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ORAL HEALTH RELATED HOUSEHOLD EXPENDITURE AMONG RURAL & URBAN POPULATION OF MORADABAD DISTRICT – UTTAR PRADESH: A QUESTIONNAIRE SURVEY

Dental Science

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ABSTRACT

Background: Oral health is a functional element of the overall health. The problems which are considered in modern era are Dental caries and periodontal diseases. Over times have passed, the awareness and perceptions towards maintaining oral well-being and preventive measures has decreased, thus increasing the healthcare expenses.

Aim: The aim of this study was to estimate the oral health related household expenditure among the rural& urban population of Moradabad district – Uttar Pradesh. Objective: To estimate the expenditure on oral health among Rural and Urban population.

Materials and Methods: A convenient sample of 200 head of the families from rural areas (100) and urban areas (100) were interviewed. Data was collected using a self-made 11 item questionnaire relating to oral health related expenditure including dental treatments and the products used. Participants were interviewed by a single interviewer. The data collected hereby was subjected to statistical analysis.

Results: Out of 200 head of the families, 50% (100) were from rural areas and 50% (100) from urban areas. 76% from the urban and 92% from the rural responded NO when they were asked about their dental visits. Nearly 92% of both the population did not kept any budget for the dental expenditure. Most of the rural population (45%) paid for their dental treatment via Charities, trusts or Dental camps while the urban population paid out-of-pocket (86%). The total expenditure on visiting a dentist per year sums up to around 1312 INR for an urban family a year whereas significant drop is seen in rural family i.e. 62.8 INR a year.

Conclusion: People should be aware of the expenses they face and keep a check of it. They should be made aware of preventive oral hygiene support and appropriate policies should be formulated which in turn will eventually result in decreased expenditure on a curative aspect of the dental disease for the sectors of people who pay out of their pocket.

KEYWORDS

Health Expenditures, Oral health, Rural Population, Surveys and Questionnaire, Urban Population

INTRODUCTION

Oral health is an essential part of general health.[1]. Oral health issues such as untreated dental caries, periodontal disease, and tooth loss are major public health problems which significantly affect individuals and communities with reference to pain and suffering, functional impairment, and diminished quality of life. These oral health problems not only cause catastrophic effects on public health budgets, but also bring great financial burden and out-of-pocket (OOP) expenditure for those suffering.[2]

Prevention of oral health problems requires a multi-factorial approach which includes proper monitoring of dietary factors and effective maintenance of oral hygiene by means of appropriate chemical and mechanical plaque control methods.[3]

Although products to obtain satisfactory oral hygiene are easily available to buy, cost of such oral hygiene aids can be a significant obstacle for those who wish to achieve the minimum level of plaque control that is considered satisfactory for good oral health.[4]

Lack of attention toward the dental diseases expresses itself in the form of a financial burden on the family, which is mainly dealt with OOP (Out-of-Pocket) expenditure.[5] Such sudden catastrophic expenditures in India pushes families to sell their monetary assets or borrowing cash from peers even in the middle class families.[6]

Hence, this present household study was undertaken to estimate the household expenditure on oral health among the rural& urban population of Moradabad district – Uttar Pradesh.

MATERIALS AND METHODS

The present cross sectional study was conducted among the rural and urban population to assess the household expenditure on oral health related to the dental treatment and the dental products bought in the population of Moradabad district, Uttar Pradesh.

A Convenience sample of 200 families was selected from the rural and urban parts of the district. The Kuppuswamy scale was used to identify the socio-economic status of the family and were classified according to the scores obtained. One individual from each selected family, who managed household expenditure preferably head of family, was interviewed by a self-made questionnaire. The validity of the questionnaire was checked using face validity. The reliability of the questionnaire was checked using Cronbach's alpha (α =0.82).

Before commencement of the study, ethical approval was obtained from institutional ethics and review board of the college from where the study has been commenced (KDCRC/IERB/10/2018/1). The informed consent was obtained from all the participants after explaining them about the objective of the study and they were also insured about the confidentiality of information shared.

An 11-item close-ended questionnaire was formulated in the local language (Hindi was used) to assess the expenditure. The translation of the questionnaire was done by the interviewer before commencement of the study. The questionnaire included the oral hygiene practices, expenditure on oral hygiene and aids, visits to dental clinic and the treatment.

