**Prevalence Of Low Back Pain In Orthopaedic And Non-Orthopaedic Surgeons**

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**Abstract:**

**Aims:** This study aims to assess the prevalence of low back pain in orthopaedic and non-orthopaedic surgeons and to establish relationship between comorbidities, demographic, lifestyle, occupational characteristics in relation to low back pain.

**Materials and Methods**: Data was collected from all the orthopedic and non-orthopedic surgeons who have been practicing in a JSS hospital for at least more than 1-year using questionnaires designed to cover personal and professional data and also the prevalence of LBP and possible risk factors and their effects on LBP in surgeons.

**Results**: 18 orthopaedic surgeons and 47 non orthopaedic surgeons were included in the study. The last week and last year prevalence of LBP was 27.8% and 66.7% in orthopaedics group and in non-orthopaedics group it was 31.9% and 72.3%. The prevalence of LBP was relatively high in younger age groups than the older age groups. The prevalence of LBP was higher among younger surgeons than senior surgeons. In non-orthopaedic surgeons, the prevalence of LBP was higher with increased frequency of using lead jacket.

**Conclusion**: In this study, it is revealed that almost 72% of the surgeons in JSS hospital have low back pain. Demographic factors like age, sex, physical exercises and yoga had significant correlation with prevalence of LBP. There is a need to improve ergonomics in the workplace and emphasize on health education to reduce the burden of low back pain.

**Key Words:**Lower back pain, prevalence, India, surgeons

**Introduction:**

Low back pain (LBP) is a frequent affection. 80% of the general active population suffers from LBP, at least temporarily 1. LBP is a major health problem in working population. LBP results in important socio professional consequences and implies a raised cost for society by absenteeism and medical consumption 2. LBP is the first reason of affections limiting professional activities before 45 years and the third after respiratory and traumatic affections between 45 and 64 years 3. The prevalence of low back pain increases markedly with age, and many of the disorders are affected by lifestyle factors, such as obesity and certain types of physical activity. The nature of the professional activity and especially the physical load is questioned during common LBP in about 75% of the cases 4.

Relation between LBP and work is not always easy to establish. It is usually difficult to separate the factors that are bound to work and those that are not. Low back pain has high prevalence and higher cost of management among the health care professionals according to the extensive studies conducted in the last 2 decades.

The purpose of this study is to analyse and compare the prevalence and risk factors associated with low back pain in orthopaedic and non-orthopaedic surgeons and to analyse the individual and occupational characteristics leading to increased risk of low back pain. There were studies about the incidence of low back pain in nursing and other hospital staff. However, number of studies done regarding low back pain in surgeons is limited. Therefore, there is a need for a study to know the prevalence of low back pain among surgeons.

**Materials and Methods**:

Data was collected from all the orthopedic and non-orthopedic surgeons who have been practicing in a JSS hospital for at least more than 1-year using questionnaires designed to cover personal and professional data and also the prevalence of LBP and possible risk factors and their effects on LBP in surgeons. Data was collected from January 2023 to November 2023. The study subjects were 65 surgeons.

**Results**:

Questionnaires were distributed to 90 surgeons working in JSS hospital and were filled out by 66 respondents who volunteered to answer the questionnaire with overall response rate of 73.4%. One participant was excluded because she had history of a previous spinal surgery.

Table 1: Prevalence of Low back pain

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Count | % |
| Prevalence of Low Back pain | Yes | 47 | 72.3% |
| No | 18 | 27.7% |
| Total | 65 | 100.0% |

In the study overall prevalence of LBP in one year was 72.3%.

