Comparative Analysis On Utilisation Of Dental Services Among The Urban And Rural Population In India- A Cross-Sectional Study

Dr. Lubna Fathima[1*], Dr. Anitha Valentina[2], Dr. Ranjith[3], Dr. Aravinth V[4], Dr. Parvathy Thampy P S[5], Dr. Mukundan P E[6]

[1*]Master of Dental Surgery, Senior Lecturer, SRM Dental College and Hospital, Chennai, India
[2]Master of Dental Surgery, Assistant Professor, Government Stanley medical College and Hospital, Chennai
[3]Master of Dental Surgery, MBA, Reader, Chettinad Dental College and Hospital, Chennai, India
[4]Master of Dental Surgery, Associate Professor, Meenakshi Ammal Dental College and Hospital, MAHER, Chennai, India
[5]Master of Dental Surgery, Assistant Professor, Meenakshi Ammal Dental College and Hospital, MAHER, Chennai, India
[6]Master of Dental Surgery, Reader, Madha Dental College and Hospital, Chennai, India
Corresponding Author
Dr. Lubna Fathima - [*]Master of Dental Surgery, Senior Lecturer, Department of Public Health Dentistry, SRM Dental College and Hospital, Chennai, India
Email id-dr.lubnafathima@gmail.com

ABSTRACT

BACKGROUND: The treatment need is shown to increase as the age increases, it's always essential to avail and utilise the dental service provided to improve the quality of life. The discrepancy lies in the service provided in urban and rural population due to various reasons, hence the aim of the study is to compare the utilisation of dental services among the urban and rural population.

MATERIALS AND METHODS: A cross sectional was conducted among the urban and rural population to assess the utilisation of dental services. A set of 12 closed ended questionnaire was designed and circulated among the population through google form. The study involved 128 participants and results were validated.

RESULTS: Among the 128 study participants, the study results showed that age was a determining factor which showed significant difference among the rural and urban population whereas statistically insignificant difference was seen for the

gender, socioeconomic status and religion. A 12 close ended questionnaire showed that knowledge was lacking among the rural population compared to urban population.

CONCLUSION: Utilisation of dental services will be considered as an essential part only if the clarity between the normative and felt need which is considered as the major factor should be considered into account. The initiation of government in increasing the number of primary health care centre (PHCs) with proper maintenance should be indulged in the minds of people to create a better quality of life.

Keywords: Dental services, oral health, rural, urban, population.

INTRODUCTION

Health is considered to be the primary factor regardless of the age, gender, socioeconomic status and ethnic background (Bundy, 2023). According to previous review of literature it clearly shows that oral health is considered to be the health mirror of overall health thus said to be the building block of overall health (Steenkamer, 2023). Viewing into the previous structure of life expectancy at birth in India it was clearly projected that 63.6 years in 2001-2006 which is projected to be increased to 72.7 years by 2031-2036 (Stormon, 2023). The statistics suggests that increase in the grey portion of the Indian population increases the life expectancy at birth (Agili, 2020). It is said to be an important fact that elderly population requires higher treatment needs for survival than the younger age group (Suresh, 2020). It is shown that the age group of more than 60 years shows increase treatment need than other age group (Lim,2020). The difficulties which elderly people face are enormous including the major objective to be the financial status, poor literacy and other systematic condition of the people which is belief to oral health (Kamil,2021). According to the statistics, it shown that dental disease is not the major cause for mortality, the population should be aware about the ill effects caused to the health especially concern to the older people (Damar,2022).

The quality of life is found to be a key factor to improve the poor oral health which may increase the other chronic disease such as respiratory and other cardio vascular disease (Mumcu,2004). The Bhore committee in 1946 stated the need of primary health care centre being a key variant to provide curative and preventive health care services to the rural population to provide better quality of life (Hartmann, 2023). The further invasion of national health plan in 1983 stated the need of one PHCs for every 30,000 population (Hekler, 2022). The national oral health policy strongly suggests the need of dentist in every PHCs

it is found to be unfortunate that 50% of remains without a dentist being posted. With this background, the aim of this study was to identify the utilization dental services among rural and urban population.

