IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Prevalence of Musculoskeletal disorders in Nurses.

Dr. Deepti Chandrasheel Thokal, Dr. Shyam Devidas Ganvir

Associate Professor, Principal cum Professor

Dr. Vithalrao Vikhe Patil Foundations College of Physiotherapy. Ahmednagar. Maharashtra. India

ABSTRACT

Aims: To study prevalence of Musculoskeletal disorders in Nurses in D.V.V. P.F'S Hospital and Civil Hospital, Ahmednagar, Maharashtra.

Objectives: 1) To find out acute and chronic incidences of musculoskeletal disorders. 2) To find out most common Musculoskeletal disorders in Nurses.

Background: Musculoskeletal disorders refers to more than 200 conditions that affect joints, ligaments, muscles, tendons, peripheral nerves and blood vessels causing ache, pain and functional impairment .The prevalence of these work related disorders is increased by work volume, work hours per week and job experiences .Risk factors are known to include work place activities such as heavy lifting and repetitive tasks.

Study Design: Observational Study **Study Setup:** P.D.V.V.F'S Hospital and Civil Hospital, Ahmednagar. **Sample size:** 100 Samples **Sampling techniques:** Simple Random Sampling

Procedure: The Ethical Committee approval for study was obtained from the institution. The subjects were selected based on inclusion and exclusion criteria by simple random sample method. The consent form was signed by each subject in the study. After that interview of each subject was taken based on the pre-structured occupational Proforma. Nordic Questionnaire was used to find out the musculoskeletal disorders in nurses and the area of pain was marked on the body chart.

Result: Acute cases were higher in lower back (36%) followed by upper back (32%) and neck (17%) & Chronic cases were higher in lower back (31%) followed by upper back (28%) and neck (19%).Subjects having work experience of 1-10 years have higher

percentage of acute Upper and Lower back WMSD's as compared with subjects having work experience of 31-40 years.

Conclusion: This study shows that incidences of low back pain & upper back pain are higher in nurses.

INTRODUCTION

Work Related Musculoskeletal disorders(WMSDs) refers to more than 200 conditions that affect joints, ligaments, muscles, tendons, peripheral nerves and blood vessels causing ache, pain and functional impairment[(1).] Musculoskeletal disorders are the leading causes of occupational injuries, disability and absenteeism. The prevalence of these disorders is increased by work volume, work hours per week and job experiences [(2)].

Risk factors are known to include work place activities such as heavy lifting and repetitive tasks[(3)].Because of the requirements of nursing job, hospital nurses form an occupational group regularly affected by these disorders[(4,5)].Bending ,twisting, sudden movement in non neutral postures and manual handling are common in it. Other include performing same task over and over, working in awkward positions, lifting or transferring dependent patients etc

Epidemiological studies have shown that hospital nursing is a high risk occupation for developing work related disorders[(6,7)].Nursing has been recognized as a physically demanding occupation[(8,9)].Concerning physical workload, the nursing has profession ranks second after industrial work[(10)].

Nursing workers develop their hospital institutions and continuously demanding constant attention, physical effort, inadequate positions, and repetitive movements which predispose them to the risk of work related diseases [(11)].

Nursing professionals work is stressful due to heavy emotional burden deriving from nurse-patient relationship, physical requirements, shortage of workers, extended shifts, and inadequate work conditions, limited decision making power[(11)].Work is hard and repetitive and can provoke irreversible physical injuries[(12)].

Nurses are to nurse the patients. When they themselves are patients who will care the patients? MSDs ache and functional impairment make them unable to do their duty as they should do with all their heart and mind. If we want them to be patient and also enthusiastic, more attention should be given to their physical and mental fitness. And it will happen only when the causes of 'MSD' should be removed.

Because nurses are already at risk for musculoskeletal disorders, a reduction in professional nursing staff and other changes in nursing care delivery are likely to lead to even higher rates of these disorders [13].

REVIEW OF LITERATURE

1) KR Shafiezadeh[14] et al 2010:

They reported prevalence of musculoskeletal disorders was very high in the paramedics so that more than 90% of them reported at least one disorder in last week .The most prevalent site affected was that of neck (64%) followed by head (62.1%), knees(54.7%)and wrists(49.7%).

2) Wijnhoven,Hanneke[15] A. et al:

The results of their study showed prevalence rates of work related musculoskeletal pain were higher for women than for men in the Dutch population aged 25 to 64 years.

