

**ORIGINAL RESEARCH**

# Normal Mouth Opening In an Adult Purvanchal Population: An Original Research Study

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**ABSTRACT**

**Introduction:** It is seen that mouth opening in different population have significantly differ in same age groups. Limitation of mouth opening is one of the early signs of many pathological and traumatic conditions. Early recognition of decreased or limited mouth opening is necessary for a prompt and efficient approach to diagnosis and to plan the treatment options judiciously. The recent studies have shown that the mouth opening differ with the different geographical locations and age group. This present study is attempt to calculate the normal mouth opening in adult population of purvanchal (eastern Uttar Pradesh) so that it enables a surgeon to establish a proper knowledge of normal range of mouth opening of this region. This is the first study which is conducted in this population. **Methodology:** A total number of 1000 adults. In which 639 were male and 361 were females, in the age range of 18 to 75years in this study. Subjects were asked to open their mouth till no further mouth opening is possible. Inter incisor distance were measured by the calibrated metal ruler. To determine the correlation of mouth opening as per age, sex and in different age groups, and analysis was performed and statistical signification was tested. **Result:** Mean maximal mouth opening for males was 50.1 mm (S.D 9.5mm). It ranges from 43mm to 52 mm. The maximum mean value in female was 44.3 mm (S.D 5mm) ranges from 41 mm to 47 mm. there was significant difference in mouth opening in male and female in all age group. **Conclusion:** The mean maximal mouth opening in Purvanchal population of male is 52mm and for female 44mm. the mouth opening seem to be decrease with age.

**Keywords:** Mouth Opening, Purvanchal Population, Inter Incisor Distance

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**INTRODUCTION**

Purvanchal have a very vibrant and old culture in northern India eating habits, such as spicy foods, paan, betelnut are the part of their culture. A long percentage of population both male and female has frequent pan chewing habits. According to many scientific research frequent betelnut chewing is the main etiological factor of causing an OSMF (oral submucous fibrosis), OSMF lead to reduced mouth opening and later it hampers proper function and esthetics of the individual, and have potential to convert in to malignancy, many other causes that also lead to reduces mouth opening such as, maxillofacial trauma, T.M.J disfunction, reconstruction defects, malignancies and craniofacial syndromes<sup>1</sup>. A known range of mouth opening is necessary to enable the clinician to conduct a thorough oral examination conveniently. Limited mouth opening is an early sign of many pathological diseases. Variation in range of mouth opening seen most common in different

regions. Research has shown the measurement of mouth varies significantly with age, sex, and races<sup>2</sup>. Many studies across worldwide conducted to evaluate the mouth opening in their population. However, it is first time that such types of study are done on this population groups.

**PURPOSE OF STUDY**

To evaluate the normal mouth opening range in different age group and stabilized ideal mouth opening during corrective surgery in different age groups in purvanchal population.

**METHOD**

This present study was carried out in Heritage institute of Medical Sciences. Total numbers of adults 1000 were included, in which males were 650 and female were 350, age range was from 18 to 75 years. Subjects were further sub divided in to five groups according to their age. In group I (18 to 30 years),

group II (30 to 40), group III (40 to 50), group IV (50 to 60 years), and group V (60 to 75 years). The mouth opening was measured using all standardized protocol. Subjects are asked to open their mouth till no pain or further mouth opening is not possible. Two consecutive measurements were taken between the inter incisor distance of upper central and lower central incisor was, by using calibrated metal ruler. All these measurements were taken by single examiner.



**Fig 1 Showing Normal Mouth Opening**

#### Inclusion criteria

- Age 18 years and above

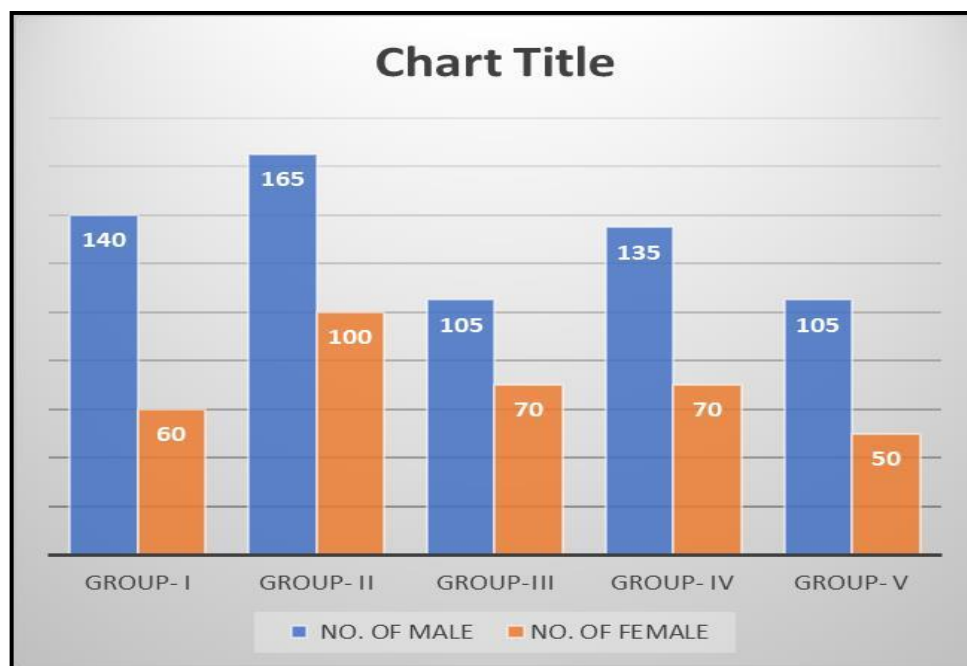
- No history of trauma, malignancy, pathology, impaction, TMJ disorder or any surgery on face or jaws.
- Upper and lower anterior teeth must be present.

