.1%	57.1%	5.7%	100.0%
41-50	5	26	8	39
	12.8%	66.7%	20.5%	100.0%
More than 50	2	9	15	26
	7.7%	34.6%	57.7%	100.0%
Total	20	55	25	100
	20.0%	55.0%	25.0%	100.0%

Chi-square = 27.71 d.f. = 4 P-value = .000** Gamma = .651 ** = Highly significant.

This table shows that age of nurses is associated to their pain level Chi-square value (27.71) shows that a highly significant association between age of nurses and their pain level. Gamma value shows a strong positive relationship between the variables. It means most of young (up to 40) nurses had low pain level, while majority (57.7%) of old aged (more than 50) had to a great extent pain level.

Table 2: The pain level is associated with job experience.

Job experience (in years)	Pain level			Total
	No pain	To some extent	To a great extent	
Up to 10	9	6		
	47.4%	31.6%	2	35
11-20	6	25	5.7%	100.0%
	16.7%		8	39
More than 20	5	24	20.5%	100.0%
	11.1%	53.3%	15	26
Total	20	55	57.7%	100.0%
	20.0%	55.0%	25	100

Chi-square = 15.96 d.f. = 4 P-value = .003** Gamma = .507 ** = Highly significant

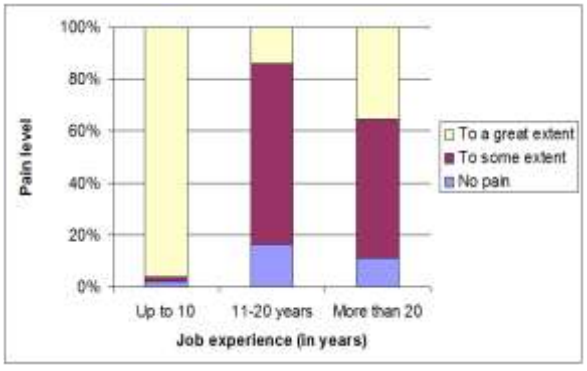
This table represents the job experience of the nurses and their pain exacerbations. Chi-square value (15.96) shows that a highly significant association between job experience of nurses and their pain level. Gamma value shows a strong positive relationship between the variables. It means most of nurses (47.4%) who had low experience (up to 10) nurses never had pain problem, while majority of the nurses who had more than 20 years working experience had to some extent and to a great extent pain level.

Table 3: The pain level is associated with job experience.

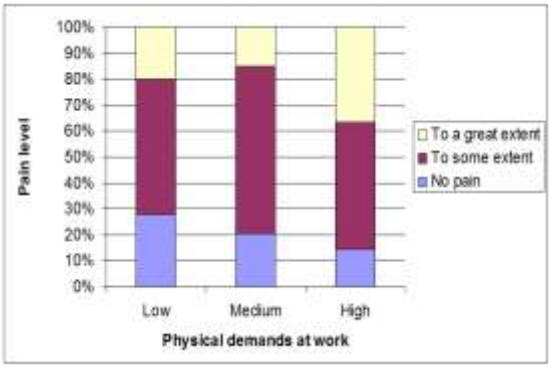
Physical demands at work	Pain level			Total
	No pain	To some extent	To a great extent	
Low	7	13	5	25
	28.0%	52.0%	20.0%	100.0%
Medium	6	20	15	41
	14.6%	48.8%	36.6%	100.0%
High	20	55	25	100
	20.0%	55.0%	25.0%	100.0%
Total	7	13	5	25
	28.0%	52.0%	20.0%	100.0%

Chi-square = 23.37 d.f. = 4 P-value = .000 Gamma = .527 ** = Highly significant

This table shows association between physical demands at work of the nurses and their pain level. Chi-square value (23.37) shows that a highly significant association between physical demands at work of the nurses and their pain level. Gamma value shows a strong positive relationship between the variables. It means more physical demands at work caused of pain problem among the nurses. Table shows that if the respondents had low level physical demand then 28.0 percent of them had no pain, 52.0 percent of them had to some extent pain and 20.0 percent of them had to a great extent pain level. Whereas if nurses had high physical demands at work then they had no pain (14.6%), to some extent pain (48.8%) and to a great extent pain level (36.6%).



Graph 3: Association between age of the nurses and their pain level



Graph 4: Association between physical demand at work of the nurses and their pain level

4. DISCUSSION

According to this study nurses experience the highest degree pain is the existence of headache whose mainly triggering factor is stress which is responsible for primary headache in workplace

This research determined that 64% of nurses

suffered from headache problem. Factors that contribute to high prevalence of work induced headache were environmental factors such that noise in busy government Hospitals, work station stress due to increase workload and limited nursing staff. This result was supported by another study conducted among nursing staff in Taiwan by Lin, Huang and Wu (2007) which described association between stresses at work or primary headache among nurses, in previous year (49.6%) nurses experienced primary headaches whereas (48.1%) experienced episodic type headache in more than 15 days or in a month. The second highest recorded pain is back pain which is LBP (47%). Similar study was conducted by Coggan, et al. (1994), also reported prevalence of back pain was 74.4%. Prevalence of shoulder pain according to our study was (42%) ranks the third highest pain in nurses and then the neck pain was (39%) Luime, et al. (2005) observed rate of incidence of neck and shoulder pain is 16% - 18% in 1 year. Most of young (up to 40) nurses had low pain level. Whereas, nurses who have old age more than 50 had a great extent of pain. According to Andersson, et al. (1993) Prevalence of pain increased by age up to 50-59. Munabi, et al. (2004) reported age is also a factor that accounts for MSD's among nurses and odds for MSD's increases 3% yearly. Physical demands at work cause pain problem among nurses. Engels, et al. (1996) reported questionnaire survey shows that nurses who suffer from WMSD's, their work were physically strenuous. Our research study shows that more the experience greater the complaint of WMSD's. One study by Engels, et al. (1994) on assessment of physical work load in staff nurses study from three nursing homes in the Netherlands the same results. It is concluded that (20%) of the perceived time was passed in working in poor postures resulting WMSD's.

5. Conclusion

It is evident that rate of WMSD's among nurses is very common which is accountable for limitation in performance of their duty efficiently in routine. The problem is related to extended schedules, excessive work load, unfavorable work environment, limited working staff of nurses at government Hospitals. This study concluded Headache, lower back pain, shoulder pain, neck pain are the most effected body regions whereas knee pain, ankle/foot pain, elbow pain , upper back pain, hip pain , abdominal pain and chest pain are the least affected areas.

Recommendations

This study can be used to on government level to evaluate the fitness status of nurses. It will further help the new researchers to conduct new and advance studies. Postural education should provide to nurses by encouraging short breaks. Proper screening programs should be conducted on risk factors of musculoskeletal pain in nurses and prevention, early diagnosis, treatment, rehabilitation and counseling is necessary. Further assessment is also needed to find out contributing factors and steps must be taken to prevent prevalence rate.

Limitations of study

Nurses mostly hide their symptoms and complained of shortage of time to fill the Performa. They are hesitant to sign on consent form in thinking of that we are taking sign to any confidential document. Even some of them of Faisalabad and didn't collect data to others Hospitals of Faisalabad due short span of time. This result is in small sample size and that small sample was not representative of whole population of nurses of Pakistan. But it provides us the estimated WMSD's suffered by nurses are reluctant for fill the Performa. Due to shortage of time we only cover two Government Hospitals

Conflict of Interests

Authors declared no competitive interests for the presented work.

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