3) Bolanle Tinubu[16] et al:

They studied work related musculoskeletal disorders among nurses in Ibadan, South west Nigeria. This study sought to determine the lifetime , 12 months period and point prevalence of work related musculoskeletal disorders.The associated job risk factors and the coping strategies towards reducing the risk among Nurses from selected hospitals in Ibadan,South West Nigeria 84.4% of the Nurses have had WMSDs once or more in their occupational lives .The 12 months period and point prevalence rate of WMSDs at any region was 78% and 66.1% respectively.WMSDs occurred mostly in low back(44.1%), neck(28.0%),knees(22.4%).30.3% treated them self or had visited other health practitioners for care.

4)Harcombe H[17] et al:

They studied the prevalence , characteristics and impact of musculoskeletal disorders in New Zealand nurses. The response rate of potentially eligible participants was 58%. Participants were aged 20-59 years , 86% were female.

Over the 12 months prior to the survey 88% of respondents had atleast 1MSD lasting longer than a day and 72% reported and MSD present for atleast 7 days.Of the 1003 MSDS reported ,18% required time off work and 24% required modified work and home duties. The high prevalence of Musculoskeletal disorders among these workers indicated that they were indeed in at risk occupation.

5) Azize Karahan et al:

They reported that hospital workers experience more low back pain than many other group of workers. Work activities involving bending, twisting, frequent heavy lifting, awkward static posture are regarded as causes for many back injuries. The highest prevalence was reported by nurses (77.1%) and lowest among secretaries (54.1%) and hospital aids(53.5%). In majority of cases (78.3%),low back pain began after respondents started working in hospital 33.3% of respondents seeking medical care for moderate low back pain while 53.8%(n=143) had been diagnosed with herniated lumbar disc. Age, female gender, smoking, occupation, perceived work stress and heavy lifting were statistically significant risk factors when multivariate logistic regression techniques were conducted ($P<0.05$).

6) Shoko Ando &et al:

The prevalence of musculoskeletal symptoms among hospital nurses was higher in their study than in previous studies. The rate ratios for low back pain tended to be relatively higher for accepting emergency patients and some actual tasks some items of self estimated risk factors for fatigue tended to have relatively higher rate ratios for low back pain and neck, shoulder and arm pain.

MATERIALS AND METHODOLOGY

Study design: Observational study.

Study set up: D.V.V.P.F'S Hospital and Civil Hospital Ahmednagar.

Study duration: Oct. 2012- Jan. 2013

Sample size:100 subjects

Sampling technique: Simple random sampling

Materials used:

1) Measuring tape
2) Weighing machine
3) Pre-structured occupational proforma
4) Nordic pain Questionnaire

Inclusion Criteria:

1) Both Male and Female nurses.
2) Age group between 20 to 60 years.

Exclusion Criteria:

1) Any previous musculoskeletal disorders due to trauma.
2) Any systemic disorder like Rheumatoid Arthritis, Ankylosing Spondylitis etc.

Methodology:

Procedure: The Ethical Committee approval for the study was obtained from the institution. The subjects were selected based on inclusion and exclusion criteria by simple random sampling method. The consent form was signed by each subject in the study. After that interview of each subject was taken based on pre-structured occupational proforma.

Nordic pain Questionnaire was used to find out the musculoskeletal disorders in nurses and the area of pain was marked on the body chart. It consists of 25 questions referring to nine body areas. These are 3 Upper limb segments (Shoulders, Elbows, Wrist/hand/thumb), 3 Lower limb segments (Hips/thighs, Knees, Ankles/feet) and 3 trunk segments(Neck, Upper back and Lower back).

