



Original Research Article

Prevalence of Low Back Pain and Its Associated Risk Factors among Doctors in Surat

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ABSTRACT

Introduction: Occupational health hazards are very common. Higher prevalence rates occur in the occupational settings. With promotion of industrial life, the prevalence of musculoskeletal disorders has increased markedly. The most common complaint in workers is low back pain and neck pain. As job nature of doctors included doing surgery on patients, awkward posture and may have to stand and/or sit for prolong period of time for examining and/or treating the patients. So the purpose of this study was to find out the prevalence of low back pain among doctors.

Aim of Study: To find out prevalence of low back pain in the doctors

Methodology: Study design: Observational study Sample selection: A random sample of 95 was taken after giving due consideration to inclusive & exclusive criteria. Data was collected by General assessment form and general questionnaire, Nordic questionnaire and General health questionnaire. Inclusive criteria: Age group: 25-50, gender – males & females, working hours - at least 6 hours/day (including surgery and O.P.D.), minimum of one year experience. Exclusive criteria: Working in academic area, age-Above 50 years, under any medication, consuming alcohol, fracture in back region within last 1 year

Results: Prevalence of low back pain was reported to be 36.84%. The prevalence of low back pain was 31.11% among men and 68.88% among women. Demographic factors gender (P=0.039), exercise (P=0.027) and mental health status (P=0.004) revealed significant correlation to low back pain in our study but smoking (P=0.062) and speciality of doctor (P=0.5095) did not appear to be correlated with low back pain. The work factors associated with low back pain including years of experience (P=0.004), working hours/day (P=0.006), and hours of surgery/day (P=0.015) were significantly correlated with low back pain. However doctors handling only O.P.D or O.P.D and surgery both (P=0.512) did not appear to be correlated with low back pain.

Conclusion: There was a high prevalence of low back pain among doctors, resulting in significant medical and socio-professional consequences. Females were more prone to get low back pain than males. Many risk factors were identified that would necessitate multidisciplinary involvement to reduce the low back pain incidence and related costs.

Key Words: Prevalence, low back pain, doctors.

INTRODUCTION

Occupational health hazards are very common. ^[1, 2] With promotion of industrial life, the prevalence of musculoskeletal disorders have increased markedly during the past decades. ^[3] One reason for this increase is work-related activities. ^[4] The most complaints in workers are low back pain and neck pain. ^[5, 6] Hospital workers seem to have higher rates of low back pain compared to the general population due to physical and emotional factors involved in their occupation, such as stress. ^[7, 8]

Many factors at work could predispose people to develop musculoskeletal disorders. Lifting or carrying loads, whole-body vibration, having a static posture for a long time and frequent bending and twisting have been proved to be the physical load risk factors consistently associated with work-related back and neck disorders. There is evidence for a causal relationship between low back and/or neck injuries and disorders with workplace exposures to forceful exertions, awkward posture, and vibration taking into account all these, doctors who are exposed to such deleterious work-related factors, may be at a higher risk of developing low back pain and neck pain. ^[6,9] Many doctors believe that overstrained and awkward back postures, taking a static posture for a long time, and frequent bending during their work, expose them to develop several musculoskeletal disorders such as low back pain and neck pain.

Low back pain is associated with multiple risk factors, including gender, age, lifestyle, psychosocial profile, physical

demands of the workplace, social support, and pain perception. ^[10] Low back pain cases associated with an initial episode could be resolved within 2-4 weeks. ^[11] It had been observed that individuals who suffered from low back pain problems might develop major physical, social and mental disruptions, which could affect their occupations. ^[12] Physical impact includes the loss of physical function and deteriorated general health. Social impact included decreased participation in social activities. Psychosocial impacts are manifested through insomnia, irritability, anxiety and depression. ^[13] Previous studies reported that there were significant relationship between psychosocial variables and musculoskeletal disorders. ^[14-16]

Several studies have focused on the prevalence and risk factors of low back pain among nurses, ^[17-21] while other studies have highlighted the problem among physiotherapists. ^[22] As several other categories of workers in the hospital are subjected to muscular strains and stresses in the course of their work, they may also suffer from low back pain and will benefit from prevention program for low back pain in the workplace. In most studies, only a few of risk factors have been taken into consideration.

