



Physiotherapy

ASSOCIATION BETWEEN TRENDS IN AGE, BMI AND GENDER WITH MECHANICAL LOW BACK PAIN PREVALENCE IN TWO WHEELER MOTORCYCLE RIDERS IN PUNE, INDIA.

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ABSTRACT **Background:-** Pune has one of the highest number of 2 wheeler vehicle population in India. Chronic low back pain affects up to 23% of the population worldwide, with an estimated 24% to 80% of patients having a recurrence at one year. A survey was conducted using a questionnaire including NPRS scale and Standardised Nordic Questionnaire for Low Back Pain. The study aims to find association between trends in Age BMI and Gender with mechanical low back pain prevalence in two wheeler motorcycle riders in Pune, Maharashtra, India.

Study Design:- Cross sectional study

Method:- Various two wheeler drivers were approached in Pune. The subjects were selected on the basis of their inclusion and exclusion criteria. The subjects were explained about the study before starting the procedure. Consent was taken from the subjects. Questionnaire was given and NPRS scale result were recorded. The data was collected and analysed.

Results:- Various Two wheeler riders in Pune were approached and questionnaire were filled. Total number of subjects are 253 out of which 180(51.5%) reported NPRS score of 0.5 and below with a mean of 2.28 and standard deviation of 1.76 and 170(48.5%) reported NPRS score of above 0.5 with a mean of 6.85 and standard deviation of 0.90. The age ranges from 20-40 years and were divided into four groups 20-25, 26-30, 31-35, 36-40 respectively. Mean NPRS score of subjects indicated a value of 6.85 with a standard deviation of 0.90. The mean Age of subjects indicate a value of 26.95 with a standard deviation of 6.13. The one-tailed P value is < 0.0001, considered extremely significant.

BMI was calculated of each subject and divided into 4 categories. Mean NPRS score of subjects indicated a value of 6.85 with a standard deviation of 0.90. The mean BMI of subjects indicate a value of 24.40 with a standard deviation of 3.92. The one-tailed P value is < 0.0001, considered extremely significant.

Out of 170 subjects having low back pain 87(51.4%) are female and 83(48.6%) are male.

Conclusion:- Prevalence of low back pain is slightly lower among two wheeler riders in Pune.

Among the subjects having low back pain There is significant association among the age group of 20-25 years.

Among the subjects with low back pain prevalence was higher in overweight riders. Riders with normal BMI came second.

Among the subjects having low back pain female have higher association with low back pain than males.

KEYWORDS : low Back pain, BMI, Age, Gender, motorcycle riders

INTRODUCTION

Chronic low back pain affects up to 23% of the population worldwide, with an estimated 24% to 80% of patients having a recurrence at one year. Low back pain is usually nonspecific or mechanical. Mechanical low back pain arises intrinsically from the spine, intervertebral discs, or surrounding soft tissues. Repetitive trauma and overuse are common causes of mechanical low back pain. Most patients who experience activity-limiting low back pain go on to have recurrent episodes.^[1]

Two-wheeler is considered as one of the fast and fuel-efficient means of transport. Two-wheeler riders are exposed to a more static position with restriction in movements, for a very long period of time depending on the usage. The studies reported that trouble experienced on riding for 12 months is higher for lower back (83%).^[2]

Prolonged maintenance of awkward static posture and continuous exposure to vibration causes postural stress. Deviation in joint angles from normal positions and for a long duration is an obvious cause of physiological stress leading to pain.^[3]

Sitting in the same posture for a long time results in restriction in blood flow, which causes distress to body parts causing muscle stiffness. It also causes discomfort. Two-wheeler riders are exposed to the environment directly to a greater extent and factors such as heat, noise, vibration are affecting them more dangerously compared to other transport. Two-wheeler riding demands more intense physical action which causes increase in fatigue.^[2]

The meta-analyses of cross-sectional studies showed a statistically significant association between BMI and low back pain. Compared with those of normal BMI, overweight and obese people had a higher prevalence of low back pain in the past 12 months, seeking care for chronic low back pain.^[4]