1.Weight:

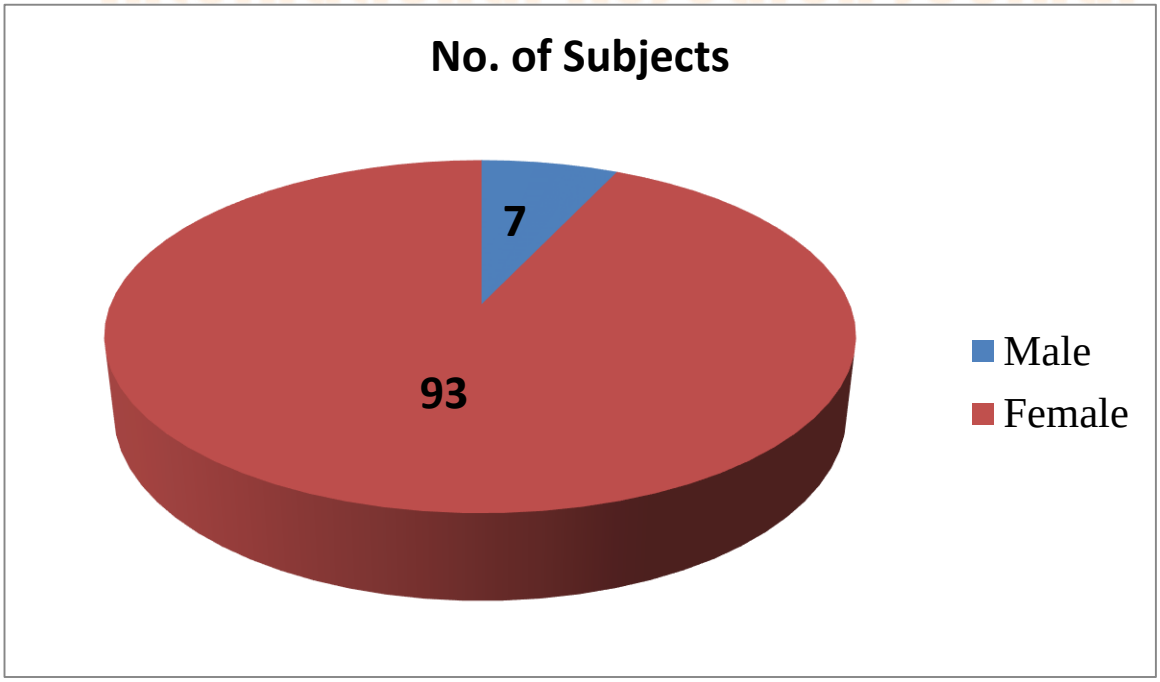
2.Height:

3.Patient Handling:

DATA ANALYSIS AND GRAPHICAL PRESENTATION

Table 1: Shows total no. of male and female nurses

	Males	Females	Total
No. of subjects	**7**	93	100



Graph no.1: Shows total no. of male and female nurses

Table 2: Subject wise distribution of obesity grades according to BMI.

Grades of Obesity	Underweight	Normal	Overweight	Obese	Total
Number of Subjects	**6**	**88**	**4**	**2**	**100**

Graph no2: Subject wise distribution of obesity grades according to BMI.

