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Abstract

Purpose: To find out the association of shoulder impingement syndrome with BMI in younger adults with reporting shoulder pain.

Methodology: This analytical cross-sectional study was carried out involving 18 to 39 years of male and female. Data was collected from Gujarat city (City Hospital, Gujrat Hospital, and THQ Hospital). This study was completed in 4 months after approval of synopsis. And total 233 males and females were evaluated. 18 to 39 years of males and females and who are willing to participate were included. Using a self-administered questionnaire, data was collected on demographic information (age, gender, occupation, height, weight, and BMI), as well as information specific to shoulder impingement syndrome.

Findings: Total patients were 233. There were 19 patients who were underweight overall or 8.2%. There were 12 underweight individuals with positive Neer's Test results, and their proportion was 9.0%. There were 7 underweight patients with negative Neer's Test results, and their proportion was 7.0%. 75 patients were overall healthy, and their proportion was 32.2%. There were 28 healthy patients with positive Neer's Test results, and their proportion was 21.1%. The percentage of

healthy patients with a negative Neer's Test was 47, or 47.0%. There were 93 patients overall who were overweight, making up 39.9% of the total. There were 58 overweight individuals with positive Neer's Test results, and their proportion was 43.6%. Neer's Test results for overweight individuals who were 35 and whose percentage was 35.0% were negative. A total of 46 patients were obese, making up 19.7% of the total. There were 35 obese individuals with positive Neer's Test results, and their proportion was 26.3%. There were 11 obese individuals with negative Neer's Test results, and their proportion was 11.0%.

Conclusion: This study reveals that the prevalence of shoulder impingement is associated with overweight or obese patients. The ratio of shoulder impingement was high in females. My result was significant.

Recommendations: For study, it is recommended to gather data from several cities so that the conclusions may be generalized. In order to prevent people from developing shoulder impingement, obesity risk factors should be addressed.

Keywords: *Shoulder Impingement, Neer's Test, Overweight, Obese*

1.0 INTRODUCTION

Shoulder impingement syndrome is defined as discomfort or pathology that is present in the subacromial bursa, subacromial space, and rotator cuff tendons [2]. Numerous variables, including overuse of the shoulder muscles, an improper scapulothoracic rhythm, instability of the glenohumeral joint, degeneration of the rotator cuff tendons, and altered acromion shapes, contribute to the pathogenesis of SIS¹. The most common reason for shoulder discomfort in adults is subacromial impingement syndrome (SIS). The supraspinatus tendon, subacromial bursa, and other structures are compressed as they travel through space between the acromion and humeral head, causing the problem².

The acromioclavicular joint and the coracoacromial ligament are both involved in shoulder impingement syndrome (SIS), which affects the area between the rotator cuff and the acromion. SIS commonly results in weakness or pain in shoulder area, lack of shoulder movement, and trouble sleeping. SIS has been attributed primarily to osteophytes, hypertrophic changes, and bony projections in acromion³. After neck and low back pain, shoulder discomfort is third most frequent clinical complaint seen in hospital outpatient clinics. It frequently affects people who perform overhead or repetitive jobs. Neer's claimed that the irregular form of acromion causes the rotator cuff tendons to be mechanically squeezed when they pass beneath the coracoacromial arch.⁴ Swimmer's shoulder is a general word that does not specify a particular clinical diagnosis. But rather a common disease among competitive swimmers marked by shoulder complex pain and dysfunction⁵. The middle-aged population is susceptible to shoulder pain. Neer's coined the phrase "shoulder impingement syndrome" first. Pathophysiology of RCT by evaluating the four types of acromions, age, gender, the side of the shoulder, and the severity of the supraspinatus tear in the MRI data.⁶ The start of shoulder pain, which is assumed to have a complex etiology, is likely to be influenced by a number of risk factors.

The majority of studies have shown that growing older significantly increases the chance of shoulder pain. Risk factors include osteoporosis, cervical radiculopathy, postural deviations, diabetes mellitus, tightness and discomfort in the trapezius muscles, and osteoporosis⁷. Understanding the underlying causes, particularly the part psychological variables play in shoulder pain function and hypersensitivity to local and generalized pressure⁸. Shoulder discomfort has been linked to weaker muscles that control external and internal rotation of the shoulder. Shoulder pain and shoulder muscular strength are both inversely correlated with structural abnormalities of the supraspinatus tendon⁹. Causes of shoulder pain in both athletes and non-athletes, with subacromial pain syndrome (SAPS) being one of the most prevalent diagnoses and the supraspinatus tendon being the primary structure impacted.¹⁰

