



# PREVALENCE OF SHOULDER IMPINGEMENT SYNDROME AMONG DIFFERENT AGE GROUPS -A CROSS SECTIONAL STUDY.

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## ABSTRACT

**BACKGROUND:** Shoulder pain is a common presenting complaint for patients of all ages and activity levels. Shoulder impingement accounts for 44–65% of shoulder complaints. The shoulder impingement syndrome (SIS) consists of the rotator cuff tendonitis and bursitis of the shoulder. It shows the inflammation of the supraspinatus tendon inside the antero-inferior junction of the acromian process and the greater tuberosity of the humerus. It can affect the various age groups. It can affect both the genders. Purpose of this study is to find out the prevalence of shoulder impingement syndrome in different age groups. Other purpose of this study is to find out the prevalence among both the genders. So, based on that therapist can plan the treatment according to different gender and age specific functional requirements of the patients.

**OBJECTIVE:** The aim of the study was to determine the prevalence of shoulder impingement syndrome among males and females as well as among different age groups.

**METHODS:** In the present cross sectional study, total seventy-nine (79) Gujarati patients with shoulder impingement syndrome with age between 18-65 years were included. They were divided into 5 different age groups. According to those age groups, prevalence for each group was calculated.

**RESULT:** The study included 79 patients with the age between 18 to 65 years. Out of total 79 patients, 3 were of the age group 15-25 years, 23 were of the age group 26-35 years, 17 were of the age group 36-45 years, 15 were of the age 46-55 and 21 were of age group 56-65 years. Thus, it contributes to 4%, 29%, 21%, 19% and 27% to our total patient

population respectively. This study also concludes that prevalence among males and females is 57% and 34% respectively.

**CONCLUSION:** Present study concludes that shoulder impingement is more common primarily among 26-35 years of the age and secondarily 56 to 65 years of the age. It also concludes that shoulder impingement is more common in males compare to females.

**KEY WORDS:** Shoulder impingement syndrome, Neer's impingement test and Hawkins Kennedy test

## INTRODUCTION

Shoulder pain is a common presenting complaint for patients of all ages and activity levels. <sup>(1)</sup>Shoulder impingement accounts for 44–65% of shoulder complaints. <sup>(2)</sup>The shoulder impingement syndrome (SIS) consists of the rotator cuff tendonitis and bursitis of the shoulder. <sup>(3,4)</sup> it shows the inflammation of the supraspinatus tendon inside the antero-inferior junction of the acromion and the greater tuberosity of the humerus. Patients with SIS report severe acute pain which increases during over-head activities as well as sleeping on affected side. <sup>(3,5)</sup> The SIS comprises of three stages; stage I impingement is defined by edema and hemorrhage of the subacromial bursa and rotator cuff, it is found in patients who are less than 25 years old. Stage II impingement represents irreversible changes, such as fibrosis and tendinopathy of the rotator cuff. It is mostly found in patients who are up to 25 to 40 years old. Stage III impingement is marked by more chronic changes, such as partial or complete tears of the rotator cuff, and usually it is seen among the patients who are more than 40 years old. <sup>(5,6)</sup> Subacromial impingement syndrome (SIS) encompasses a spectrum of subacromial space pathologies including partial thickness rotator cuff tears, rotator cuff tendinosis, calcific tendinitis, and subacromial bursitis. These conditions may all present similarly and are often distinguishable only by magnetic resonance imaging (MRI) or arthroscopy. <sup>(1)</sup>

Although impingement symptoms may arise following trauma, the pain more typically develops insidiously over a period of weeks to months. The pain is typically localized to the anterolateral acromion and frequently radiates to the lateral mid humerus. Patients usually complain of pain at night, exacerbated by lying on the involved shoulder, or sleeping with the arm overhead. Normal daily activities such as combing one's hair or reaching up into a cupboard become painful, and a general loss of strength may be noted. Onset of shoulder pain and weakness following a fall in an individual over 40 years of age should raise concern for a complete tear of the rotator cuff. <sup>(1)</sup> The most frequently occurring shoulder disorders include rotator cuff disease or tendinopathy, which can progress to rotator cuff tear, glenohumeral joint instability, and adhesive capsulitis. <sup>(2)</sup> It is important to differentiate shoulder impingement with other shoulder disorders. Narrowing the etiology of shoulder pain can be difficult as a number of conditions often coexist in older individuals. Adhesive capsulitis often presents with

unremitting shoulder pain at rest, and early stages of adhesive capsulitis may present much like impingement syndrome. Later, patients will develop progressive loss of motion, with loss of internal rotation an early sign of the motion loss. Patients with adhesive capsulitis will be limited in both active and passive ranges of motion, particularly in contrast to SIS, where passive motion is unrestricted. Cervical radiculopathy may present with unilateral shoulder pain. This can be particularly difficult to sort out in older patients who may have both rotator cuff pathology and cervical spine osteoarthritis. Osteoarthritis of the glenohumeral joint presents with a painful diminished range of motion. <sup>(1)</sup>