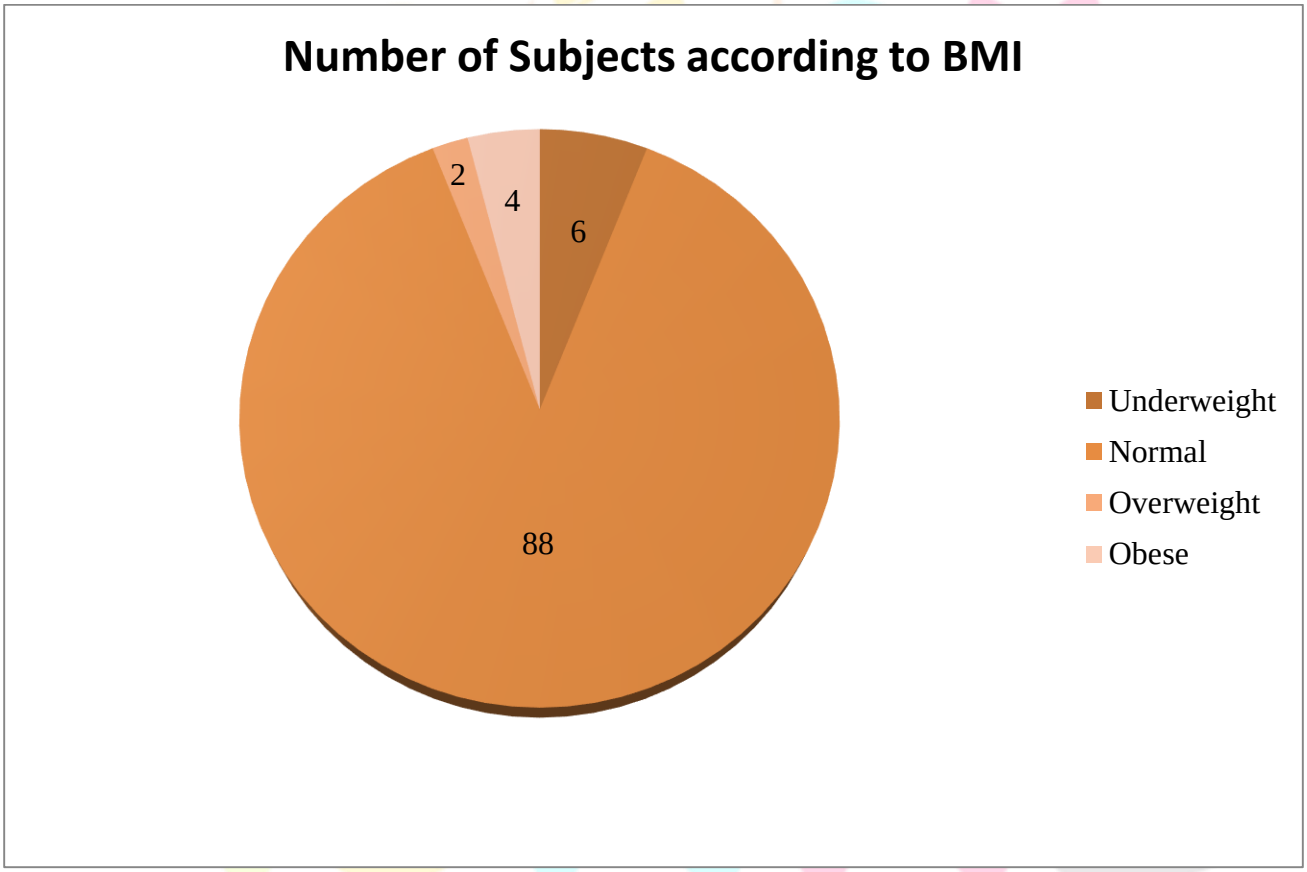


Table 3:Number of subjects as per Acute and Chronic WMSDs in nurses.

Body Parts	Neck	Shoulders	Elbows	Wrist	Upperback	Lowerback	Hips	Knees	Ankles
Acute	8	4	0	1	15	17	2	0	0
Chronic	28	16	2	5	43	47	2	8	0

Graph no3:Comparison of Acute and Chronic WMSD's among nurses.

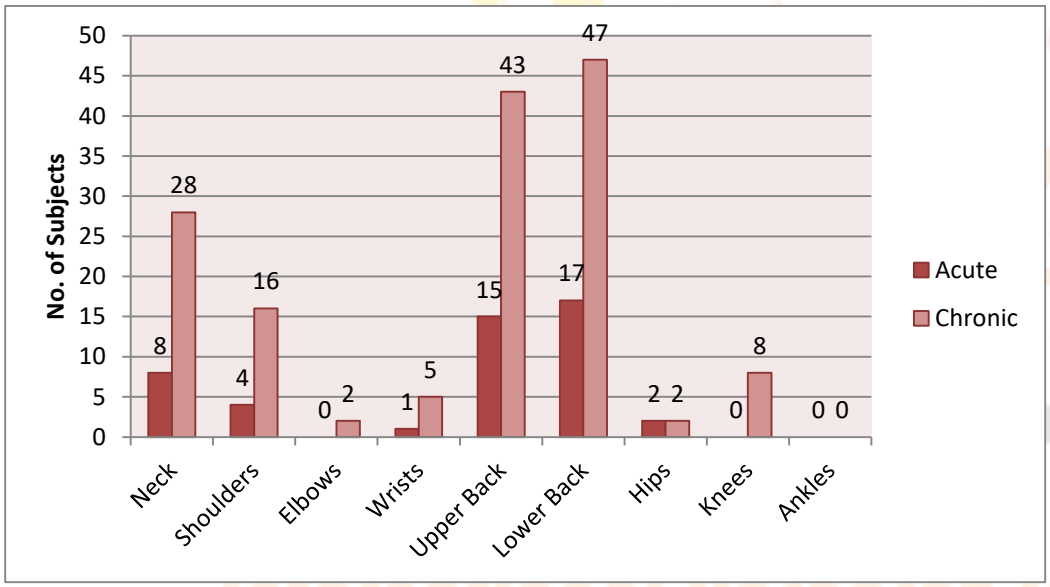


Table 4: Distribution of subjects depending on duration of work experience.

