

Original Article

ROLE OF OBESITY IN LOW BACK PAIN RELATED DISABILITY IN FEMALE ADULTS

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ABSTRACT

Objective: The aim of the study was to determine the association between obesity and low back pain. **Materials and Methods:** Total 42 patients were taken and then the patients were divided into 2 groups. In group A (n=22) the female obese patients with low back pain and in group B (n=20) the female non-obese patients with low back pain were included. Then the subjects were made to fill the Oswestry disability index for low back pain and pain was assessed by using VAS (visual analogue scale). **Results:** Data analysis was done on 42 patients using unrelated t-test at (p=0.05) level for Oswestry reading and (p=0.10) level for VAS reading. Result showed a significant difference in pain and disability in non-obese low back pain patients than obese low back pain patients. **Discussion:** Women have a higher prevalence of low back pain as compared with men, possible reason for this could be hormonal changes, irregular or prolonged menstrual cycle and different pain perception.³² Also abdominal obesity is the primary weight related risk factor for low back pain which is more common in women.³³ **Conclusion:** The present study concludes that obese with low back pain experience more disabled life than non-obese.

KEY WORDS: LOW BACK PAIN; OBESITY; OSWESTRY DISABILITY INDEX; VISUAL ANALOGUE SCALE.

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Access this Article online

Quick Response code



International Journal of Physiotherapy and Research

ISSN 2321- 1822

www.ijmhr.org/ijpr.html

Published: 11 August 2013

Received: 12 July 2013

Accepted: 21 July 2013

INTRODUCTION

Low back pain and obesity are widely prevalent in society and also they are the main contributors to mortality and morbidity increasing the disability rate and loss of economy. There is a strong relation between low back pain and obesity. Low back pain and obesity are most common problems that lead to disability.¹ Obesity is a problem of epidemic proportion.² Musculoskeletal disorders including low back pain represent a considerable public health problem and a common diagnosis creating absenteeism and the need for disability pensions.³ It is estimated that about 80% of the population will experience during low back pain adulthood.⁴

Low back pain is the second most common cause of disability in adults.⁵ The reported prevalence of low back pain was 22% on 5724 obese adults, with a linear correlation between and low back pain BMI.⁶ During stance, obese patients show an hyperextension of the lumbar spine.⁷ Being persistently overweight is associated with disk degeneration at Magnetic Resonance Imaging.⁸ Quantitative evidence exists that excess of weight negatively affects common daily movements, such as standing up^{9,10}, walking^{11,12}, lateral bending¹³, and forward flexion¹⁴. Few studies demonstrate a correlation between obesity and functional impairment of the spine secondary to weakness and stiffness of the lumbar muscles, possibly leading to low back pain and disability.¹⁵

People with low back pain and obesity are four times more likely to suffer from depression. Obesity linked with low back pain is the common cause of disability along with mental illness.¹⁶ Obesity also is a major factor in development of diabetes, which accounts for a small number of disability claims. So, the disability becomes almost double in low back pain because of obesity and females are more prone to low back pain.¹⁷

There was a strong association between back pain and functional difficulties in older women. Women with severe back pain are 3 to 4 times more likely than other women to have a lot of difficulty with light housework or shopping. There was also an increased likelihood of difficulty with mobility tasks and basic ADLs among those with severe back pain.¹⁸ Various studies have been done on obesity and low back pain related disability and those have been done do not show any satisfactory results. Thus the present study has been made to find out the role of obesity in low back pain related disability in female adults.

MATERIAL AND METHODS

The study is survey study design. A total number of 42 female patients were recruited from different hospitals of Hisar. All patients included in study gave their consent. The patient aged above 25 years who were diagnosed low back pain were included in study. A total of 42 female with a mean age of 36.26 years, mean height of 156.21 cm and mean weight of 70.17 kgs were participated in the present study. Patients with non-mechanical low back pain were excluded.

Instrumentation- The research tools were visual analogue scale and Oswestry low back pain disability questionnaire.

Visual analogue scale- It consist of 10 cm line which was used to assess subjective pain intensity. One end of the scale was marked "no pain" (0 cm) and the other end was marked "worst pain" (10 cm).

Oswestry low back pain disability questionnaire- It consist of 10 items addressing different aspects of function was used to evaluate functional disability. Each item is scoring from 0 to 5 with high values representing greater disability.

