



Research Article – Physiotherapy

Prevalence of shoulder pain in petrol pump workers

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Abstract

Shoulder pain (SP) is the most common problem in workers exposed to repetitive shoulder activity in their occupation. The petrol pump workers, who have repetitive activities of shoulder joint by picking and keeping the nozzle at petrol pump station. This repetitive activity increases the demand on the muscles, ligaments, soft tissues of musculoskeletal system. This activity is carried out in standing posture. So the purpose of the present study is to know the prevalence of shoulder pain in petrol pump workers. So, the aim of the present study the prevalence of shoulder pain in petrol pump workers. A Observational –Cross sectional study done on 100 Petrol Pump Workers selected randomly with the job profile of filling the fuel with nozzle in vehicles 20 – 40 years of age working since > 6months, without any shoulder injury, trauma and neurological musculoskeletal problem. Questionnaire was prepared and validated. Non Parametric Test Were Applied. In this study only 49% Petrol Pump Workers people had shoulder pain where as 51% did not shoulder pain had. The study shows that Petrol Pump workers ageing from 31 – 40 years who have experience of profession more than 5 years often suffer from shoulder pain which may be associated with repetitive activity of shoulder and faulty posture while working.

Key words: Shoulder pain, Petrol pump worker, Repetitive activities

Introduction

Shoulder pain (SP) is the most common problem in workers exposed to repetitive shoulder activity in their occupation.¹ People at high risk for shoulder pain include those working as cashiers, garment workers, welders, and bricklayers and those who work with pneumatic tools or in the meat industry. Hairdressers, plasterers, assembly workers, packers, and people who work for long hours at computers, such as secretaries and programmers, are also at high risk.¹ Van der Windt (2000) occupational risks for shoulder pain; risks were divided into physical factors (such as carrying or lifting heavy loads, working in awkward postures, engaging in repetitive movements, and being exposed to vibrations) and psychosocial factors related to work. Working in awkward postures and

performing similar work for a prolonged period were also associated with shoulder pain in most studies but mainly in those studies that received low scores for their methodology²

Several reviews indicate the risk factors including working with arms above shoulder level and other awkward postures (e.g. with trunk flexed laterally), hand-arm vibrations, repetitive movements, pushing and pulling, and carrying loads supported by shoulder.³ Poorly designed work place promotes unnecessary physical efforts which reduce efficiency and productivity as well. Prevalence of shoulder pain for those exposed to repetitive work was 28.9 %.⁴

An interaction between one work demand factor, perceived competition, and one control factor, control over time, so that only the combination of low control and high demands was associated with an increased prevalence of neck symptoms and high job demands lead to increased muscle tone, whereas control over time makes it possible to distribute the demands over the work time and

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thereby introduce rest periods that counteract ill effects. Lack of social support only seemed to play a part for back disorders.⁵

SP or specific disorders such as rotator cuff syndrome and shoulder tendinitis are especially frequent among workers in the following industries: clothing,⁶⁻⁸ slaughtering and food processing,^{9,10} fish processing,¹¹ repetitive assembly line work,^{2,12} and among supermarkets cashiers.¹³ It is an important burden, with high costs in several countries.^{14,15}

There have been few studies on shoulder disorders. Moreover, shoulder and neck disorders are not always distinguished, although their risk factors may differ. A recent review of occupational risk factors for SP included 29 studies. Three were case-control studies, and none had a longitudinal design.¹⁶ The prevalence, based on clinical examination, was 28.9% among those exposed to repetitive work, significantly higher than in the unexposed group (16%). The objective of the present study was to examine the productiveness of personal and occupational factors for the onset of SP.

One of them are the petrol pump workers, who have repetitive activities of shoulder joint by picking and keeping the nozzle at petrol pump station. This repetitive activity increases the demand on the muscles, ligaments, soft tissues of musculoskeletal system. This activity is carried out in standing posture. So the purpose of the present study is to know the prevalence of shoulder pain in petrol pump workers.

Need of study

The number of epidemiological studies reporting on potential risk factors for shoulder pain has greatly increased in the past decade. Work related factors are assumed to play an important part in the development of shoulder pain and many studies have been conducted in various occupational settings. An elegantly conducted meta-analysis published in 1991 summarized the results of workplace ergonomic risk factors for neck and upper limb pain. The cause of shoulder pain has been considered in several reviews, but no studies have been performed in petrol pump workers' population, so the needs of the above study.

Methodology

A Observational –Cross sectional study done on 100 Petrol Pump Workers selected randomly

with the job profile of filling the fuel with nozzle in vehicles 20 – 40 years of age working since > 6 months, without any shoulder injury, trauma and neurological musculoskeletal problem. Ethical approval taken from the ethical committee Questionnaire was prepared and validated. The subjects fulfilling the inclusion and exclusion criteria of the survey will be selected and a written consent of the participants was taken. Detailed information about the project will be explained to the participants and personally interviewed. Questionnaire was filled and data analysis was done.

Statistics and data analysis

Non Parametric Test Were Applied.

100 petrol pump workers with a mean age of 30 ± 5.47 years.



Fig. 1. Years of experience in profession

The above graph shows that maximum i.e. 62% Petrol Pump Workers having experience of more than 5 years of working.

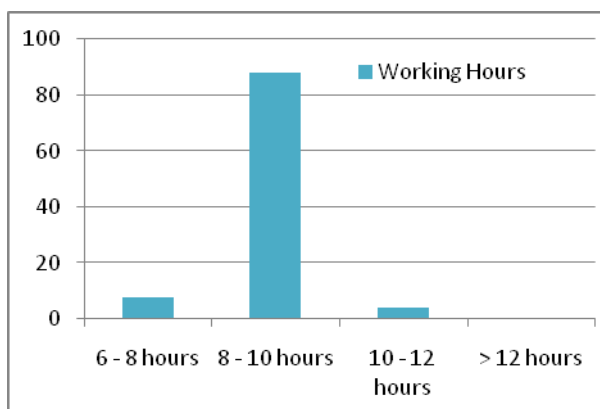


Fig. 2. Total No. of working hours per day

The above graph states that 88% of the petrol pump workers spend 8-10 hours daily in their working.