Work experience(Yrs)	No. of subjects
1-10	31
11-20	26
21-30	40
31-40	03
Total	100

Graph no 4: Distribution of subjects depending on duration of work experience.

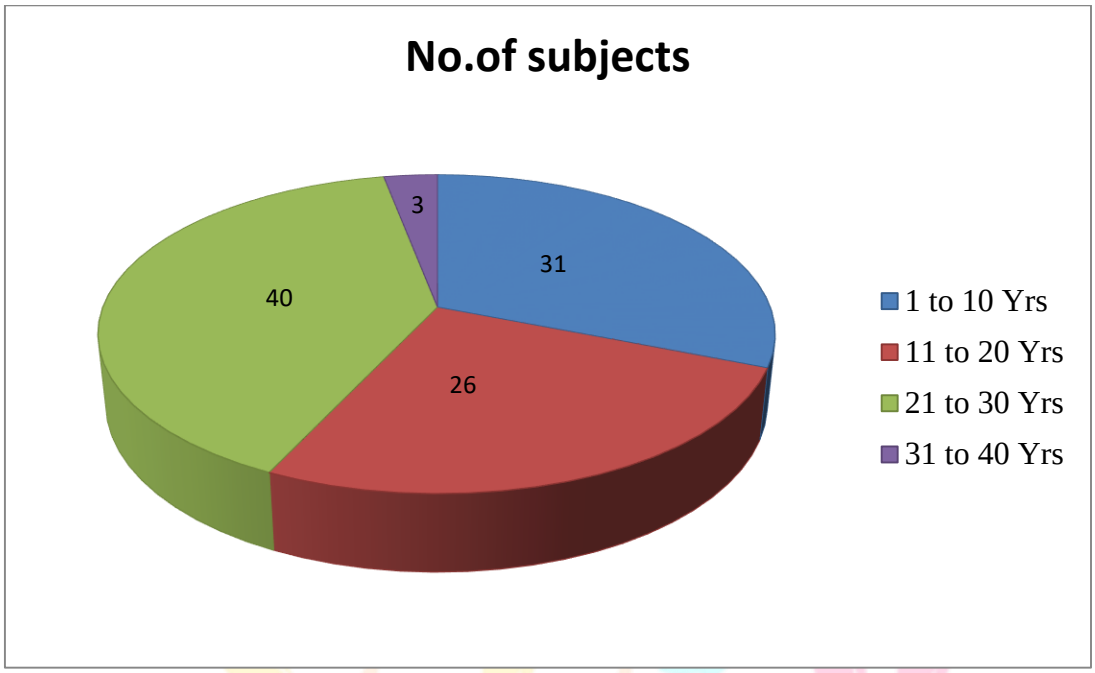
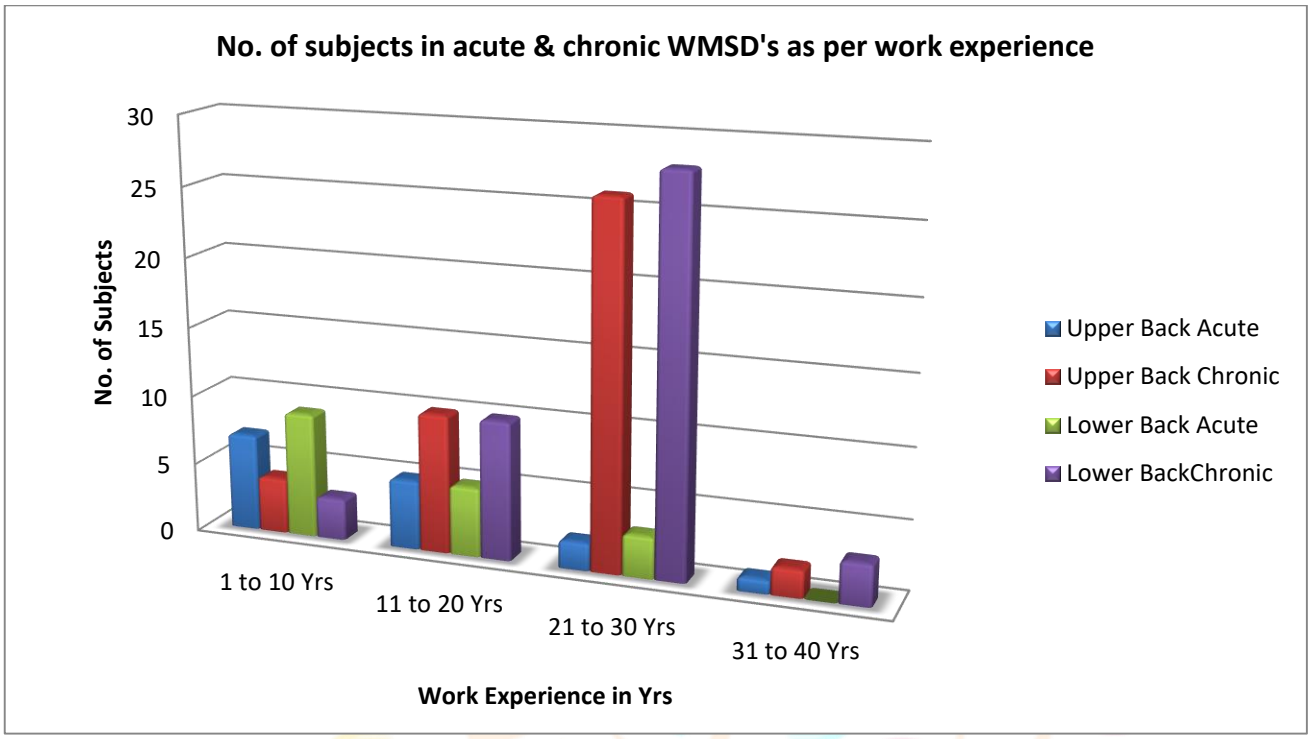


