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# Affordability of population towards dental care in Mathura City—A household survey

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## ABSTRACT

**Objectives** **The purpose of this study was to assess the factors of affordability towards dental care in Mathura city.**

**Material and Methods** **The present study included 100 households from which 100 persons were interviewed above the age group of 25 years. Data was collected with the help of structured Questionnaires & Face interviews. Information was collected regarding Socio-demographic variables & attitudes of the subjects towards the utilization of dental service and the affordability of the dental services. The data was then statistically analyzed using chi square test.**

**Results** **In the present study it was found that the income and education were significantly associated with the affordability of the dental services. Individuals having an income of above Rs 20, 000/ were found to afford the available dental care. Individuals having educational qualification of graduate and above were utilizing the dental services better than others.**

**Conclusion** **Within the limitation of this study, we can conclude that the utilization of dental services is not very high among Mathura city population. The affordability factor such as income, education and occupation were identified as the major factor towards utilization of dental services. However place of visit differs according to income, education and occupation.**

**Keywords:** Affordability, Dental services, Household Survey, Questionnaire

## INTRODUCTION

Oral health is integral and essential to general health[9]. Oral health means more than good teeth; it is essential for well-being. The dental diseases are emerging as considerable public health problems[1]. Changes in dental health have an impact on the demand for and utilization of dental services. In turn, affordability as a factor affecting health care service provision also has an influence back on dental health.

All persons should have access to required primary health care services which should provide the affordable services according to their need and demand and should be delivered in a timely and affordable manner[9, 5]. The WHO has identified the inverse care law as one of the common shortcomings of health care delivery. Inverse care suggests the availability of good dental care tends to vary inversely with the need for it in the population served[6].

Affordability is determined by how the provider's charges relate to the client's ability and willingness to

pay for services. There are various factors affecting affordability of dental services[10].

Covering an area of about 400 sq. kms Mathura city ***(the birth place of Lord Krishna)*** has one private dental college, one Government hospital and very few private dentists catering to the needs of a population. Studies in this part of the country have documented the evidence of dental diseases at high end as the dentist to manpower ratio is low.

However, the data is still lacking regarding the pattern of usage of dental service and factors affecting affordability such as income, education and occupation.

Keeping all the above mentioned points in view, an epidemiological questionnaire household survey was undertaken to find out the disease pattern of patients and factors of affordability which was collected house to household using a pretested questionnaire with the following objectives:

1. To analyze the pattern of usage of dental service.

2. To analyze the factors like income, education, occupation for affordability of dental services.

## MATERIALS AND METHODS

Mathura city is divided in 48 wards. From these, 10 wards were selected by adopting a simple random sampling procedure. From each ward by adopting systematic random sampling procedure, 100 households were selected from which 100 persons were interviewed who were above the age group of 25years.

### *Inclusion Criterion*

1. From each household the head of family or any of the senior member of the family was interviewed

2. Subjects willing to participate in the interview.

### *Exclusion Criterion*

1. Subjects who were uncooperative.

2. Subjects who refused to answer after much persuasion.

3. Subjects hiding the facts regarding their income, education and occupation were excluded from study.

### *Ethical Clearance*

Before scheduling the present survey the required ethical clearance was obtained from institution ethical clearance committee of K.D. Dental College.

### *Informed Consent*

Before the data collection the purpose and the methodology of the survey was explained to each of the subject and informed consent was obtained.

### *Scheduling*

The average time for the interview of each study subject was approximately 20-25 minutes. In the single day maximum of the 10 households were selected for visit and personally interviewed. The entire study was carried out over the period of two week.

### *Data Collection*

The data for the study was recorded on pretested questionnaire by personal face to face interview of the study subjects by a single interviewer.

Questionnaire included general information regarding socio-demographic characteristic of the study subjects including name, age, gender, income, occupation, education, number of family members. It also included view about general and dental health, attitude regarding family dental health, monthly budget for dental health, dental attendance pattern, main reason for visit, treatment received, experience with previous dental visit and attitude towards dental treatment and preferred place for dental service utilization, cost of dental treatment.