Data collection was done by interviewing the participants at their respective residence by a single interviewer. The survey was carried from September to October, 2018. Inclusion criteria for participants were who managed all the household expenses, i.e. the head of the family (Wife/Mother/Son/Father) and those who provided consent to participate in the study. All those who were contrary and refused to answer were left off (exclusion criteria) from the study. Data collection was categorized into MS Excel 2013 and statistical analysis was carried using IBM SPSS software, Version 24. The comparative analysis was done using Pearson Chi-square test. Statistical significance was set at p-value $\leq$ 0.05.

RESULTS

The response rate was 100%. Out of 200 head of the families, 50% (100) were from rural areas and 50% (100) from urban areas of the

Moradabad city. Response of various items regarding oral health related household expenditure is given in **Table 1.**

Table 1- Distribution of study population according to responses towards oral health expenditure & its variables

Questions	Responses	Urban (N=100)	Rural (N=100)	P-value
Visiting a dentist	Yes	24%	8%	0.002*
	No	76%	92%	
Refraining from a dental treatment	Yes	34%	68%	<0.00001*
	No	66%	32%	
Past dental problems	Pain	19%	36%	<0.00001*
	Bleeding gums	10%	31%	
	Halitosis	5%	20%	
	Others	16%	10%	
	None	50%	3%	
Measures for that dental problems	Went to a dentist	45%	15%	<0.00001*
	Self-medication	14%	19%	
	Others (quack)	3%	21%	
	Nothing	35%	38%	
Budget for dental expenditure	Yes	23%	3%	0.00002*
	No	77%	97%	
Paying for the dental treatment	Through public program	5%	11%	<0.00001*
	Charity/trusts/ camps	3%	45%	
	Insurances/ reimbursement	6%	4%	
	Pay out-of-pocket	86%	40%	
Changing the toothbrush	2 months	29%	26%	0.150
	3 months	41%	29%	
	4 months	11%	15%	
	More than 4 months	19%	30%	
Cost of toothbrush (in INR)	15-30 INR	19%	64%	<0.00001*
	30-50 INR	47%	30%	
	50-90 INR	28%	4%	
	More than 90 INR	6%	2%	
Toothpaste tubes/ powders consumption (in a month)	1	38%	48%	0.374
	2	47%	42%	
	3	8%	7%	
	4	7%	3%	

*Chi square test, p<0.05

Attitude towards Dental Visits

76% from the urban and 92% from the rural responded NO when they were asked about their dental visits (p=**0.002**). Refraining from the dental treatment was high in rural population (68%) than in urban population (34%) (p<**0.00001**). The past dental problems occurring in the rural populations were Pain (36%) followed by bleeding gums (31%). In about 50% of urban population, no dental problems were seen (p<**0.00001**). The measures for the related dental problems were – visiting the dentist: urban (45%) & rural (15%), self-medication: urban (14%) & rural (19%), visiting a quack: urban (3%) & rural (21%) and nothing: urban (35%) & rural (38%). (p<**0.00001**)

Budget and Expenditure

Nearly 92% of both the population did not kept any budget for the dental expenditure (p=**0.00002**). Most of the rural population (45%) paid for their dental treatment via Charities, trusts or Dental camps while the urban population paid out-of-pocket (86%) (p<**0.00001**). The frequency of changing the toothbrush was seen high in urban population than in the rural ones. It took an average of more than 4 months (30%) for a rural family to change their toothbrush whereas the urban population showed significant results of changing the toothbrush within 3 months (41%) (p=**0.150**). The cost of the toothbrush lies between 15-30 INR for more than 60% of the rural population (p<**0.00001).** The consumption of the toothpaste tubes or powder of an average family of four from rural population in a month was 1 (48%) whereas for the urban, it was reported as 2 (47%) (p= 0.374).