In questionnaire information regarding following parameters were obtained-

- Pain intensity
- Personal care
- Lifting
- Walking
- Sitting
- Standing
- Sleeping
- Sex life
- Social life
- Travelling

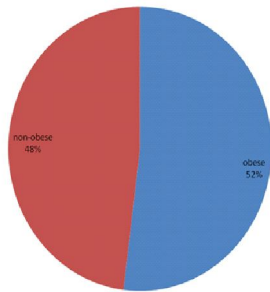
Procedure-The total of 42 patients were measured for obesity by taking their height and weight. The patients were divided into 2 groups. In group A (n=22) the female obese patients with low back pain and in group B (n=20) the female non-obese patients with low back pain were included. Then the subjects were made to fill the Oswestry disability index for low back pain and pain was assessed by using VAS (visual analogue scale) after taking their consent.

Anthropometric Measurement-This portion deals with the measurement of the height and weight of the patients and calculation of BMI from the same. Weight was measured using a standard weighing scale after removing all the bulky clothing, shoes and socks if any. Height was measured using a stadiometer. BMI was then calculated by the formula weight (kg)/ height (meters) ² i.e. weight in kg divided by square of height in meters. Patients were graded into normal, obese, and overweight according to the classification below.

BMI (kg/m ²)	Classification
18.5-24.9	Normal range
25.0-29.9	Overweight
> 30.0	Obese
30.0-34.9	Class I
35.0-39.9	Class II
> 40.0	Class III

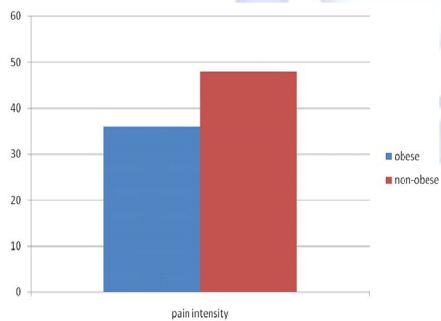
RESULTS

Data analysis has been done using unrelated t-test. Statistical analysis was set at (p=0.05) level for oswesrty reading and (p=0.10) level for VAS reading. In present study 52% of the subjects are obese and 48% are non-obese .



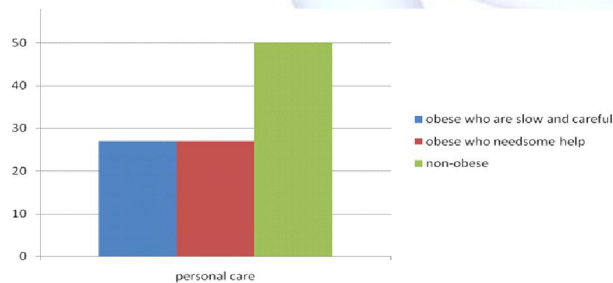
Pie chart 1: showing number of obese and non obese subjects.

Pain intensity- Regarding pain intensity for low back pain 36% of obese say that the pain was bad but they could manage without taking any pain killer. 40% of non-obese said that pain was bad but they could manage without taking any pain killer.



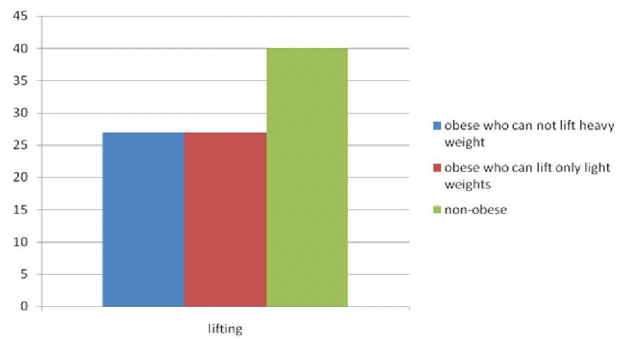
Graph 1.1: Showing Pain Intensity between obese and nonobese.

Personal care- Regarding personal care 27% of obese said that it was painful to look after themselves and they were slow and careful. 27% of obese said that they needed some help but managed most of their personal care. 50% of non-obese said that they could look after themselves normally but it cause extra pain.



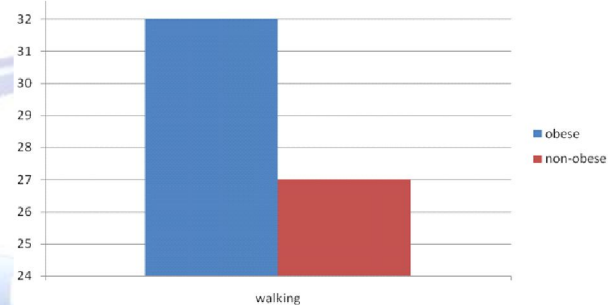
Graph 1.2 showing comparison of personal care between obese and non-obese.

Lifting- Regarding lifting heavy weights 27% of obese said that pain prevent them from lifting heavy weights off the floor but they could manage if they were conveniently positioned. 27% of obese said they could lift only very light weights. 40% of non-obese said that pain prevents them from lifting heavy weights but they could manage light to medium weight if they were conveniently positioned.