Table 2: Prevalence of Low back pain in last week and last One year among orthopaedic surgeons

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Type of Speciality | | | | | | P value |
| Orthopaedics | | Non-Orthopaedics | | Total | |  |
| Count | % | Count | % | Count | % |  |
| Prevalence of Low Back pain | Yes | 13 | 72.2 | 34 | 72.3 | 47 | 72.3 | 0.992 |
| No | 5 | 27.8 | 13 | 27.7 | 18 | 27.7 |
| number of episodes of Low back pain in the last week | 1-3 episodes | 5 | 27.8 | 14 | 29.8 | 19 | 29.2 | 0.805 |
| more than 5 | 0 | 0.0 | 1 | 2.1 | 1 | 1.5 |
| none | 13 | 72.2 | 32 | 68.1 | 45 | 69.2 |
| number of episodes of low back pain in the last one year | 01-05 episodes | 11 | 61.1 | 22 | 46.8 | 33 | 50.8 | 0.329 |
| 05-10 Episodes | 1 | 5.6 | 8 | 17.0 | 9 | 13.8 |
| > 10 Episodes | 0 | 0.0 | 4 | 8.5 | 4 | 6.2 |
| none | 6 | 33.3 | 13 | 27.7 | 19 | 29.2 |

In the study among Orthopaedic surgeons, 72.2% had Low back pain and among non-orthopaedic surgeons, 72.3% had Low back pain. There was no significant difference in prevalence between two groups.

Among Orthopaedic surgeons, 27.8% had 1-3 episodes and 72.2% had no episodes in last one week and among non-orthopaedic surgeons, 29.8% had 1-3 episodes, 2.1% had >5 episodes and 68.1% had no episodes in last one week. There was no significant difference in number of episodes of LBP in last one week.

Among Orthopaedics surgeons, 61.1% had 01-5 episodes, 5.6% had 5 -10 episodes in last one year and among non-orthopaedic surgeons, 46.8% had 01-5 episodes, 17% had 5-10 episodes and 8.5% had >10 episodes. There was no significant difference in Number of episodes in last one year between two groups.

Figure 1: Bar diagram showing Comparison of prevalence of LBP between Orthopaedic and Non-Orthopaedic surgeons in last one year.

Table 3: General Characteristics and its association with Low back pain among orthopaedic surgeons.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |
| Gender | Male | 13 | 72.2% | 5 | 27.8% | - |
| Age | 30-40 | 5 | 100.0% | 0 | 0.0% | 0.039\* |
| 40-50 | 7 | 77.8% | 2 | 22.2% |
| 50-60 | 1 | 25.0% | 3 | 75.0% |
| BMI | 18.5 to 24.9 (Normal) | 6 | 75.0% | 2 | 25.0% | 0.814 |
| 25 to 29.9 (Overweight) | 7 | 70.0% | 3 | 30.0% |
| >30 (Obese) | 0 | 0.0% | 0 | 0.0% |
| Marital Status | Married | 13 | 72.2% | 5 | 27.8% | - |
| Comorbidities | Hypothyroidism | 3 | 100.0% | 0 | 0.0% | 0.239 |
| none | 10 | 66.7% | 5 | 33.3% |
| Are you on regular medication for the above conditions? | No | 10 | 66.7% | 5 | 33.3% | 0.239 |
| Yes | 3 | 100.0% | 0 | 0.0% |

In the study, all among 18 orthopaedic surgeons were men and had 72.2% had LBP.

Figure 2: Bar diagram showing Age and its association with LBP among orthopaedic surgeons.

Figure 3: Bar diagram showing Comorbidities and its association with LBP among orthopaedic surgeons.

There was no significant association of BMI, Marital status, Comorbidities and regular medications.

Table 4: General Characteristics and its association with Low back pain among Non-Orthopaedic surgeons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |
| Gender | Female | 11 | 100.0% | 0 | 0.0% | 0.019\* |
| Male | 23 | 63.9% | 13 | 36.1% |
| Age | 30-40 | 20 | 87.0% | 3 | 13.0% | 0.008\* |
| 40-50 | 11 | 73.3% | 4 | 26.7% |
| 50-60 | 3 | 50.0% | 3 | 50.0% |
| 60-70 | 0 | 0.0% | 3 | 100.0% |
| BMI | 18.5 to 24.9 (Normal) | 9 | 52.9% | 8 | 47.1% | 0.059 |
| 25 to 29.9 (Overweight) | 21 | 80.8% | 5 | 19.2% |
| >30 (Obese) | 4 | 100.0% | 0 | 0.0% |
| Marital Status | Married | 28 | 71.8% | 11 | 28.2% | 0.854 |
| Single | 6 | 75.0% | 2 | 25.0% |
| Do you have any of the following conditions? | Diabetes | 1 | 100.0% | 0 | 0.0% | 0.309 |
| Hypertension | 1 | 50.0% | 1 | 50.0% |
| Hypothyroidism | 0 | 0.0% | 1 | 100.0% |
| None | 32 | 74.4% | 11 | 25.6% |
| Are you on regular medication for the above conditions? | No | 33 | 75.0% | 11 | 25.0% | 0.119 |
| Yes | 1 | 33.3% | 2 | 66.7% |