In this study only 49% Petrol Pump Workers people having shoulder pain whereas 51% did not have shoulder pain. Out of 49% shoulder pain population, 31% from age group of 31 – 40 years and 18% from age group 20 - 30 years.

Table 1. Correlation of pain with experience

Years of Experience	%
More than 5	77%
3yrs to 5 yrs	14%
1yrs to 3 yrs	4%

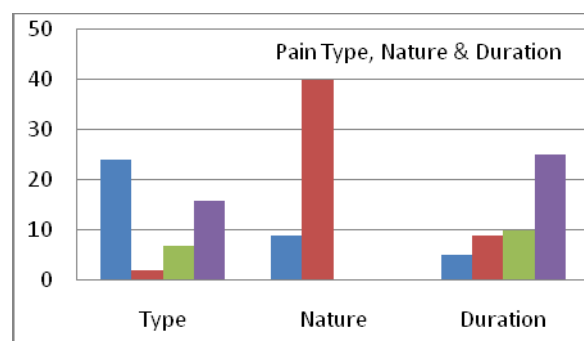
The above table shows that 77% of population working for more than 5yrs, 14% working for 3-5 yrs and only 4% working 1-3 yrs having shoulder pain.

Table 2. Pain radiation

Pain radiation	AV mean
Arm	14%
Vague	18%
None	68%

Table 3. and Fig. 3. Pain evaluation

Pain character	AV Mean
Type	
Cramping	49%
Dull	4%
Dull Aching	14%
Aching	33%
Nature	
Continuous	18%
Intermittent	82%
Duration	
15 – 20 mins	10%
30 mins	18%
30 – 60 mins	20%
>1 hour	52%



In 49% Petrol Pump Workers who had pain. From this table, we can conclude that 68% population doesn't have any pain radiation, 18% of the Petrol Pump Workers had vague pain and only 14% have radiation to arm. The above graph states that 49% of Petrol Pump Workers suffering from cramping pain, 4% had dull pain, 14% had dull aching pain and 33% had aching. Out of the above mentioned type of pain 18% had continuous pain and 82% intermittent pain. The average duration of pain was 10% (15-20 mins), 18% (30 mins), 20% (30-60 mins) and 52% (>1 hour). From this we can conclude that average type of pain was cramping (49%), 18% was continuous pain and 82% was intermittent pain.

Discussion

100 petrol pump workers with a mean age of 30 ± 5.47 years were included in this study. Petrol Pump Workers having experience more than 5 years of working were maximum i.e. 62%, 3 years – 5 years were 20%, 1 year to 3 years were 15%, 6 Months – 1 year were 3%. In this study, it shown that among all, 88% of the petrol pump workers spend 8-10 hours daily in their working. In this study only 49% Petrol Pump Workers people had shoulder pain whereas 51% did not had shoulder pain. Out of total shoulder pain Petrol Pump Workers population, 31% from age group of 31 – 40 years and 18% from age group 20 - 30 years and 77% of population working for more than 5yrs, 14% working for 3-5 yrs and only 4% working 1-3 yrs. Among the shoulder pain Petrol Pump Workers population, 18% of the Petrol Pump Workers had vague pain and only 14% have radiation to arm, 68% population doesn't have any pain radiation.

Among all 49% of Petrol Pump Workers suffering from cramping pain, 4% had dull pain, 14% had dull aching pain, 33% had aching and 18% had continuous pain and 82% intermittent pain. The average duration of pain was 10% (15 – 20 mins), 18% (30 mins), 20% (30 – 60 mins) and 52% (>1 hour). They have to do repetitive activities of shoulder joint by picking and keeping the nozzle at petrol pump station. This repetitive activity increases the demand on the muscles, ligaments, soft tissues of musculoskeletal system. Several reviews, based primarily on cross sectional studies, indicate that the risk factors

include working with arms above shoulder level and other awkward postures (for example, with trunk flexed forward), hand-arm vibrations, repetitive movements, pushing and pulling, and carrying loads supported by the shoulder¹⁷⁻²⁰

Improper posture and repetitive activity of shoulder while working can cause excessive stress on the shoulder and scapular muscles which can be one of the reasons for shoulder pain. The annual prevalence of shoulder trouble (ache, pain, discomfort) was 41% in a group of workers highly exposed to pushing and pulling tasks.²⁰ For mild or severe shoulder pain (eight days or more) the annual prevalence among Finnish forestry workers was 26%, and the annual incidence 14%.²¹ Prevalence (presence of symptoms, irrespective of duration, in the last 12 months) reached 69% in a group of sewing machine operators, with annual incidence about 34%.²² The prevalence of pain and discomfort within the past 12 months was also very high (61%) in a group of slaughterhouse workers in Denmark.²³ The 12 month prevalence of shoulder pain in a group of workers performing repetitive tasks in the food industry was 28% for women and 19% for men.²⁴ The prevalence of clinically diagnosed shoulder girdle pain was 31% among workers in the fish processing industry.²⁵

Conclusion

The above study shows that Petrol Pump workers ageing from 31-40 years who have experience of profession more than 5 years often suffer from shoulder pain which may be associated with repetitive activity of shoulder and faulty posture while working.

Clinical Significance

So implementing ergonomics, awareness of proper posture and regular exercise can reduce prevalence of shoulder pain.

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