In shoulder impingement syndrome, active and passive shoulder range of motion is typically normal. Two provocative examination techniques are highly sensitive but not very specific for diagnosing shoulder impingement syndrome. Neer's sign elicits pain with maximum passive shoulder elevation and internal rotation while the scapula is stabilized. <sup>(1,5)</sup> Hawkins's sign is pain with passive forward elevation to 90° and maximum internal rotation. <sup>(1,7)</sup> These 2 tests have a negative predictive value of greater than 90% when combined. <sup>(1,8)</sup> Marked rotator cuff weakness with positive impingement signs may indicate a complete cuff rupture. <sup>(1,5)</sup>

This study is designed to find out the prevalence of shoulder impingement syndrome in the various age groups and to find out the prevalence among both the genders.. So, based on that therapist can plan the treatment according to different gender and age specific functional requirements of the patients.

## METHODOLOGY:

- **STUDY DESIGN:** Cross sectional study.
- **STUDY POPULATION:** Patients of shoulder impingement syndrome with 18-65 years of age group.
- **SAMPLE SIZE:** 79
- **STUDY SETTING:** SPB Physiotherapy College OPD and other clinical OPDs of Surat.

### 6.7.1 Inclusion criteria: <sup>(3,4, 5, 6)</sup>

1. Patients with shoulder pain aged 18-65 years.
2. Complaint of pain since last 3 months.
3. Patients with positive Neer's impingement test and Hawkins Kennedy test.

4. Patients with no passive limitation of range of motion suggestive of adhesive capsulitis.

5. Tenderness present at subacromial space.

### **6.7.2 Exclusion criteria** (3, 4, 5, 6)

1. Previous surgery /trauma to the affected shoulder.

2. Other comorbid shoulder pathology such as instability, Glenohumeral arthritis, Acromioclavicular arthritis.

3. Evidence of complete rotator cuff tear (positive drop arm test/ MMT grade <2 of the RC).

4. Symptoms of cervical radiculopathy.

5. Diagnosed inflammatory or neurological disorder.

6. Systemic disorders like fibromyalgia, rheumatoid arthritis, any cardiac, respiratory etc.

### **6.8 MATERIAL AND TOOLS:**

1. Consent Form

2. Chair

3. Screening form

4. Data recording sheet

### **Procedure:**

Pilot study was conducted for the sample size calculation for one month from various hospitals and clinics across the Surat, Gujarat prior to the main study.

The sample size was calculated from following formula.

$$N = z^2 pq / d^2$$

$z$  = level of significance = 95%

$p$  = proportion of patients in one month = 0.0545

(12 patients of shoulder impingement syndrome were found among total 220 patients.)

$q = 1 - p$

$d$  = allowable error = 5%

So, from this formula total calculated sample size was 79.

The patients were screened on the basis of inclusion and exclusion criteria and their age, sex, medical health history, shoulder symptoms, affected side, body mass index, duration of symptoms and impact of their symptoms on activities of daily living was taken by an assessment Proforma. Neer's impingement test and Hawkins Kennedy test was performed to confirm the shoulder impingement syndrome according to inclusion criteria. <sup>(5, 6)</sup>.

## STATISTICAL ANALYSIS:

SPSS (ver. 20) statistical software was used for all statistical computations.

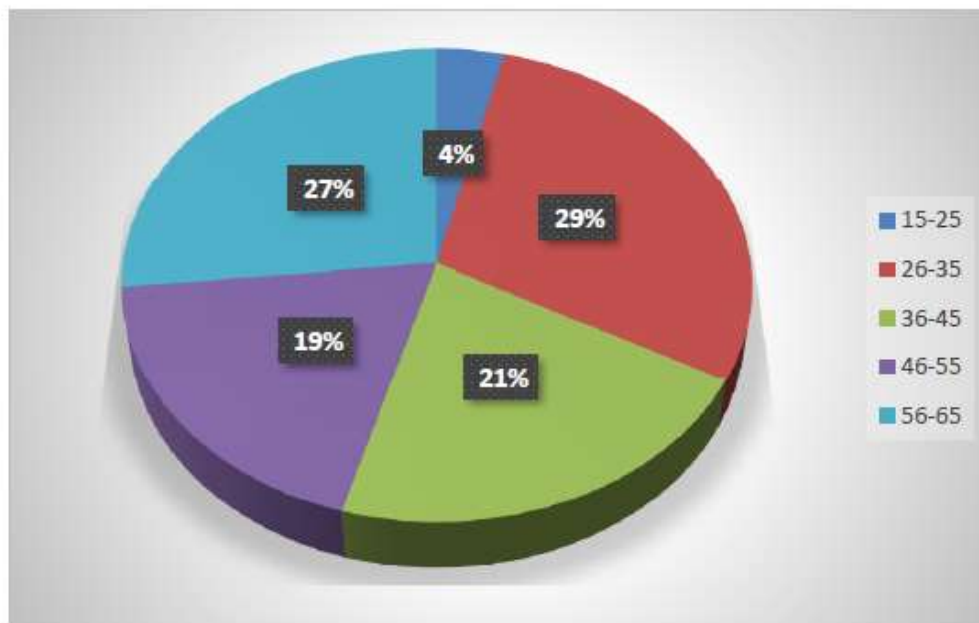
- Descriptive statistics for the continuous variables were presented as frequencies, whereas mean, standard deviation, minimum and maximum values were provided as counts and percentages for categorical variables.