Study have shown Low back pain to be a major problem throughout the world, with the highest prevalence among female individuals. As the population ages, the global number of individuals with low back pain is likely to increase substantially over the coming decades.^[5]

METHODOLOGY

Sample size: 350

Study Design: cross sectional study

Sampling Method: purposive sampling

Study Population: motorcycle riders

Study Setting: offices, residential building in Pune

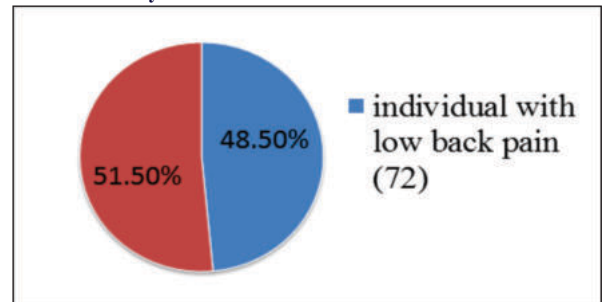
Study Duration: 6 months

OUTCOME MEASURES

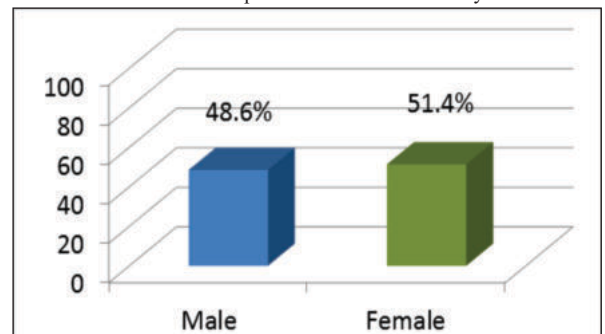
• NPRS

• Standardised Nordic Questionnaire for Low Back Pain

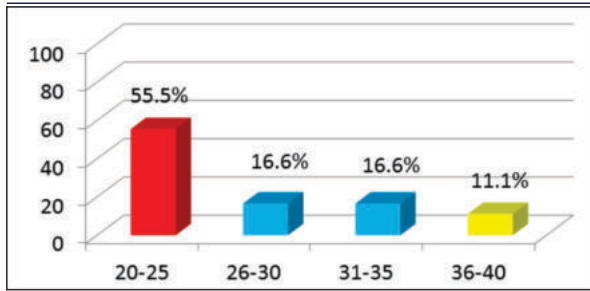
Statistical Analysis



• Prevalence of low back pain in two wheeler motor cycle riders.

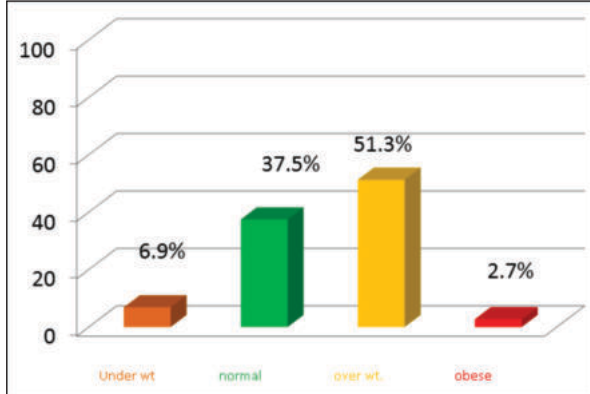


• Association between trend in Gender and low back pain prevalence.



Age group	Mean	Standard Deviation
20-25	22.47	1.54
26-30	27.41	1.67
31-35	33.08	1.44
36-40	39.5	1

• Association between trend in age and low back pain prevalence .



• Association Between Trend In BMI And Low Back Pain Prevalence.

RESULTS& DISCUSSION

RESULTS

BMI	Mean	Standard Deviation
Under wt.	17.39	0.43
Normal	21.50	1.51
Over wt.	26.64	1.10
Obese	37	1.005

• Various Two wheeler riders in Pune were approached and questionnaire were filled Total number of subjects are 350 out of which 180(51.5%) reported NPRS score of 0.5 and below with a mean of 2.28 and standard deviation of 1.76 and 170(48.5%) reported NPRS score of above 0.5 with a mean of 6.85 and standard deviation of 0.90.