In Surat no study has been conducted on the prevalence of low back pain and its associated risk factors among doctors. Therefore, this study was conducted to determine the prevalence of low back pain and its associated risk factors in doctors.

MATERIALS AND METHODOLOGY

Study design: Observational study

Duration of study: Study is one time study

A random sample of 95 were taken after giving due consideration to inclusive & exclusive criteria. The data was collected by General assessment form and general questionnaires, Nordic questionnaire and General health questionnaire. The General assessment form and general questionnaire were pre-tested on 10 doctors out of 95 selected purposively included in the study. Necessary modifications were made in the assessment form and general questionnaire before the start of study. The reliability of the Nordic questionnaire and General health questionnaire has been shown to be acceptable^{23, 24}. The General assessment form and general questionnaires, Nordic questionnaire and General health questionnaire were distributed to randomly selected doctors in Surat. All of them took part on a voluntary basis after signing consent. All subjects were informed about aims, objectives, procedure & outcome of the study.

Questionnaire: The questionnaire consists of three parts.

General assessment form and General Questionnaire:

In that questions were about age, gender, marital status, smoking, alcohol, doing exercise, years of practice, job history, place and duration of employment, number of patients visited per month, time and hours of work per day, hours of surgery per day. Part of the questionnaire was allotted to low back pain included questions about presence of low back pain, duration of musculoskeletal complaint, whether the pain has begun before the participant works as a doctor, perception on activities that contributed to low back pain, the frequency of experiencing pain (categorized as “occasionally”, “often”, “always,” and “sometimes”), severity of pain was measured

using a ten-point visual analog pain scale: the results were categorized as “mild” (score: 1–3), “moderate” (score: 4–7) and “severe” (score: 8–10). The participants were also asked if they received any treatments. Their responses were categorized as either “no treatment,” “drug,” “physiotherapy” or “both”.

Nordic questionnaire

Nordic questionnaire^[23] was used to assess the body parts with musculoskeletal disorders and their perceptions on health risks at work.

General health questionnaire

The third part of the questionnaire focused on the respondents’ psychosocial factors using the General health questionnaire^[24] which measured the common mental health problems/domains of depression, anxiety, somatic symptoms and social withdrawal. The questions included were ‘have you lost much sleep?’ ‘Have you felt capable of making decisions about things?’ And ‘have you felt constantly under strain?’ The score was based on Likert Scale with 0 for “not at all”, 1 for “sometimes”, 2 for “more than sometimes” and 3 for “often”.

The questionnaire was self administered with supervision of researcher and took about 25 minutes to fill out; a short briefing was carried out before the data collection. All the collected data have been analyzed using the SPSS software version 17.0 for Windows. The statistical significance level was set at 0.05. The investigation took place over a period of 6 months.

RESULTS

Background information: Questionnaires were distributed and filled out by 95 respondents who volunteered to participate in the study. A total of 57.89% of the respondents were female and 42.10% of the respondents were male. (Table 1)

Table 1: Respondents background

| Variables | N (%) Total 95 |
|------------------------|-------------------|
| Gender | |
| Male | 40(42.10) |
| Female | 55(57.89) |
| Marital status | |
| Married | 78(82.10) |
| Single | 12(12.63) |
| Divorced | 5(5.26) |
| Speciality of doctors | |
| Gynecologist | 11(11.57) |
| ENT | 5(5.26) |
| General surgeon | 9(9.47) |
| Neurosurgeon | 5(5.26) |
| C .T. surgeon | 5(5.26) |
| M.B.B.S. | 7(7.36) |
| Ophthalmologist | 6(6.31) |
| Physician | 18(18.94) |
| Pediatrician | 9(9.47) |
| Gastroenterologist | 2(2.10) |
| Neurologist | 5(5.26) |
| Oncologist | 3(3.15) |
| Orthopedics | 10(10.52) |
| Years of experience | |
| > 3 years | 56(58.94) |
| < 3 years | 39(41.05) |
| Working hours/day | |
| >8 hour/day | 73(76.84) |
| <8 hour/day | 22(23.15) |
| Smoking | |
| Yes | 30(31.57) |
| No | 65(68.42) |
| Doing regular exercise | |
| None | 14(14.73) |
| Few time /week | 24(25.26) |
| Few time /month | 57(60) |
| Mental health status | |
| Good | 85(89.47) |
| Poor | 10(10.52) |
| Doctors handling | |
| Surgery + O.P.D. | 54(56.84) |
| Only O.P.D. | 41(43.15) |
| Hours of surgery /day | Total 54 |
| >4 hour | 24(44.44) |
| <4 hour | 30(55.55) |