In Non-Orthopaedic surgeons, among females, 100% had LBP and among males, 63.9% had LBP. There was significant association between Gender and LBP among Non-orthopaedic surgeons.

Among subjects in the age group 30 to 40 years, highest prevalence of LBP was observed and among subjects in the age group 60 to 70 years, 0% prevalence was observed. There was significant association between Age and LBP among non-orthopaedic surgeons.

Table 5: Physical activities and its association with Prevalence of Low back pain among Orthopaedic surgeons.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |
| Frequency of indulgence in physical exercises | Everyday | 3 | 50.0% | 3 | 50.0% | 0.423 |
| Few Days A Week | 4 | 66.7% | 2 | 33.3% |
| Occasionally | 3 | 100.0% | 0 | 0.0% |
| Rarely | 1 | 100.0% | 0 | 0.0% |
| Never | 2 | 100.0% | 0 | 0.0% |
| Frequency of practicing yoga | Very Often | 1 | 50.0% | 1 | 50.0% | 0.709 |
| Often | 1 | 50.0% | 1 | 50.0% |
| Rarely | 5 | 83.3% | 1 | 16.7% |
| Never | 6 | 75.0% | 2 | 25.0% |

In the study there was no significant association between Physical exercise, and prevalence of Low back pain but prevalence was less among surgeons who were involved in physical activities regularly.

Table 6 : Physical activities and its association with Prevalence of Low back pain among non-orthopaedic surgeons .

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |  |
| How often do you get involved in physical exercises? | Everyday | 5 | 50.0% | 5 | 50.0% | 0.067 |
| Few Days A Week | 25 | 78.1% | 7 | 21.9% |
| Occasionally | 4 | 100.0% | 0 | 0.0% |
| Never | 0 | 0.0% | 1 | 100.0% |
| How often do you practice yoga? | Very Often | 0 | 0.0% | 1 | 100.0% | 0.044\* |
| Often | 1 | 33.3% | 2 | 66.7% |
| Occasionally | 2 | 40.0% | 3 | 60.0% |
| Rarely | 10 | 90.9% | 1 | 9.1% |
| Never | 21 | 77.8% | 6 | 22.2% |

In the study among Non-Orthopaedic surgeons, there was significant association between Yoga and LBP. Among subjects who practiced yoga rarely had highest prevalence of LBP (90.9%) and among subjects who practiced yoga very often, 0% had LBP. there was significant association between yoga and LBP (P value 0.04). there was no significant association between physical exercises and prevalence of LBP.

Table 7 : Type of Speciality distribution

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Count | % |
| Type of Speciality | Orthopaedics | 18 | 27.7% |
| Non-Orthopaedics | 47 | 72.3% |
| Total | 65 | 100.0% |

In the study out of the population that had prevalence of LBP, 27.7% were Orthopaedic Surgeons and 72.3% were non-Orthopaedics surgeons.