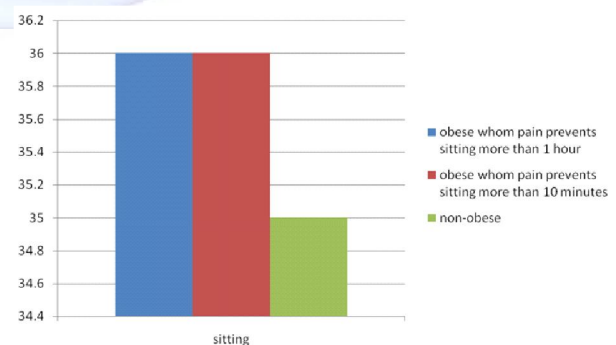
Graph 1.3: Showing of lifting activity between obese and non-obese.

Walking- Regarding walking 32% of obese said that pain prevent them walking more than 0.25 miles. 45% of non-obese said that pain prevent them walking more than 0.5 miles.



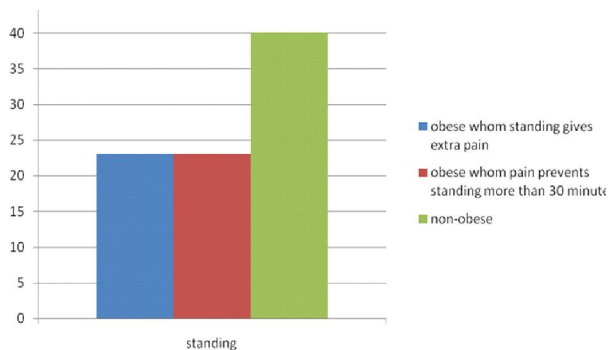
Graph 1.4: Showing comparison of walking activity between obese and non-obese.

Sitting- Regarding sitting 36% of obese said that pain prevent them sitting more than 1 hour. 36% of obese said that pain prevent them from sitting more than 10 minutes. 35% of non-obese said that pain prevent them from sitting more than 0.5 hours.



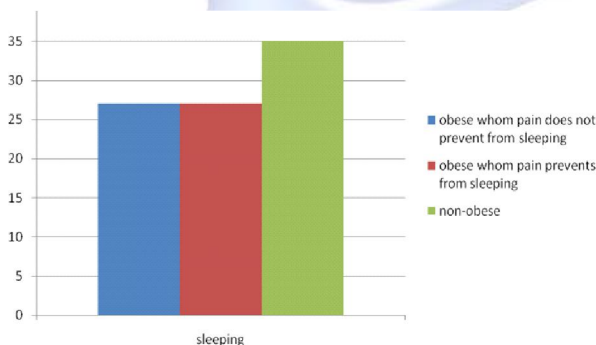
Graph 1.5: Showing comparison of sitting activity between obese and non-obese.

Standing- Regarding standing 23% of obese said that they could stand as long as they wanted but it gave them extra pain. 23% of obese said that pain prevent them from standing for more than 30 minutes. 40% of non-obese said that pain prevent them from standing for more than one hour.



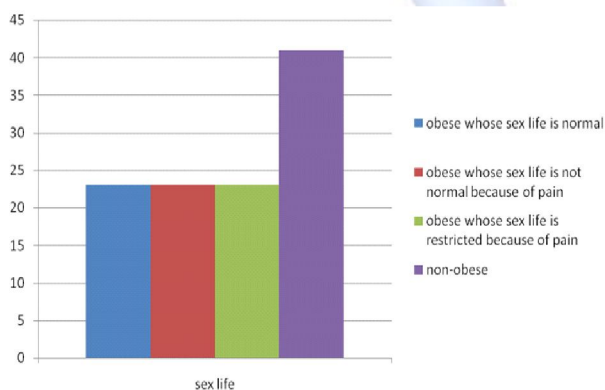
Graph 1.6: showing comparison of standing activity between obese and non-obese.

Sleeping- Regarding sleeping 27% of obese said that pain did not prevent them from sleeping well. 27% of obese said that even when they took tablets they had less than 2 hours of sleep. 35% of non-obese said that they could sleep well only by using tablets.



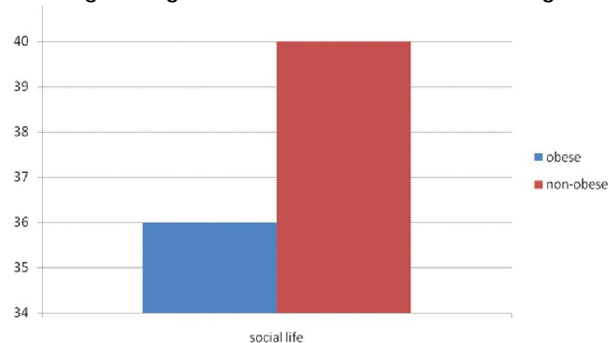
Graph 1.7: Showing comparison of sleeping activity between obese and non-obese.