Table no 5: Total no. of Subjects with most common MSDs according to duration of work experience.

Duration of experience	Upper Back		Lower Back	
	Acute	Chronic	Acute	Chronic
1-10 Yrs	7	4	9	3
11-20Yrs	5	10	5	10
21-30Yrs	2	26	3	28
31-40Yrs	1	2	0	3

Graph no 5: Total no. of Subjects with most common MSDs according to duration of work experience.


No. of subjects in acute & chronic WMSD's as per work experience
30
25
20
15
10
5
0
No. of Subjects
1 to 10 Yrs
11 to 20 Yrs
21 to 30 Yrs
31 to 40 Yrs
Work Experience in Yrs
Upper Back Acute
Upper Back Chronic
Lower Back Acute
Lower BackChronic

RESULTS

Table 1&Graph no1: Shows 93 female nurses and 7 male nurses out of 100 subjects.

Table 2&Graph no.2: : Shows distribution of obesity grades according to BMI in which 88% Normal, 6% Underweight, 4% Overweight, 2%Obese.

Table 3 & Graph no.3: Shows acute & chronic cases of WMSDs in nurses in which acute cases were higher in Lower back (36%), followed by Upper back (32%), Neck (17%), Shoulders (9%) and lowest in Hips (4%). Whereas in chronic cases were higher in Lower back (31%), Upper back (28%), Neck (19%), Shoulders (11%), Knees (5%), Wrists (3%), and lowest in Hips (1%) and Elbows (1%).

Table 4 & Graph no.4: Shows distribution of subjects according to duration of work experience in which 21-30 yrs experience nurses are 40 in number whereas 31-40 yrs experience has only 3 nurses.

Table 5 & Graph no. 5: Shows the direct relationship between duration of work experience and number of acute & chronic cases of Upper and Lower back WMSDs. Subjects having work experience of 1-10 years have higher percentage of acute upper back and lower back WMSD cases as compared to nurses having 31-40 yrs work experience. Whereas subjects having work experience of 31-40 years have more percentage of chronic upper back and lower back cases as compared to subjects having work experience of 1-10 years.

CONCLUSION

This study shows that the incidences of low back and upper back pain are higher in nurses.There was direct relationship found between duration of work experience and increase in WMSD's. And as the duration of work experience increases there was increase in WMSD's in nurses, particularly of chronic disorders.

DISCUSSION

❖ The purpose of our study is to find out the prevalence of WMSDs in nurses. For this the subjects were selected based on simple random sampling method and were asked questions according to Prestructured Occupational Proforma and Nordic Pain Questionnaire.