Table 8: Prevalence of Low back pain with respect to various Non-orthopaedic Specialities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Prevalence of Low Back pain | | | |
| Yes | | No | |
| Count | % | Count | % |
| Speciality | CTVS | 1 | 100.0% | 0 | 0.0% |
| ENT | 2 | 66.7% | 1 | 33.3% |
| General surgery | 15 | 71.4% | 6 | 28.6% |
| Neurosurgery | 0 | 0.0% | 1 | 100.0% |
| OBG | 4 | 100.0% | 0 | 0.0% |
| Ophthalmology | 2 | 50.0% | 2 | 50.0% |
| Oral and Maxillofacial Surgery | 1 | 100.0% | 0 | 0.0% |
| Paediatric surgery | 3 | 100.0% | 0 | 0.0% |
| Plastic surgery | 1 | 50.0% | 1 | 50.0% |
| Surgical gastroenterology | 1 | 50.0% | 1 | 50.0% |
| Surgical oncology | 0 | 0.0% | 1 | 100.0% |
| Urology | 4 | 100.0% | 0 | 0.0% |

χ 2 =12.254, df =11, p = 0.345

In the study among CTVS Speciality, OBG speciality, Oral and Maxillofacial Surgery, Paediatric surgery and urology speciality, 100% of them had low back pain.

Among ENT surgeons, 66.7% had LBP. Among General surgery surgeons, 71.4% had LBP, among Ophthalmology surgeons, 60% had LBP, among Plastic surgeons, 50% had LBP, among Surgical gastroenterology surgeons, 50% had LBP. There was no significant difference in prevalence of LBP with respect to Type of Speciality. (P value: 0.345)

Figure 4: Bar diagram showing prevalence of Low back pain with respect to various Non-orthopaedic Specialities.

Table 9 : Surgeon factors and its relationship with Prevalence of Low Back pain among orthopaedic surgeons.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |
| Number of years practicing surgery | <10 years | 5 | 100.0% | 0 | 0.0% | 0.122 |
| 11 to 20 years | 7 | 70.0% | 3 | 30.0% |
| >20 years | 1 | 33.3% | 2 | 66.7% |
| Average number of surgeries performed in a regular week | less than 5 | 5 | 83.3% | 1 | 16.7% | 0.689 |
| 5 to 10 | 5 | 71.4% | 2 | 28.6% |
| 10 to 15 | 3 | 60.0% | 2 | 40.0% |
| Average number of hours spent performing surgery in a regular week | 5-10 hours | 7 | 87.5% | 1 | 12.5% | 0.407 |
| 10-20 hours | 5 | 62.5% | 3 | 37.5% |
| 30-40 hours | 1 | 50.0% | 1 | 50.0% |
| Number of assistants while operating? | 1. | 7 | 77.8% | 2 | 22.2% | 0.729 |
| 2. | 5 | 71.4% | 2 | 28.6% |
| more than 2 | 1 | 50.0% | 1 | 50.0% |
| Frequency of having more than 2 assistants | Often | 1 | 33.3% | 2 | 66.7% | 0.122 |
| Sometimes | 7 | 70.0% | 3 | 30.0% |
| rare | 5 | 100.0% | 0 | 0.0% |
| Frequency of using a lead jacket while operating | very often | 4 | 57.1% | 3 | 42.9% | 0.372 |
| often | 6 | 75.0% | 2 | 25.0% |
| occasionally | 3 | 100.0% | 0 | 0.0% |
| a. Speciality = Orthopaedic | | | | | |  |

Among orthopaedic surgeons, there was no significant association between Surgeon related factors and prevalence of LBP.

Table 10: Surgeon factors and its relationship with Prevalence of Low Back pain among non Orthopaedic surgeons .