### *Statistical Analysis*

Data was entered in the Microsoft excel sheet and analyzed using SPSS (version 16). Chi square test was applied to analyze the factors for affordability of dental

services. p value of 0.05 was considered to be statistically significant.

## RESULTS

**Table-1, Graph I** shows Distribution of study subject according to Family Income. More number of people had income above 5000 -10000.

**Table 2, Graph II** shows Distribution of study subject according to educational status. The number of persons who had studied till high school was 38, primary school were 20, Graduate and above were 33 and Illiterate were 9.

**Table 3, Graph III** shows Distribution of study subject according to Occupation. 44 were skilled workers and 10 were unskilled.

**Table 4, Graph IV** shows Distribution of study subject according to visit to a dentist. 78 people had visited a dentist while 22 had not visited a dentist.

**Table 5** shows the Distribution of study subjects according to affordability of treatment. 36 study subjects said they could afford the treatment while 64 said they could not afford the treatment.

**Table 6** shows the association between Income and affordability of treatment. In the income group of above 20,000 the maximum number of study subjects (18) said they could afford the treatment but in the income group of 5000- 10000 the maximum number of study subjects (18) said they could not afford the treatment. However the difference was found to be statistically significant.

**Table 7** shows the association between Education and affordability of treatment. Maximum number of study subjects who were Graduate and above (16) said they could afford the treatment but the maximum number of study subjects who had studied till high school said they could not afford the treatment. However the difference was found to be statistically significant.

**Table 8** shows the association between Occupation and affordability of treatment. Maximum number of study subjects who were skilled workers (20) said they could afford the treatment however the maximum number of study subjects (22) in the skilled workers said they could not afford the treatment. However the difference was not found to be statistically significant.

**Table 9** shows the association between Visit to dentist and Affordability of Treatment. Maximum number of study subjects who visited the dentist (24) said they could afford the treatment however the maximum number of study subjects (22) in the same group said they could not afford the treatment. However the difference was found to be statistically significant.

**Table 1 Distribution of study subject according to Family Income**

| Family Income | Study subjects |
|---|---|
| >5000 | 7 |
| 5000 -10000 | 33 |
| 10001- 15000 | 16 |
| 15001- 20000 | 14 |
| > 20000 | 30 |

**Table 2 Distribution of study subject according to Educational status**

| Education | Study subjects |
|---|---|
| Illiterate | 9 |
| Primary | 20 |
| High School | 38 |
| Graduate and above | 33 |

**Table 3 Distribution of study subject according to Occupation**

| Occupation | Study subjects |
|---|---|
| Housewife | 16 |
| Unskilled | 10 |
| Semiskilled | 30 |
| Skilled | 44 |

**Table 4 Distribution of study subject according to visit to a dentist**

| Visit to a dentist | Study subjects |
|---|---|
| Yes | 78 |
| No | 22 |

**Table 5 Distribution of study subjects according to Affordability of Treatment**

| Affordability of Treatment | Study Subjects |
|---|---|
| **Yes** | 36 |
| **No** | 64 |

**Table 6 Association between Income and affordability of treatment**

| Income | Treatment affordability | | Chi square value | p-value | Significance |
|---|---|---|---|---|---|
| | Yes | No | | | |
| **>5000** | 1 | 14 | 26.86 | 0.001 | Significant |
| **5000 - 10000** | 6 | 18 | | | |
| **10001-15000** | 3 | 13 | | | |
| **15001-20000** | 2 | 9 | | | |
| **> 20000** | 18 | 10 | | | |

**Table 7 Association between Education and Affordability of Treatment**

| Education | Treatment affordability | | Chi square value | p-value | Significance |
|---|---|---|---|---|---|
| | Yes | No | | | |
| **Illiterate** | 1 | 8 | 7.767 | 0.05 | Significant |
| **Primary** | 5 | 15 | | | |
| **High School** | 11 | 27 | | | |
| **Graduate and above** | 17 | 16 | | | |