Table 2: Prevalence of low back pain among respondents

| Variables | Yes (%) | No (%) |
|------------------------|------------|-----------|
| Low back pain | 45 (36.82) | 50(63.15) |
| Gender | | |
| Male | 14(31.11) | 26(52) |
| Female | 31(68.88) | 24(48) |
| Marital status | | |
| Married | 34(75.55) | 44(88) |
| Single | 10(22.22) | 2(4) |
| Divorced | 1(2.22) | 4(8) |
| Speciality of doctors | | |
| Gynecologist | 3(6.66) | 8(16) |
| ENT | 1(2.22) | 4(8) |
| General surgeon | 4(8.88) | 5(10) |
| Neurosurgeon | 2(4.44) | 3(6) |
| C .T. surgeon | 3(6.66) | 2(4) |
| M.B.B.S. | 4(8.88) | 3(6) |
| Ophthalmologist | 3(6.66) | 3(6) |
| General Physician | 10(22.2) | 8(16) |
| Pediatrician | 2(4.44) | 7(14) |
| Gastroenterologist | 1(2.22) | 1(2) |
| Neurologist | 4(8.88) | 1(2) |
| Oncologist | 1(2.22) | 2(4) |
| Orthopedics | 7(15.55) | 3(6) |
| Years of experience | | |
| > 3 years | 35(77.77) | 21(42) |
| < 3 years | 10(22.22) | 29(58) |
| Working hours/day | | |
| > 8 hour/day | 29(64.44) | 44(88) |
| <8 hour/day | 16(35.55) | 6(12) |
| Smoking | | |
| Yes | 10(22.22) | 20(40) |
| No | 35(77.77) | 30(60) |
| Doing regular exercise | | |
| None | 2(4.44) | 12(24) |
| Few time /week | 13(28.88) | 11(22) |
| Few time /month | 30(66.66) | 27(54) |
| Mental health status | | |
| Good | 36(80) | 49(98) |
| Poor | 9(20) | 1(2) |
| Doctors handling | | |
| Surgery + O.P.D. | 24(53.33) | 30(60) |
| Only O.P.D. | 21(46.66) | 20(40) |
| Hours of surgery /day | Total 44 | Total 10 |
| >4 hour | 23(52.27) | 1(10) |
| <4 hour | 21(47.72) | 9(90) |

Prevalence of low back pain: Prevalence of low back pain problems were reported to 36.82%. The prevalence of low back pain was 31.11% among men and 68.88% among women. (Table 2) Table 3 shows that the main tasks reported to contribute to low back pain in doctors. The tasks were prolonged standing, prolonged sitting, depression/anxiety, poor/awkward posture, working with computer, any previous injury to back and lack of sleep. Prolong standing was the main factor which contributed to low back pain followed by prolonged sitting, poor/awkward posture, working with computer and lack of sleep.

Perception of low back pain: Of low back pain sufferers, 73.33% developed low back pain only after starting work as a doctor. More than half of low back pain sufferers (64.44%) described that their pain was work related only. (Table 4)

Table 3: Responder's perception on activities that contributed to low back pain

| Activity | N (%) | Ranking |
|-----------------------|-----------|---------|
| Prolonged standing | 15(33.33) | 1 |
| Prolonged sitting | 12(26.66) | 2 |
| Poor/awkward posture | 8(17.77) | 3 |
| Working with computer | 5(11.11) | 4 |
| Lack of sleep | 3(6.66) | 5 |
| Not sure | 2(4.44) | 6 |