Sex life- Regarding sex life 23% of obese said that their sex life was normal and did not cause any extra pain. 23% of obese said that their sex life was normal but cause some extra pain. 23% of obese said that their sex life was severely restricted by pain. 41% of non-obese said that their sex life was normal but cause some extra pain.



Graph 6.8: Showing comparison of sex life between obese and non-obese.

Social life- Regarding social life 36% of obese said that pain had restricted their social life to their home. 40% of non-obese said that pain had no significant effect on their social life apart from limiting energetic interests such as dancing.



Graph 6.9: Showing comparison of social life between obese and non-obese.

Traveling- Regarding traveling 32% of obese said that pain restricted them to journeys of less than 1 hour. 45% of non-obese said that they could travel anywhere but it gave them extra pain.



Graph 6.10: Showing comparison of traveling between obese and non-obese.

While Comparing the VAS reading between obese and non-obese significant result were observed.

Groups	Mean	SD	Mean difference	T value	P value
Obese	47.727	22.835	13.727	2.266	0.05
Non-obese	34	14.156			

Table 1: showing comparison of the readings of Oswestry Disability Index between obese and non-obese.

Groups	Mean	SD	Mean difference	T value	P value
Obese	5.59	2.059	0.84	1.57	0.1
Non-obese	4.75	1.177			

Table 2: Showing comparison of VAS reading between obese and non-obese.

DISCUSSION

Many studies have been done on the role of obesity in low back pain related disability in female adults. Low back pain is most prevalent cause of disability and obesity is related to poor physical functioning and limitation in daily life. It has been found out by previous studies that patients are unable to do activities of daily life because of low back pain and obesity.

The purpose of the present study was to determine role of obesity in low back pain related disability in female adults. The result showed that obese females with low back pain suffer disability as compare to non-obese with low back pain.

A study conducted by Dr. K. Yamakawa et al (2004) on the relation between ambulation and obesity in older person with or without low back pain showed non-significant results.¹⁸

A study conducted by Dr. Jitender Mangwani et al on obesity and recovery from low back pain showed that although a BMI with normal range is desirable from prevention of many health conditions including low back pain, it did not influence the over all recovery from low back pain in patients undergoing physiotherapy treatment.¹⁹

The previous studies did not show any significant result. Thus, showing no association between obesity and low back pain.

The purpose of the present study was to determine role of obesity in low back pain related disabilities in female adults. The result showed that obese females with low back pain suffer disability as compare to non-obese with low back pain.

A study conducted by Huang (1997) on factors associated with joint pain among postmenopausal women showed that the relative risk of back pain is increased in obese.²⁰

A study conducted by Dr. Rahman Shiri et al (2008) on the association between obesity and the prevalence of low back pain in young adults. They concluded that there is association between obesity and the prevalence of low back pain in women but not in men.¹⁶

Women have a higher prevalence of low back pain as compared with men, possible reason for

this could be hormonal changes, irregular or prolonged menstrual cycle and different pain perception.³² Also abdominal obesity is the primary weight related risk factor for low back pain which is more common in women.³³

Obesity increases mechanical load on lumbar discs which shifts center of gravity anteriorly.⁷ So there is alteration in patient's posture which causes disability.¹⁶ Patients became unable to do activities of daily livings such as bathing, dressing etc.^{13, 14}

The result of present study shows that obese suffer more disabilities as compared to non-obese with low back pain, Thus obesity plays an important role in low back pain related disability in female adults.

Limitations of the Study: Study was conducted with Small sample size. The study did not take into account duration of low back pain.

CONCLUSION

The present study concludes that obese with low back pain experience more disabled life than non-obese.

Scope for the future study: Different age groups among females can be compared for role of obesity in low back pain related disability.

ACKNOWLEDGEMENT

Authors expressing their sense of gratitudes to **Dr Shabnam Joshi(PT)**, Assistant professor, Department of Physiotherapy, Guru Jambheshwer University Science & Technology, Hisar, whose guidance, constructive counsel, unmatched suggestions, critical appreciations and unstinted encouragement enlightened throughout the study. Author also like to thank **Dr. Jaspreet Kaur Malik(PT)** for her constant inspiration and genius support in pursuing the study. And finally thanks to all those who have contributed directly and indirectly toward this study.

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How to cite this article:

Priyanka Tripathi, Jaspreet Kaur Malik, Shabnam Joshi. Role of obesity in low back pain related disability in female adults. Int J Physioth Res 2013;03:93-98.