MATERIALS AND METHODS

A cross-sectional study design was framed to conduct the study. The study was framed among various people in Tamilnadu, India. Twelve closed-ended questions were designed in order to known the attitude, knowledge and practice among the rural and urban population. The questionnaire was validated by the research experts before conducting the study. The questionnaire was divided to assess utilisation of dental services. The questionnaire was validated by the experts in the field of public health and content validity was done. The study was conducted in the month of February 2023. The questionnaire was passed on to the individual through Google forms through the Internet platform. Convenience sampling was done to select the participants included in the study. The sampling technique was chosen by the researcher since the questionnaire were passes via google forms. The finalised questions were divided into five types which include demographic details of the participants which include gender distribution, socioeconomic status, age group and religion. A set of 12 closed ended questionnaire was designed and circulated among the population through google form to assess the utilisation of dental service among them. This study involved 128 participants with were unequally distributed. The results were evaluated among the study population who are given they consent to use the data. Statistical analysis was done using SPSS software version 26.0. descriptive statistics was done to assess the percentage and frequency distribution. Inferential statistics was done using chi square test to assess the association between urban and rural population.

RESULTS

TABLE 1: DEMOGRAPHIC DETAILS OF STUDY PARTICIPANTS

GENDER	**FREQUENCY (N)**	**PERCENTAGE (%)**
MALE	60	46.8
FEMALE	68	53.2
SOCIO-ECONOMIC STATUS		
UPPER	11	8.5
UPPER MIDDLE	4	3.1
LOWER MIDDLE	61	47.7
UPPER LOWER	44	34.4
LOWER	8	6.3
AGE GROUP		
BELOW 20 YEARS	8	6.3

20-40 YEARS	60	46.8
41-60 YEARS	53	41.4
ABOVE 60 YEARS	7	5.5
RELIGION		
HINDUS	63	49.2
MUSLIMS	33	25.8
CHRISTIAN	32	25.0

Table 1 shows the demographic details of study participants. The gender distribution shows that female around 53.2% and males around 46.8% were included in the study. The socio-economic status showed that lower middle status was found to be higher (47.7%) who were enrolled in the study and least were lower status people (6.3%).

TABLE 2: DISTRIBUTION OF STUDY SUBJECTS BASED ON UTILIZATION OF DENTAL SERVICES

GENDER	**UTILISATION OF DENTAL SERVICES**		**P-VALUE**
	YES	**NO**	
MALE	20	40	0.304
FEMALE	21	47	
SOCIO-ECONOMIC STATUS			
UPPER	3	8	0.093
UPPER MIDDLE	1	3	
LOWER MIDDLE	21	40	
UPPER LOWER	12	32	
LOWER	2	6	
AGE GROUP			
BELOW 20 YEARS	4	4	0.046*
20-40 YEARS	18	42	
41-60 YEARS	13	40	
ABOVE 60 YEARS	1	6	
RELIGION			
HINDUS	21	42	0.921
MUSLIMS	9	24	
CHRISTIAN	12	20	

Table 2 shows the distribution of study subjects based on utilization of dental services and gender, socio-economic status, age group and religion. The P-value <0.05 was considered statistically significant. While assessing the statistical difference in respect to utilisation of dental services it was found that statistically significant difference was seen during age group assessment and statistically insignificant difference was seen during assessment of gender, socio economic status and religion.

TABLE 3: DESCRIPTIVE STATISTICS ON UTILISATION OF DENTAL SERVICES AMONG THE STUDY PARTICIPANTS

S.no	QUESTIONAIRRE	OPTIONS	Study participants (n-128)	
			Frequency(n)	Percentage (%)
1.	Do you visit a dentist on a regular basis	**Yes**	111	86.7
		No	17	13.3
2.	What was the source for identification of your dentist	**Friends**	17	13.3
		Colleague	31	24.2
		Relative	45	35.2
		Neighbour	20	15.6
		Doctor belonging to other speciality	8	6.2
		Dentist	4	3.1
		Advertisement	1	0.7
3.	What is the most common reason for you not going to a dentist	**Lack of transportation**	6	4.7
		Clinic/hospital locality is not easily available	5	3.9
		No felt need	104	81.3
		Financial burden	10	7.8
		Lack of time due to preoccupation	1	0.7
4.		**Yes**	60	46.9