Table 4: Perception of low back pain (LBP):

| | LBP sufferers; N=45 |
|---|---------------------|
| Develop back pain before or after working | |
| Before working | 12(26.66) |
| After working | 33(73.33) |
| Related to work | |
| Yes | 29(64.44) |
| No | 16(35.55) |
| How often you are affected with low back pain during last 12 months | |
| Once | 3(6.66) |
| Twice | 7(15.55) |
| Thrice | 15(33.33) |
| More than thrice | 20(44.44) |
| Frequency of experiencing pain | |
| Occasional | 8(17.77) |
| Often | 10(22.22) |
| Sometimes | 11(24.44) |
| Always | 16(35.55) |
| Severity of low back pain | |
| Mild | 24(53.33) |
| Moderate | 11(24.44) |
| Severe | 10(22.22) |
| Taken any kind of treatment for low back pain | |
| Drug | 14(31.11) |
| Physiotherapy | 12(26.66) |
| Both | 9(20) |
| No treatment | 10(22.22) |

Table 5: Risk factors associated with low back pain

| Variables | Low back pain sufferers (%) | No low back pain (%) | P value |
|-----------------------|-----------------------------|----------------------|---------|
| Low back pain | 45 | 50 | |
| Gender | | | |
| Male | 14(31.11) | 26(52) | 0.0395 |
| Female | 31(68.88) | 24(48) | |
| Speciality of doctors | | | |
| Gynecologist | 3(6.66) | 8(16) | 0.5095 |
| ENT | 1(2.22) | 4(8) | |
| General surgeon | 4(8.88) | 5(10) | |
| Neurosurgeon | 2(4.44) | 3(6) | |
| C .T. surgeon | 3(6.66) | 2(4) | |
| M.B.B.S. | 4(8.88) | 3(6) | |
| Ophthalmologist | 3(6.66) | 3(6) | |
| General physician | 10(22.2) | 8(16) | |
| Pediatrician | 2(4.44) | 7(14) | |
| Gastroenterologist | 1(2.22) | 1(2) | |
| Neurologist | 4(8.88) | 1(2) | |
| Oncologist | 1(2.22) | 2(4) | |
| Orthopedics | 7(15.55) | 3(6) | |
| Smoking | | | |
| Yes | 10(22.22) | 20(40) | 0.0627 |
| No | 35(77.77) | 30(60) | |
| Doing exercise | | | |
| None | 2(4.44) | 12(24) | 0.0270 |
| Few time /week | 13(28.88) | 11(22) | |
| Few time /month | 30(66.66) | 27(54) | |
| Mental health status | | | |
| Good | 36(80) | 49(98) | 0.0043 |
| Poor | 9(20) | 1(2) | |
| Years of experience | | | |
| > 3 years | 35(77.77) | 21(42) | 0.0004 |
| < 3 years | 10(22.22) | 29(98) | |
| Working hours/day | | | |
| >8 hour/day | 29(64.44) | 44(88) | 0.0066 |
| <8 hour/day | 16(35.55) | 6(12) | |
| Doctors handling | | | |
| Surgery + OPD | 24(53.33) | 30(60) | 0.5124 |
| Only OPD | 21(46.66) | 20(40) | |
| Hours of surgery /day | Total 44 | Total 10 | |
| > 4 hour | 23(52.27) | 1(10) | 0.0152 |
| < 4 hour | 21(47.72) | 9(90) | |

Risk factors associated with low back pain (Table 5): Factors associated with low back pain were separated into demographic factors and work factors.

Demographic factors were gender, smoking, exercise, mental health status and speciality of doctor. Of demographic factors gender (P=0.039), exercise (P=0.027) and mental

health status ($P=0.004$) revealed significant correlation to low back pain in our study but smoking ($P=0.062$) and speciality of doctor ($P=0.5095$) did not appear to be correlated with low back pain. The work factors associated with low back pain were years of experience, working hours/day, hours of surgery/day and doctors handling only O.P.D or O.P.D and surgery both. Of these categories years of experience ($P=0.004$), working hours/day ($P=0.006$), and hours of surgery/day ($P=0.015$) were significantly correlated with low back pain. However doctors handling only O.P.D or O.P.D and surgery both ($P=0.512$) did not appear to be correlated with low back pain.