#### Exclusion criteria

- Less than 18 years
- Completely edentulous
- No anterior teeth.
- Any history of TMJ disorder, OSMF, etc

#### RESULTS

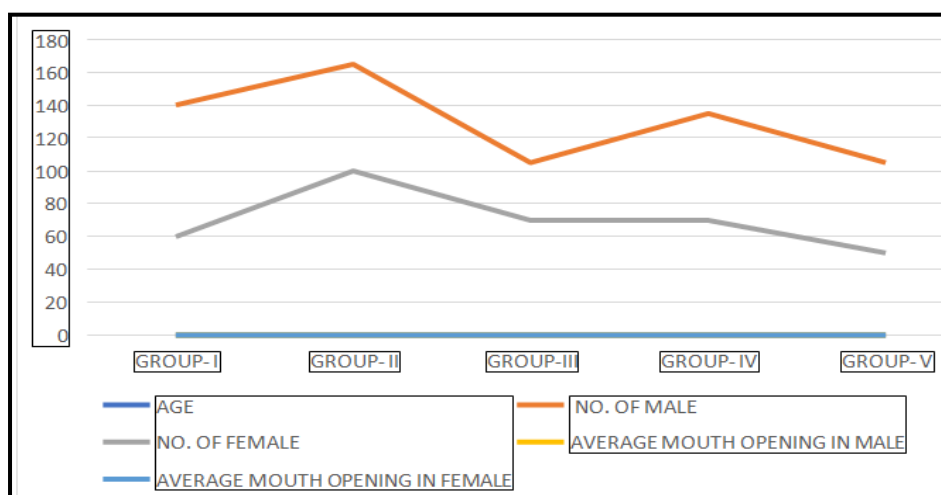
Mean maximal mouth opening for male was 50.1 mm (S.D 9.5mm) ranges (43-52mm). The maximal mouth opening for female was 44.3mm (S.D 5 mm) ranges 41-47 mm. In Group I maximal mouth opening was seen 51mm, (S.D 5.5mm) ranges 47- 57mm. In Group II max mouth opening was seen 52.5mm, (S.D 6mm) ranges 47- 59mm In Group III max mouth opening was seen 49mm (S.D 5.5mm) ranges 44- 55mm In Group IV max mouth opening was seen 47mm (S.D 6.3mm) ranges 43-52mm In Group V max mouth opening was seen 42mm (S.D 4mm) ranges 39-48mm.



**Graph 1: no of male and female in each group**

	GROUP - I	GROUP - II	GROUP - III	GROUP - IV	GROUP - V
AGE	18 - 30	30 -40	40-50	50-60	60 -75
NO. OF MALE	140	165	105	135	105
NO. OF FEMALE	60	100	70	70	50
AVERAGE MOUTH OPENING IN MALE	51mm	52.5mm	49mm	47mm	43mm
AVERAGE MOUTH OPENING IN FEMALE	46mm	47mm	45mm	43mm	41mm
TOTAL NO OF PARTICIPANTS	200	265	175	205	155
STANDARD DEVIATION	6mm	9 mm	7 mm	8mm	5mm

Table 1 showing the variation of mouth opening in each group with age



## DISCUSSION

Mouth opening is a commonly used term in our daily practices. Number of pathological conditions which can alter the normal range of mouth opening. Many studies and research are done to find out the most common cause to reduce the mouth opening. S.C Cox et al 1997 did a study on 700 Nepalese including both male and female over 6-month period and they found that OSMF was the most common cause for reducing mouth opening in these population<sup>2</sup>. Agerberg G did a study in 1974 and find in his study that the mouth opening is occasionally related to factor such as body, height, although no direct proportion have been found<sup>3</sup>. Michad mezitis et al found in their study that mouth opening varies from age to age<sup>4</sup>. Ranvleen nagi et al in 2017 did a study to evaluate the maximal mouth opening in different age groups and they suggested that three figure is a convenient and reliable tool for assessing normal maximal mouth opening and most appropriate method to measure normal mouth opening for individuals<sup>5</sup>. Pullinger et al studied the

angle of opening at TMJ and found it to be increases in woman. When they should have a greater range of mouth opening. When the measurement is corrected for stature and body mass but still have lesser mean mouth opening as compared to men. The present study attempts to calculate the mouth opening for Purvanchal male and female adult population and indifferent age groups. This data is important because of many complex surgical procedures are routinely performed in this part without proper references value. Inevitable reference to international data is obviously not justified as the mouth opening, is clearly different in different population. As in this study we found that mouth opening is not related to body mass or stature and it seem to decreases with age.

## CONCLUSION

The mean maximal mouth opening for Purvanchal population, India is 52.2mm which was in age between 30-40 years of age groups. The mouth opening seems to decreases with age, the mouth

opening of female is significantly less than male in all age groups.

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