2.0 METHODOLOGY

This analytical cross-sectional study was carried out involving 18 to 39 years of male and female. Data was collected from Gujarat city (City Hospital, Gujrat Hospital, and THQ Hospital). This study was completed in 4 months after approval of synopsis. Non probability convenient sampling technique will be used. And total 233 males and females were evaluated. 18 to 39 years of males and females and who are willing to participate are included in this study. And people with recent shoulder fracture, shoulder dislocation and shoulder injury for last 3 months are excluded from this study. Using a self-administered questionnaire, we collect demographic information (age, gender, occupation, height, weight, and BMI). If your BMI is under 18.5 then you are considered underweight. Your BMI range, 18.5 to 25, is regarded as a healthy weight level. If your BMI is between 25.0 and 30, you are deemed overweight. If your BMI is 30.0 or more, you are termed obese. As well as information specific to shoulder impingement syndrome.

Neer's test might come back any way. The examiner should support the patient's scapula with one hand while internally rotating the arm and softly flexing it. If the patient experiences pain while lying in this

posture, the test appears to have been successful. Data collection took place in accordance with the ethical committee's rules and guidelines at the University of Lahore Gujarat campus.

3.0 FINDINGS

Total patients were 233. There were 19 patients who were underweight overall or 8.2%. There were 12 underweight individuals with positive Neer's Test results, and their proportion was 9.0%. There were 7 underweight patients with negative Neer's Test results, and their proportion was 7.0%. 75 patients were overall healthy, and their proportion was 32.2%. There were 28 healthy patients with positive Neer's Test results, and their proportion was 21.1%. The percentage of healthy patients with a negative Neer's Test was 47, or 47.0%. There were 93 patients overall who were overweight, making up 39.9% of the total. There were 58 overweight individuals with positive Neer's Test results, and their proportion was 43.6%. Neer's Test results for overweight individuals who were 35 and whose percentage was 35.0% were negative. A total of 46 patients were obese, making up 19.7% of the total. There were 35 obese individuals with positive Neer's Test results, and their proportion was 26.3%. There were 11 obese individuals with negative Neer's Test results, and their proportion was 11.0%.

Table1: Neer’s Test Result

	N	%
Positive	133	57.1%
Negative	100	42.9%
Total	233	100.0%

According to this table, total patients were 233. And the patients with Neer’s Test positive were 133 and their percentage was 57.1%. Patients with Neer’s Test negative were 100 and their percentage was 42.9%.

Table 2: BMI of Patients

	N	%
Under weight	19	8.2%
Healthy	75	32.2%
Over weight	93	39.9%
Obese	46	19.7%
Total	233	100.0%

This table shows that total patients were 233. Underweight patients were 19 with a percentage of 8.2%. 75 healthy patients and their percentage was 32.2%. Overweight patients were 93 and their percentage was 39.9%. 46 obese patients with a percentage of 19.7%.

The overall results of the study show that there were 233 patients in all. Out of them 79 were male patients, making up 33.9% of total. The percentage of 45 male patients with positive Neer's Test results was 33.8%. There were 34 male patients in all, 34.0% of them had negative Neer's Test results. There were 154 total female patients, making up 66.1% of the total. There were 88 female patients in total with positive Neer's Test results, making up 66.2% of the total. There were 66 female patients in all, 66.0% of them had negative Neer's Test results. There were 233 patients in all. There were 118 housewives in total, making up 50.6% of the population. Housewives with a positive Neer's Test result were 68; their proportion was 51.1%; those with a negative result were 50; their percentage was 50.0%. 34 people were labour in total, and their share was 14.6%. The percentage of labours with

positive Neer's Test results was 21 (15.8%), whereas the percentage of labours with negative results was 13 (13.0%).

There was 1 total mechanic, and their share was 0.4%. The percentage of mechanics with a positive Neer's Test was 1, or 0.8%. Negative Neer's Test results for the mechanic equaled 0 and a percentage of 0.0%. With 18 total students, their proportion was 7.7%. There were 7 students with positive Neer's Test results, and their proportion was 5.3%. The percentage of 11 students with negative Neer's Test results was 11.0%. There were 6 tailors in total, and their share was 2.6%. There were 2 tailors whose Neer's Test results were positive, and their proportion was 1.5%. There were 4 tailors with negative Neer's Test results, and their proportion was 4.0%. Six instructors made up the total, and their share was 2.6%. There were 3 teachers with positive Neer's Test results, and their proportion was 2.3%.