DISCUSSION

This study was an attempt to investigate the prevalence of low back pain and its associated risk factors among doctors in Surat.

Results showed a high prevalence of low back pain (36.82%) among doctors in Surat which was comparable to major low back pain prevalence rates reported in the literature, which varies from 32% to 74%.^[25-29] Respondents in this study, as in other studies,^[30-33] associated low back pain with frequent bending, poor posture, prolonged sitting or standing and lack of sleep. In the literature, prolonged standing position and leaning forward are frequently associated with low back pain.^[34]

In this study women had high prevalence of low back pain (68.88%) than men (31.11%). Previous studies suggested that gender differences occurred because women were more likely to report any pain problem than men as women tended to have a lower pain threshold than men.^[35]

Of the low back sufferers, 73.33% had developed symptoms of low back pain only after they have started to work as a doctor and in 64.44% their low back pain was related to work only. This result was in

accordance with another study^[34] In our study the rates of treatment (drug 31.11% and physiotherapy 26.66%) seemed high compared to other studies^[36] (42.1% –79%). In our study 35.55% of the low back pain sufferers always had low back pain and 53.33% had mild form of low back pain.

Smoking was not significantly associated with low back pain ($P=0.0627$), a result that differs from that of Frank et al^[37] study where they showed that smoking was significantly associated with low back pain and herniated disc conditions.^[37] This deviance may be due to the low number of smokers among the respondents in the current study. In this study speciality of doctor factor was not significantly associated with low back pain ($P=0.5095$).

Exercise did show a protective role against low back pain ($P=0.027$) in our survey.

Of note, in the Demblans- Dechans et al^[38] study, sports activity was considered a risk factor for low back pain, whereas Fanello et al^[39] and Henchoz et al^[40] found that regular sports practice was associated with lower rate of low back pain prevalence and was effective for primary and secondary prevention of low back pain.

In this study association between mental health status which reflected psychosocial factor and low back pain was a significant factor for low back pain ($P=0.0043$). The risk factors for low back pain have been identified to include individual factors such as body weight and age, biomechanical factors such as prolonged static postures and lifting and psychosocial factors such as job satisfaction, time and study demands as well as job stress.^[14, 41, 42] The job natures of doctors included all the risk factors mentioned above. Psychosocial factor, which include psychosocial risk factor refers to individual's perception of the job characteristics which can promote positive feedback (motivation and satisfaction) and

stress. The more psychological demands needed for a certain tasks, the greater is the possibility to develop musculoskeletal disorder; whatever the anatomical area is. [43] Other studies had proved that high mental pressure showed a significant psychological risk factor for musculoskeletal disorder among school teachers [14, 44] and Japanese nurses. [45] Other occupations that showed a high prevalence of low back pain also demonstrated the relationship with psychological or psychosocial factors. [41, 42, 46]

Several other work related risk factors have been identified that contribute to the prevalence of low back pain in our survey. Of these years of experience ($P=0.004$), working hours/day ($P=0.006$), and hours of surgery/day ($P=0.015$) were significantly correlated with low back pain. This result was in accordance with another study. [19] The possible reasons for this factors and low back pain association were frequent and prolonged assumption of faulty/awkward posture, static posture (standing/sitting) for a prolonged period of time, frequent twisting or turning from back, lack of mental and physical rest gave more and more muscular stress and strain lead to more musculoskeletal problems as compare to the people who were having less experience, having less working hours/day and having less hours of surgery. However doctors handling only O.P.D or O.P.D and surgery both ($P=0.512$) did not appear to be correlated low back pain.

Finally from this study it can be concluded that very high prevalence of low back pain among doctors in Surat. So it is required to emphasize on health education/promotion and ergonomics to improve posture in the work place to reduce burden on low back pain.

CONCLUSION

There was a high prevalence of low back pain among doctors, resulting in significant medical and socio-professional consequences. Females were more prone to get low back pain than males. Demographic factors gender, exercise and mental health status revealed significant correlation to low back pain in our study. The work related factors associated with low back pain including years of experience, working hours/day and hours of surgery/day were significantly correlated with low back pain. The high prevalence of low back pain requires multidisciplinary involvement in order to reduce the disability and cost imposed.

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