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Prevalence of LBP | | | | P value |
| Yes | | No | |
| Count | Row N % | Count | Row N % |
| No of Year practicing Surgery | <10 years | 21 | 80.8% | 5 | 19.2% | 0.004\* |
| 11 to 20 years | 11 | 84.6% | 2 | 15.4% |
| >20 years | 2 | 25.0% | 6 | 75.0% |
| Average number of surgeries performed in a regular week | less than 5 | 3 | 37.5% | 5 | 62.5% | 0.100 |
| 5 to 10 | 14 | 82.4% | 3 | 17.6% |
| 10 to 15 | 16 | 76.2% | 5 | 23.8% |
| 15-20 | 1 | 100.0% | 0 | 0.0% |
| Average number of hours spent performing surgery in a regular week | 5-10 hours | 5 | 55.6% | 4 | 44.4% | 0.387 |
| 10-20 hours | 25 | 78.1% | 7 | 21.9% |
| 30-40 hours | 4 | 66.7% | 2 | 33.3% |
| Number of assistants while operating | 1. | 18 | 85.7% | 3 | 14.3% | 0.024\* |
| 2. | 16 | 66.7% | 8 | 33.3% |
| more than 2 | 0 | 0.0% | 2 | 100.0% |
| Frequency of having more than 2 assistants | Always | 1 | 25.0% | 3 | 75.0% | 0.215 |
| Often | 1 | 50.0% | 1 | 50.0% |
| Sometimes | 10 | 76.9% | 3 | 23.1% |
| rare | 13 | 81.2% | 3 | 18.8% |
| never | 9 | 75.0% | 3 | 25.0% |
| Frequency of using a lead jacket while operating | often | 1 | 100.0% | 0 | 0.0% | 0.024\* |
| occasionally | 1 | 20.0% | 4 | 80.0% |
| rarely | 7 | 63.6% | 4 | 36.4% |
| never | 25 | 83.3% | 5 | 16.7% |
| a. Speciality = Non-Orthopaedic | | | | | |  |

Among subjects with <10 years of surgery experience highest prevalence of LBP was observed.

There was no significant association found between average number of surgeries performed in a week, average number of hours spent performing surgeries and prevalence of LBP.

***Figure 5:*** *Bar diagram showing Number of assistants while operating and its relationship with Prevalence of Low Back pain (P value= 0.037)*

Among subjects with 1 assistant had highest prevalence of LBP (85.7%) and among >2 assistants, 0% had LBP.

Among subjects who often used lead jacket had highest prevalence of LBP (100%) and who used occasionally 20% had LBP.

Among Non-Orthopaedic surgeons, significant association was observed for number of years practicing surgery, number of assistants used and use of lead jacket with prevalence of LBP.

Table 11: Pain characteristics and its association with Type of Speciality [ Only among subjects with LBP].

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Type of Speciality | | | | P value |
| Orthopaedics | | Non-Orthopaedics | |
| Count | % | Count | % |  |
| Did You Seek Professional Consultation for Low Back pain in The Last 6 Months? | No | 13 | 31.7% | 28 | 68.3% | 0.268 |
| Yes, But rarely | 0 | 0.0% | 5 | 100.0% |
| Yes, Multiple Times | 0 | 0.0% | 1 | 100.0% |
| Intensity of Pain During the Episodes of Back Pain Based on visual analogue scale | Mean ± SD | 2.31 ± .480 | | 4.06 ± 1.205 | | <0.001\* |
| How Often Do U Use Analgesics for Low Back pain? | Never | 7 | 31.8% | 15 | 68.2% | 0.835 |
| Occasionally | 5 | 23.8% | 16 | 76.2% |
| Sometimes | 1 | 25.0% | 3 | 75.0% |

In the study among subjects with LBP, there was significant association between intensity of pain on visual analogue scale between orthopaedic surgeons and non-orthopaedic surgeons. Pain intensity was low in Orthopaedic surgeons compared to Non-Orthopaedic surgeons.

Table 12: ODI score comparison with respect to Type of Surgeons among subjects with LBP.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | N | Mean | SD | Median | Minimum | Maximum | P value |
| Orthopaedic | 13 | 4.16% | 4.356% | 2% | 0 | 14% | 0.671 |
| Non-Orthopaedic | 34 | 5.3% | 9.196% | 2% | 0 | 48% |
| Total | 47 | 4.98% | 8.118% | 2% | 0 | 48% |  |

In the study among subjects with LBP, mean ODI score was 4.98% ± 8.118% among Orthopaedic and among Non-Orthopaedic surgeons LBP was 5.3% ± 9.196%. There was no significant difference in mean ODI score with respect to Speciality.

Table 13: ODI Score Disability comparison with respect to Speciality among subjects with LBP.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Speciality | | | | | |
| Orthopaedic | | Non-Orthopaedic | | Total | |
| Count | % | Count | % | Count | % |
| ODI | Minimal Disability | 13 | 100.0% | 32 | 94.1% | 45 | 95.7% |
| Moderate disability | 0 | 0.0% | 1 | 2.9% | 1 | 2.1% |
| Severe disability | 0 | 0.0% | 1 | 2.9% | 1 | 2.1% |

χ 2 =0.799, df =2, p = 0.671

In the study 95.7% had minimal disability, 2.1% had moderate disability and severe disability.