	NPRS <0.5	NPRS >0.5
NO.OF SUBJECTS	180	170
MEAN	2.28	6.85
Standard deviation	1.76	0.90

• The age ranges from 20-40 years and were divided into four groups 20-25,26-30,31-35,36-40 respectively Mean NPRS score of subjects indicated a value of 6.85 with a standard deviation of 0.90.The mean Age of subjects indicate a value of 26.95 with a standard deviation of 6.13. The one-tailed P value is < 0.0001, considered extremely significant.

	NPRS <0.5	NPRS >0.5
NO.OF SUBJECTS	180	170
MEAN	2.28	6.85
Standard deviation	1.76	0.90

• BMI was calculated of each subject and divided into 4 categories .Mean NPRS score of subjects indicated a value of 6.85 with a standard deviation of 0.90.The mean BMI of subjects indicate a value of 24.40 with a standard deviation of 3.92. The one-tailed P value is < 0.0001, considered extremely significant.

	NPRS	BMI
MEAN	6.85	24.40
Standard deviation	0.90	3.92
P value	< 0.0001	

• Out of 72 subjects having low back pain 87(51.4%) are female and 83(48.6%) are male.

DISCUSSION

- The study was done with the aim to determine the association between trends in age,BMI and gender with mechanical low back pain prevalence in two wheeler motorcycle riders in Pune.
- Initially a thorough study about low back pain and subject of interest were done. After keeping in mind all aspect of the study, a synopsis was created it was put forth for clearance from ethical committee.
- Two wheeler motor cycle riders in Pune were approached questionnaire were filled the data collected was analyzed and descriptive analysis of the data was performed.
- Two-wheeler is considered as one of the fast and fuel-efficient means of transport. In Indian conditions of living, which demands low cost means of commute that can provide fast living standards, two-wheeler is a necessary part rather than a commodity to possess for both urban and rural areas.⁽¹⁾
- A two-wheeler rider along with the two-wheeler can be considered as a constrained workstation . During a journey, the rider will sit nearly in the same posture throughout the ride .The factors like design parameters of two-wheeler such as height, angle of foot, seat,location, handle bars and the physical dimensions of rider decides the posture .⁽¹⁾
- Our study showed Low back was more prevalent in age group 20-25 (mean 22.47).
- According to a study conducted in Kolkata The age group (21-23 years) was identified to have highest percentage of bike riders.⁽³⁾
- Our study showed Low back pain was more prevalent in Overweight motorcycle riders 51.3% (mean 26.64)
- The meta-analyses of cross-sectional studies showed a statistically significant association between BMI and low back pain . Compared with those of normal BMI, overweight and obese people had a higher prevalence of low back pain in the past 12 months, seeking care for low back pain, and chronic low back pain. This meta-analysis shows that both overweight and obesity increase the risk of low back pain. Overweight and obesity have the strongest association with seeking care for low back pain and chronic low back pain.⁽⁴⁾
- Fatty tissue is a stress on the body even when a person is not injured, as it decreases the blood flow carrying nutrients for healing to the injured area.⁽¹²⁾
- Our study showed higher low back pain prevalence in Female (51.4%) than in male 48.6%
- A Systematic Review of the Global Prevalence of Low Back Pain stated that The median overall prevalence of low back pain was higher among females than among males across all age groups . The overall mean prevalence of low back pain was significantly higher among females compared with males , *and this difference continued to be evident in the regression analysis.*⁽⁶⁾

CONCLUSION

- Prevalence of low back pain is slightly lower among two wheeler riders in Pune.
- Among the subjects having low back pain There is significant association among the age group of 20-25 years.
- Among the subjects with low back pain prevalence was higher in overweight riders .Riders with normal BMI came second.
- Among the subjects having low back pain female have higher association with low back pain than males.

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