❖ This study shows that prevalence of low back pain (36%) is higher followed by upper back pain (32%) & neck pain (17%) in nurses. In accordance with this study Bolanle MS Tinubu et al reported work related musculoskeletal disorders among nurses in Ibadan, South West Nigeria is mostly in low back (44.1%). Whereas study done by KR Shafiezadeh et al[14] in South Western Iran 2010 shows that the most prevalent site affected was neck (64%) followed by knees (54.7%).

❖ The possible reason for most common prevalence of low back and upper back pain in nurses in this study could be associated with occupational risk factors such as performing same task over and over, working in awkward and cramped positions, bending or twisting back in an awkward position, carrying , lifting or moving heavy material or equipment which involve mostly upper and lower back.

❖ For musculoskeletal pain in any location nurses reported chronic complaints more than the acute ones. More predominance was found in lower back and upper back pain in both acute and chronic conditions according to the duration of work experience.

❖ There was direct relationship found between the duration of work experience and percentage of acute and chronic cases among nurses. In 1-10yrs.experience group% of acute cases are more than chronic cases whereas in 31-40 yrs .work experience % of chronic cases are more than acute.

LIMITATIONS

1. Small Sample Size.

2. Specific statistical test was not used in this study.

REFERENCES

1) Punnet L etal: WRMSD'S, the epidemiologic evidence and debate: J Electomyogr , Kinesol 2004,14:13-23.

2) Fabunmi AA etal: Prevalence of MSD'S among nurses in University college hospital, Ibadan: West African Journal of Nursing, 2008,19:21-25.

3) Bernard B Editor etal: MSD'S and work place factors: International Journal of Occupational safety and ergonomics, 2006,12:409-416.

4) Smith Dr etal: MSD'S self reported by female nursing students in central Japan: Jounal of Nursing students,2003,40:725-729.

5) Engkvist etal:Interview protocols and ergonomics checklist for analyzing over back accidents among nurses ,1995,26:213-220.

6) Larese etal: MSD'S in hospital nurses:A comparison between two hospitals :Ergonomics, 1994:37,1205-1211.

7) Smedley etal: Manual handling activities and risk of low back pain in nurses:Occupation Environmental Journal,1995:52:160-163.

8) Trinkoff AM etal: Perceived physical demands and reported musculoskeletal problems: Am Journal,2003,24:270-275.

9) Hignett S etal: Proceedings of ergonomics society 's :1994: Annual Conference London 1994,255-258.

10) Engels JA et al: Analysis of Nurses working postures, Ergonomics ,1994,37:909-919.

11) Magnano TS et al: Revised Enferm UER,J 2009,17,118-123.

12) Rosa AF et al: Act Sci health, 2008 :30,19-25.

13) Lipscomb J,Trinkoff et al: Health care system changes & repeated

Musculoskeletal disorders among registered nurses :Am J Public health 2004,94:143

14) Prevalence of Musculoskeletal Disorders among Paramedics working in Ahwaz, Southwestern Iran,volume2 number3;July,2011.

15)Prevalence of Musculoskeletal Disorders is systemically higher in women than men ,Clinical Jounal of pain:October2006-vol22;8:717-724.

16)BMC Musculoskeletal Disorders 2010,11:12,1471-2474.

17) Prevalence and impact of musculoskeletal disorders in New Zealand nurses, Australian New Zealand Journal of Public Health,2009 October;33(5):437-41.

APPENDIX - I

PRESTRUCTURED OCCUPATIONAL PROFORMA:

1) Where do you work?
2) How long have you been working here?
3) What was your age at your first employment?
4) Total working hours per day?
5) Type of shift- Periodical/General/Night shift.
6) What are the steps for each task that you do? ----------

RISK FACTORS:

1) Performing same task over and over.
2) Performing nursing techniques (back care , bed making etc).
3) Not enough rest breaks or pauses during work day.
4) Working in awkward and cramped positions.
5) Working in same positions for long period(standing, bend over, kneeling)
6) Bending or twisting back in an awkward way.
7) Continuing to work while injured or hurt.
8) Lifting or transferring dependent patients.
9) Carrying, lifting or moving heavy materials or equipments (for example suction machine ,trolley etc.)
10) Work scheduling (overtime, irregular shifts, length of work day)
11) Body Mass Index (BMI) = Weight(kg)/Height^2(m).