Figure 6: Bar diagram showing ODI Score Disability comparison with respect to Speciality among subjects with LBP.

Among Orthopaedic surgeons, 100% had minimal disability, among non-orthopaedic surgeons, 94.1%, 2.9% had moderate and severe disability respectively.

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# DISCUSSION

This study was an attempt to investigate the prevalence of low back pain among orthopaedic and non-orthopaedic surgeons working in JSS hospital.

**Prevalence of LBP:**

It appears that the physical demands placed on surgeons put them at risk for LBP. The frequency of LBP in diverse occupations in the health care context is rather significant, according to available epidemiological research on occupational injuries.5,6,7,8.Low response rate, criteria for LBP, definition for point prevalence, short sample size, and other discrepancies in methodology might explain the vast range of prevalence rates for LBP in health care settings. In the current study, the last week and last year prevalence of LBP was 27.8% and 66.7% in orthopaedics group and in non-orthopaedics group it was 31.9% and 72.3% , which is comparable with the majority of previously reported prevalence for LBP in health care settings.9,6,7,8,10

Table 14 : Table showing comparison annual prevalence of LBP across various studies.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Our study | Mohsenii et al.6 | Dolan  et al.7 | Babar  et al.10 | Chatterjee et al.11 | Chams et al. |
| Specialities investigated |  | Orthopaedic and non-orthopaedic | Orthopaedic, gynaecologists, general surgeons | gynaecologists | ENT | ophthalmologists | ophthalmologists |
| Annual prevalence | orthopaedic | 66.7% | 73.6% |  |  |  |  |
|  | Non orthopaedic | 72.3% | 70.75% | 72% | 63% | 81% | 80% |

Various researches have looked at the impact of personal and professional characteristics on LBP, such as age, BMI, general health, years of practise, and so on.4,12,13

**GENDER AND ITS ASSOCIATION WITH LBP**

According to the CSAG3 study, women report rather more back pain than men, but at a rate that is similar to how they describe most other physical complaints. Among females in non-orthopaedic group, 11(100%) had LBP and among males, 36 (66.7%) had LBP. There was significant association between gender and LBP (P value: 0.024). Our results were comparable to findings of shah et al32 and saxena et al14.The results of Dolan et al were against our findings however they had relatively lower female population (27.1%). Similarly there was no woman in our orthopaedic surgeons’ group. Females comprised of only 16.9% of the population. These differences may have prevented us from demonstrating a significant gender difference in the prevalence of LBP.

Table 15: gender and its association with LBP. (O): orthopaedic surgeons, (NO): non-orthopaedic surgeons.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Our study | Mohensi et al6 | Dolan et al15 | Shah et al16 | saxena etal14 |
| Specialities investigated |  | Orthopaedic and non-orthopaedic | Orthopaedic, gynaecologists, general surgeons | gynaecologists | Orthopaedic  and non-  orthopaedic | dentists |
|  | male | 72% (O)  63.9% (NO) | 40.7% | 75.6% | 31.11% | 51.69% |
| Prevalence of LBP | female | --------(O)  100%(NO) | 39.1% | 62.1% | 68.88% | 65.26 |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

**BMI AND ITS ASSOCIATION WITH LBP**

Prevalence of LBP increased with increase in BMI with higher prevalence in over weight and obese surgeons which is in line with the findings of Mohseni et al6 who reported that prevalence of LBP increased with increased BMI. We did not find any statistically significant association between BMI and prevalence of LBP.