There were 3 teachers with a negative Neer's Test, and their proportion was 3.0%. 50 people were employed in total, and their share was 21.4%. There were 31 employees whose Neer's Test results were positive, and their proportion was 23.4%. Negative Neer's Test workers made up 19 of the workforce, and their proportion was 19.0%. 233 patients in all. There were 19 patients who were underweight overall or 8.2%. There were 12 underweight individuals with positive Neer's Test results, and their proportion was 9.0%. There were 7 underweight patients with negative Neer's Test results, and their proportion was 7.0%. 75 patients were overall healthy, and their proportion was 32.2%. There were 28 healthy patients with positive Neer's Test results, and their proportion was 21.1%. The percentage of healthy patients with a negative Neer's Test was 47, or 47.0%.

There were 93 patients overall who were overweight, making up 39.9% of the total. There were 58 overweight individuals with positive Neer's Test results, and their proportion was 43.6%. Neer's Test results for overweight individuals who were 35 and whose percentage was 35.0% were negative. A total of 46 patients were obese, making up 19.7% of the total. There were 35 obese individuals with positive Neer's Test results, and their proportion was 26.3%. There were 11 obese individuals with negative Neer's Test results, and their proportion was 11.0%.

Discussion

A study was performed in year 2020 to determine the evaluation of the cross-sectional area of acromion process for shoulder impingement syndrome. They concluded that a more significant APA is linked to a higher likelihood of SIS, making the freshly developed APA a sensitive parameter for SIS assessment. This finding, in our opinion, will aid in the SIS diagnostic³. And finding of this study was that 233 patients in all. There were 19 patients, or 8.2%, who were underweight.

Neer's Test findings that were positive for 12 underweight people had a 9.0% percentage. Negative Neer's Test findings were found in 7 underweight individuals, or 7.0% of the total. The percentage of 75 patients who were overall healthy was 32.2%. Neer's Test findings that were positive in 28 healthy people were 21.1% of the total. 47, or 47.0%, of the healthy patients had a negative Neer's Test. Overall, 93 patients were overweight, accounting for 39.9% of the total. The percentage of 58 overweight people who had positive Neer's Test findings was 43.6%. Results of the Neer's Test for 35 overweight people whose percentage was 35.0% were negative. A total of 46 patients, or 19.7% of all patients, were obese. Neer's Test findings that were positive in 35 obese people represented 26.3% of the total. Neer's Test findings that were negative in 11 obese people were 11.0% of the total.

A study was performed in year 2019 to determine the "relationship between chronic shoulder pain and the increase in BMI". According to the findings, there is a statistically significant relationship between rising BMI and pain (as determined by the VAS), SPADI (pain, activity, and total), and ESR. On all of the measurements, there was a statistically significant difference between the obese group and the other groups even though there was no statistically significant difference between the normal weight

and overweight groups. They concluded that we advise adding weight management to the therapy of individuals with shoulder pain since obesity is sometimes linked to shoulder discomfort¹¹. And finding of this study was that overall, 233 patients. 8.2% of the patients, or 19 individuals, were underweight. 9.0% of the results from the Neer's Test were positive for 12 underweight individuals.

Negative Neer's Test results were obtained in 7 underweight people (7.0% of the total). On average, 32.2% of the 75 patients were in good health. Neer's Test results were positive of 28 healthy individuals accounted for 21.1% of the total. Neer's Test results were negative for 47 patients, or 47.0%, of the healthy ones. A total of 93 patients—or 39.9%—of the total—were overweight. 43.6% of the 58 overweight individuals had Neer's Test results that were positive. Neer's Test results for 35 overweight individuals with a percentage of 35.0% were unfavorable. There were 46 patients in total who were obese, or 19.7% of all patients. 35 obese individuals or 26.3% out of the total had Neer's Test results that were positive. 11.0% of the total number of Neer's Test results in 11 obese individuals were negative.

A study was carried out in year 2020. The purpose of study was to determine “the association between BMI and health-related physical fitness among Chinese college students a cross-sectional study”. They concluded that College pupils' BMI and PFI had non-linear relationships with one another. Students who were underweight, overweight, or obese performed worse on the physical fitness score than students who were of normal weight. Future prospective, longitudinal cohort studies will be necessary to properly identify the causal relationships and possible mechanisms¹².

4.0 CONCLUSION

This study reveals that the prevalence of shoulder impingement is associated with overweight or obese patients. The ratio of shoulder impingement was high in females. My results are significant.

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