**Table 8 Association between Occupation and Affordability of Treatment**

| Occupation | Treatment affordability | | Chi square value | p-value | Significance |
|---|---|---|---|---|---|
| | Yes | No | | | |
| **Housewife** | 6 | 11 | 5.85 | 0.1 | NS |
| **Unskilled** | 5 | 17 | | | |
| **Semiskilled** | 3 | 16 | | | |
| **Skilled** | 20 | 22 | | | |

*p≤0.05=significant*

**Table 9 Association between Visit to dentist and Affordability of Treatment**

| Visit to dentist | Treatment affordability | | Chi square value | p-value | Significance |
|---|---|---|---|---|---|
| | Yes | No | | | |
| **Yes** | 24 | 53 | 24.04 | 0.00 | Significant |
| **No** | 6 | 10 | | | |

*p≤0.05=significant*

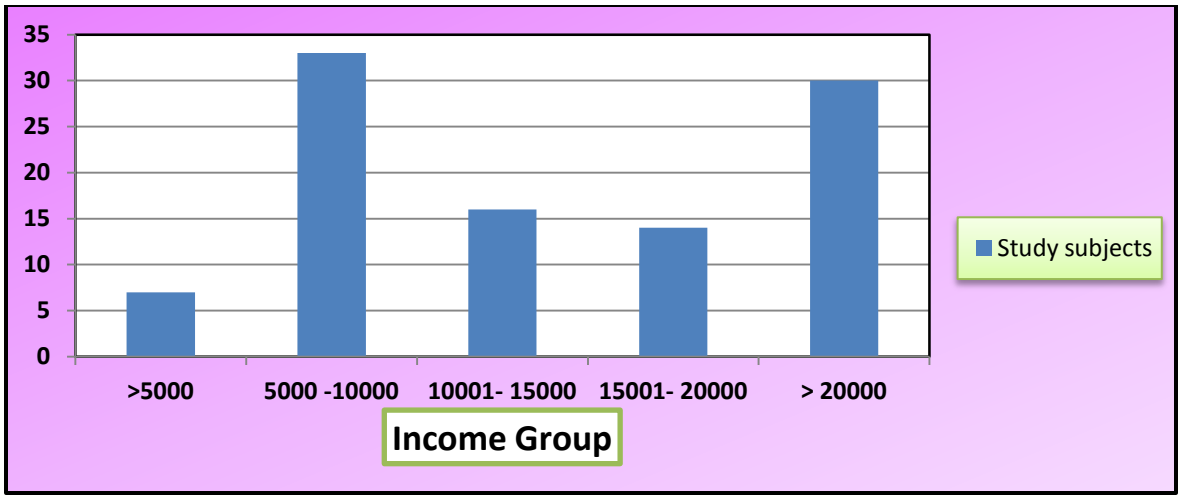


Figure 1 DISTRIBUTION OF STUDY SUBJECT ACCORDING TO FAMILY INCOME

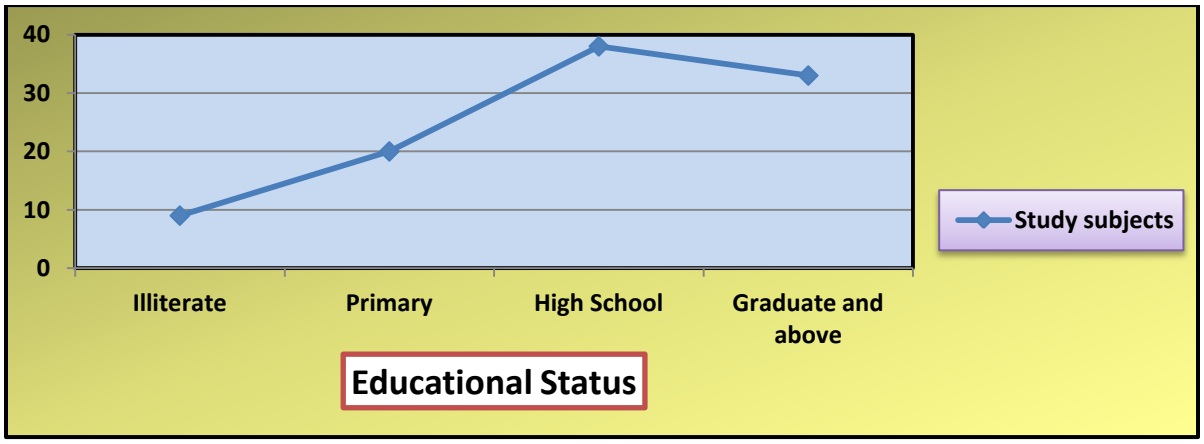


Figure 2 DISTRIBUTION OF STUDY SUBJECT ACCORDING TO EDUCATIONAL STATUS

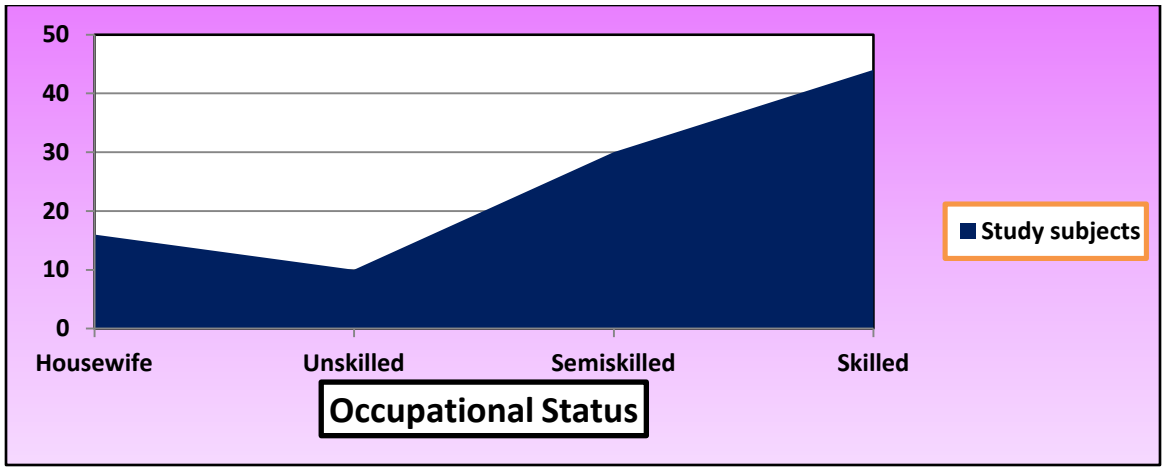


**Figure 3 DISTRIBUTION OF STUDY SUBJECT ACCORDING TO OCCUPATION**


**Figure 4 DISTRIBUTION OF STUDY SUBJECT ACCORDING TO VISIT TO A DENTIST**

## DISCUSSION

Our results point to an important socio-economic gradient in the use of dental services in Mathura. The probability of receiving any dental care over the course of a year and, to a lesser extent, the amount of care received increases with household income, and ones level of educational attainment[7]. Socioeconomic variables influenced affordability and utilization of dental services. Income adequacy is based upon both household size and income level, was positively correlated with use (i.e. increasing likelihood of use with increasing income adequacy)[2].

Education had a similar gradient, and those who had a Graduate and above degree were more likely to have used a dentist relative to all other educational levels[2,7].

In both cases, the results probably reflect greater awareness of the need for care, greater ability to access and afford resources, and greater income available for dental care[8].

Oral health has opposing effects on the probability of receiving any dental care and the amount of care received. Those with poorer oral health are less likely to receive dental care; this association could reflect the consequences of failure to receive regular dental care. Among those receiving dental care, however, those with poorer oral health visit the dentist more frequently[11].

## CONCLUSION

The dental community should be sensitive to patients' occupations as a marker for limited dental care access and unmet dental care needs. State funding should be earmarked for the development of oral health care services targeting worker groups (and their families) reporting the highest levels of unmet dental care needs and significant barriers to receiving dental care.

Indeed, among those who use some dentist services, the primary determinant of dental visit frequency was oral health. *Hence financial factors are particularly important determinants of the decision to receive any care, but health care needs drive the intensity/volume of services delivered to those who do receive care.*

Although (Gilbert et al, 2002) found that affordability was certainly a barrier to access to adequate dental care for persons with low socioeconomic status in their sample.

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