Table 16: Comparison of BMI and its association with LBP

|  |  |  |  |
| --- | --- | --- | --- |
|  | BMI | Our study | Mohensi et al |
| Specialities investigated |  | Orthopaedic and  non-orthopaedic | Orthopaedic, gynaecologists,  general surgeons |
| Prevalence of LBP | Low <20 |  | 100 % |
| Normal  20-25 | 75% (O)  52.9%(NO) | 27% |
| Overweight  25-30 | 70% (O)  80.8% (NO) | 70.8% |
|  | Obese  >30 | --------(O)  100%(NO) | 100% |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

**MARITAL STATUS AND ITS ASSOCIATION WITH LBP**

In our study we did not find any statistically significant association between marital status and incidence of LBP. This is probably because of all subjects in orthopaedic group were married and only 6 subjects from the non-orthopaedic group were unmarried.

Table 17 : Comparison marital status and its association with LBP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Our study | Bejia et al | Shah et al |
| Specialities investigated |  | Orthopaedic and non-orthopaedic | Hospital staff | Orthopaedic and non-orthopaedic |
| Prevalence of LBP | Married | 72.2% (O)  71.8% (NO) | 85.8% | 75.5% |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

**PHYSICAL ACTIVITIES AND ITS ASSOCIATION WITH LBP**

In this study the prevalence of LBP was relatively low among surgeons who were frequently involved in physical exercises than those who participated in physical activities rarely but we found no significant correlation between exercises and LBP in both the groups. However, among non-orthopaedic surgeons practising yoga was proved to be protective against LBP (P=0.044\*).

Table 18: Comparison of years of practicing surgery and its association with LBP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Years of practice | Our study | mirbod et al17 | Dolan et al15 |
| Specialities investigated |  | Orthopaedic and non orthopaedic | Orthopaedic, general surgeons | gynaecologists |
|  | <10 yrs | 100% (O)  80.8% (NO) | 58.1% (O)  34.2%(NO) | 66.7% |
| Prevalence of LBP | 11-20yrs | 70%(O)  84.6%(NO) | 68.8% |
|  | >20yrs | 33.3%(O)  25%(NO) | 39.1(O)  40%(NO) | 75% |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

**NUMBER OF ASSISTANTS AND ITS ASSOCIATION WITH LBP**

Mohseni et al6 and saxena et al14 in their study had declared that those surgeons who had an assistant at work were less likely to report LBP. This was confirmed in our study and it was statistically significant in the non-orthopaedic group. Meanwhile, in the orthopaedic group similar trend was observed although it was not statistically significant.

Table 19 comparison of the number of assistants while operating and its association of LBP

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Number of assistants | Our study | mohseni et al6 | Saxena et al14 |
| Specialities investigated |  | Orthopaedic and non-orthopaedic | Orthopaedic, general surgeons, gynaecologists | dentists |
|  | 0 | -------------- | 46.9% | 78.7% |
| Prevalence of LBP | 1 | 77.8%(O)  85.7%(NO) | 30.1% | 49.3% |
|  | 2 | 71.4%(O)  66.7%(NO) |
|  | >2 | 50%(O)  0%(NO) |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

Table 20: NUMBER OF HOURS SPENT PERFORMING SURGERIES AND ITS ASSSOCIATION WITH LBP

|  |  |  |  |
| --- | --- | --- | --- |
|  | Number of hours per week | Our study | Shah et al16 |
| Specialities investigated |  | Orthopaedic and  non-orthopaedic | Orthopaedic and  non-orthopaedic |
| Prevalence of LBP | 5-10 | 87.5%(O)  55.6%(NO) | 35.5% |
|  | 10-20 | 62.5%(O)  78.1%(NO) |
|  | 30-40 | 50%(O)  66.7%(NO) | 64.44% |

*O: orthopaedic surgeons; NO: non-orthopaedic surgeons*

It was found that number of surgeries performed in a week had no statistically significant correlation on prevalence of LBP.

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# Conclusion:

In this study it has been revealed that almost 72% of the surgeons in JSS hospital have low back pain. Demographic factors like age, sex, physical exercises and yoga had significant correlation with prevalence of LBP. Work related factors such as number of assistants while operating and frequency of use of lead jacket and years of experience were significantly associated to lower back pain. This indicates that there is a need to improve ergonomics in the workplace and emphasize on health education to reduce the burden of low back pain.

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