## 7.2 RESULTS

The study included the sample of 79 patients with the age between 18 to 65 years and the study was conducted in various hospitals and clinics across Surat.

**Table 1: Descriptive analysis including frequency and percentage of patient’s age:**

Age	Frequency(n=79)	Percentage%
15-25	3	3.79%
26-35	23	29.11%
36-45	17	21.52%
46-55	15	18.99%
56-65	21	26.58%

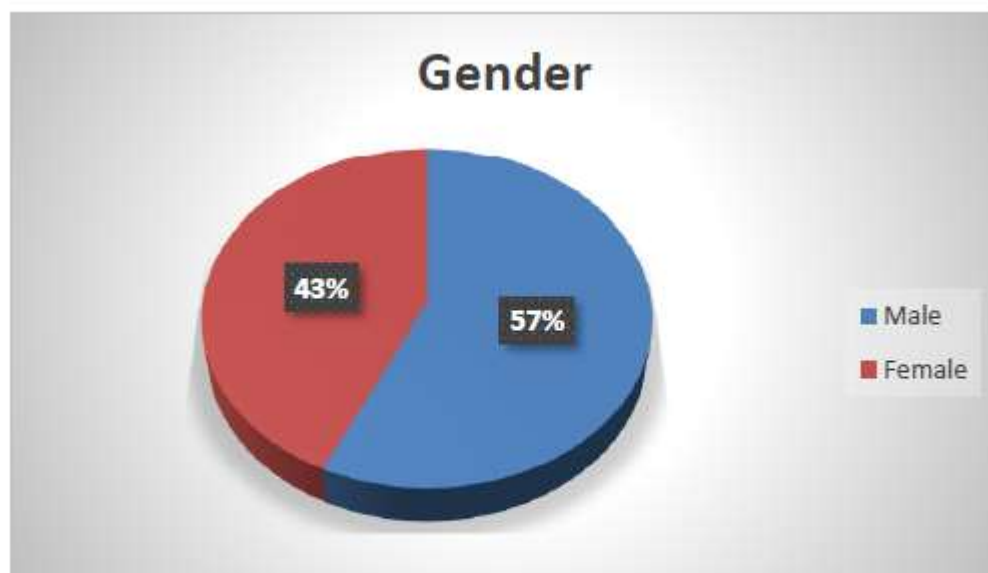


**Graph 1: Pie Chart showing Age distribution of patients with shoulder impingement syndrome:**

It can be concluded from the chart (table.1) that out of total 79 patients, 3 were of the age group 15-25 years, 23 were of the age group 26-35 years, 17 were of the age group 36-45 years, 15 were of the age 46-55 and 21 were of age group 56-65 years. Thus, it contributes to 4%, 29%, 21%, 19% and 27% to our total patient population respectively.

**Table 2: Descriptive analysis including frequency and percentage of gender**

Gender	Frequency(n=79)	Percentage%
Male	45	57%
Female	34	43%

**Graph 2: Pie Chart showing distribution of gender:****DISCUSSION:**

It can be concluded from chart (table 2) that out of total 79 patients, 45 patients were male and 34 patients were female. Thus, it contributes 57% and 34% to our total patient population respectively.

The data was collected from different hospitals and clinics across the Surat. Pilot study was conducted for one month for sample size calculation prior to the main study. Total 79 patients with shoulder impingement syndrome were selected according to inclusion and exclusion criteria.

Patients with age group 18-65 were selected. The mean age was 44.80. Among the total 79 patients with shoulder impingement syndrome male patients were 45 and female patients were 34. It can be concluded from the chart (table.1) that out of total 79 patients, 3 were of the age group 15-25 years, 23 were of the age group 26-35 years, 17 were of the age group 36-45 years, 15 were of the age 46-55 and 21 were of age group 56-65 years. Thus, it contributes to 4%, 29%, 21%, 19% and 27% to our total patient population respectively. So, from this study it can be

concluded that impingement is more common among 26-35 years of the age and 56 to 65 years of the age. Reason behind highest prevalence among young individuals may be related to occupation or activity of daily living.<sup>(2,4)</sup> Reason behind second highest prevalence of older individuals may be related to degenerative changes occurring in the body.<sup>(6,7)</sup> This study also reveals that shoulder impingement is more common in males compare to females. So, from this study therapist can get an idea regarding planning the treatment according to specific functional goals related to gender and age group.

## CONCLUSION:

Present study concludes that shoulder impingement is more common primarily among 26-35 years of the age and secondarily 56 to 65 years of the age. It also concludes that shoulder impingement is more common in males compare to females.

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