Average expenditure in year

The average expenditure from a rural family per year on toothpastes and toothbrushes is reported to be 807.5 INR and 200 INR respectively. Moreover, the urban family spends around 781.8 INR on toothpaste and around 960 INR on toothbrushes per year. The total expenditure on visiting a dentist per year sums up to around 1312 INR for an urban family a year whereas significant drop is seen in rural family i.e. 62.8 INR a year given in

Table-2.Table 2- Average expenditure of urban and rural population in a year

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	Average expenditure (in INR*)	
	Urban (n-100)	**Rural (n-100)**
Toothpaste	781.8	807.5
Toothbrush	960	200
Visit to dentist	1312	62.8

*INR Indian Rupee

DISCUSSION

Oral diseases such as periodontal diseases and dental caries are multifactorial; despite great improvements in the global oral health status, gingival and periodontal diseases still remain the major public oral health problems.[1,7]

The Healthcare expenditure in developing and low-income nations relies primarily on Out of pocket (OOP) expenditure. OOP expenditure on oral care is any direct spending by households, including payment done on preventive measures for oral diseases and treatment of already existing oral health problems.[8]

Analysis of expenditure of households on oral care has shown varying results. The analysis of expenditures, in general, has been a subject of supreme interest and discussion in recent times globally.

As per the results of the present study, out of the total population, only a few of the families preferred going to the dentist. The rate was even higher for the Rural population (92%). Following the prior question, the next response of refraining from a dental treatment, the Urban has opted for No to 66% and for Rural it was 32%. The lack of regular visit to dentist was due to lack of awareness regarding preventive and oral hygiene aids; as a result, there was increase in disease severity and increased dental expenditure.[9,10] There might be a reason for high cost of the treatment. This can be the leading cause for the rural population refrain from going to the dentist for treatment until it becomes a complete necessity or urgency. Dental problems faced by the rural were reported, Pain (36%) followed by Bleeding gums (31%) as compared to the urban population were pain and bleeding gums were comparatively very less.

Being in a complete need for the dental treatment, still 38% for the rural population did nothing in relation to these dental problems. It might be a reason as the rural population lack knowledge and information regarding their oral health conditions and they are not well aware of the consequences. Due to lack of knowledge and lower treatment cost, they also considered being treated by the quacks (21%).

The negligence of oral care was seen in relation to the budget. Both of the sectors did not allocate any budget for the dental expenditure. People gave less importance to regular checkup which added to their laxity towards dental care. This also could mark the low preparedness for unexpected emergency dental care. Similar results were seen by Verma et. al 2018.[11]

OOP expenditure was mostly seen in the urban populations. Rural mostly rely on the Camps and Charity for paying their dental expenses. With the increase in income range, the expenditure on the dental health care increased; similar finding was reported by Barros and Bertoldi[8] and Locker et. al[12]. Hence, the cost of dental treatment and oral healthcare needs acts as a significant barrier to achieve good oral health. This can also help the public health dentist for organising more camps in the rural areas where the awareness is low as it can be the only hope to get their check-ups done and also for maintaining a good oral hygiene.

The study also focused on the economic evaluation. On an average, the expenditure of the rural family was 62.8 rupees per year whereas for

the Urban it was around 1300 rupees per year.

There is seen a huge difference between the two sectors. It might be because of the increased socioeconomic status which in turn increase the educational level, increase awareness and concern towards oral health which is seen in the form of increased expenditure on preventive oral hygiene aids and care. The findings of our study are consistent with the finding of a survey conducted by Bhushan et al.[13]

CONCLUSIONS

It can be concluded from the study that people should be made more conscious and aware about the preventive oral hygiene benefits which will eventually result in decreased expenditure on curative facets of dental diseases. The people should also be made aware to hold onto the budget on dental expenses so that they can brace themselves for any future urgency related to Oral health. New government policies can be framed to tackle the escalating burden of oral diseases and increasing the awareness on preventive aspects which will in turn make the society ready for proper utilization of oral hygiene practices and will carry out further.

Few limitations were seen in the study. Participants were enquired to recollect their total household expenditure on oral hygiene and dental care, for the past period of 12 months, which is practically challenging to remember until they are keeping a check on their expenses (very few kept the check). Few of the participants reporting increased expenses as a prominence status symbol. As no procedures were employed to verify that participant's recall, the accurateness of the data of the present study completely depends on the respondent's ability to remember, recall and report truthfully.

Conflict of Interest

None Declared

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