	Do you visit a dentist based on the specialization	**No**	68	53.1
5.	How often do you visit your dentist atleast once	**6-12 months**	108	84.4
		1-2 years	12	9.4
		3-5 years	4	3.1
		5-10 years	2	3.1
6.	Would you like a dentist to notify you when it is time for your regular dental check-up	**Yes**	68	53.1
		No	60	46.9
7.	If you would like your dentist to notify you when it is time for a check up, what would be your	**Phone call**	8	6.3
		Text message	114	89.1

	preferred mode to receive notification	**E-mail**	6	4.6
8.	How satisfied are you with the attitude and behaviour of your dentist	**Very satisfied**	96	75
		Somewhat satisfied	24	18.8
		Not satisfied	8	6.2
9.	How do you feel when you are	**Relaxed**	62	48.4

	waiting at the reception area during the dental visit	**A little uneasy**	50	39.1
		Anxious	16	12.5
10.	How do you feel when you are waiting on the dental chair at operating area while the dentist arranges the required things to being the treatment	**Relaxed**	25	19.5
		A little uneasy	86	67.2
		Tensed	9	7
		Anxious that i sometimes break out in sweat or almost feel physical risk	8	6.3
11.	Which is your most frightening dental procedure you have experience so far	**Teeth cleaning**	15	11.7
		Dental drill	7	5.5
		Tooth removal	102	79.7
		Not had any such experience till date	4	3.1
12.	Do you have any health insurance	**Yes**	64	50

		No	64	50

Table 3 shows the Descriptive statistics on utilisation of dental services among the study participants. While assessing the most feared treatment it was shown that tooth removal was seen to panic around 61% of the study population. Most of the people preferred messages to receive notification for further dental issues. While asking about their reason for not visiting dentist was, they do not have any need to visit the dentist was the maximum people's opinion. Health insurance was not applied by half of the population and half of the population had dental insurance.

FIGURE 1: DISTRIBUTION OF STUDY PARTICIPANTS INCLUDED IN THE STUDY

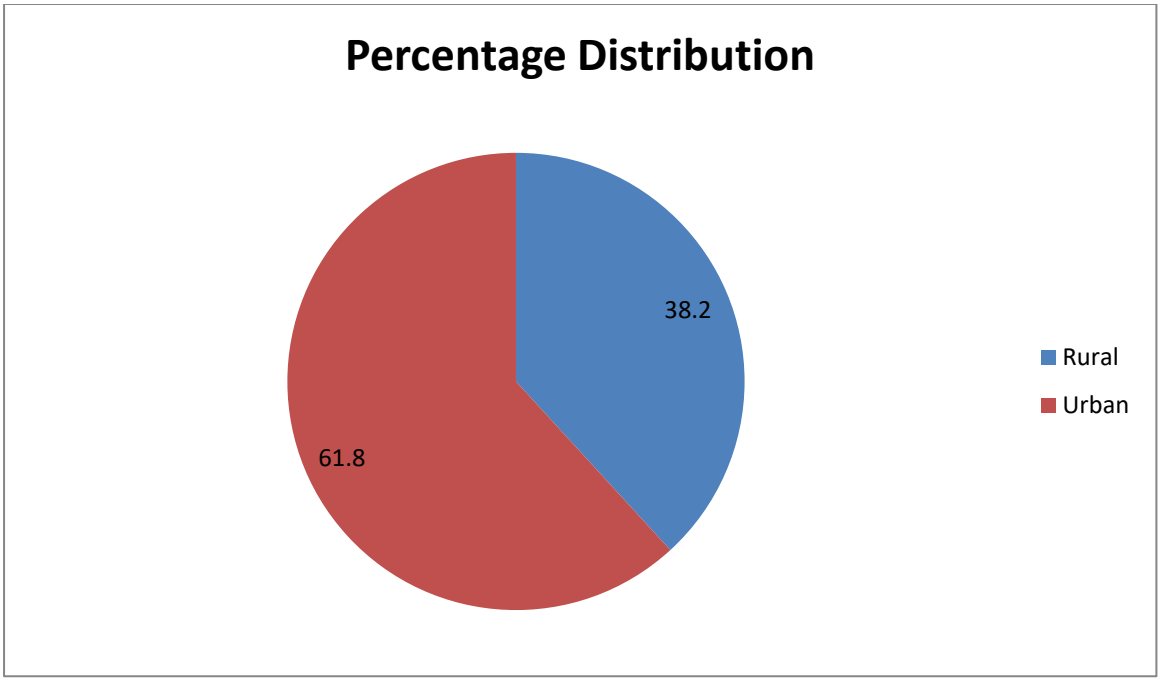

FIGURE 2: FREQUENCY DISTRIBUTION OF UTILISATION OD DENTAL SERVICES ACCORDING TO SOCIOECONOMIC STATUS

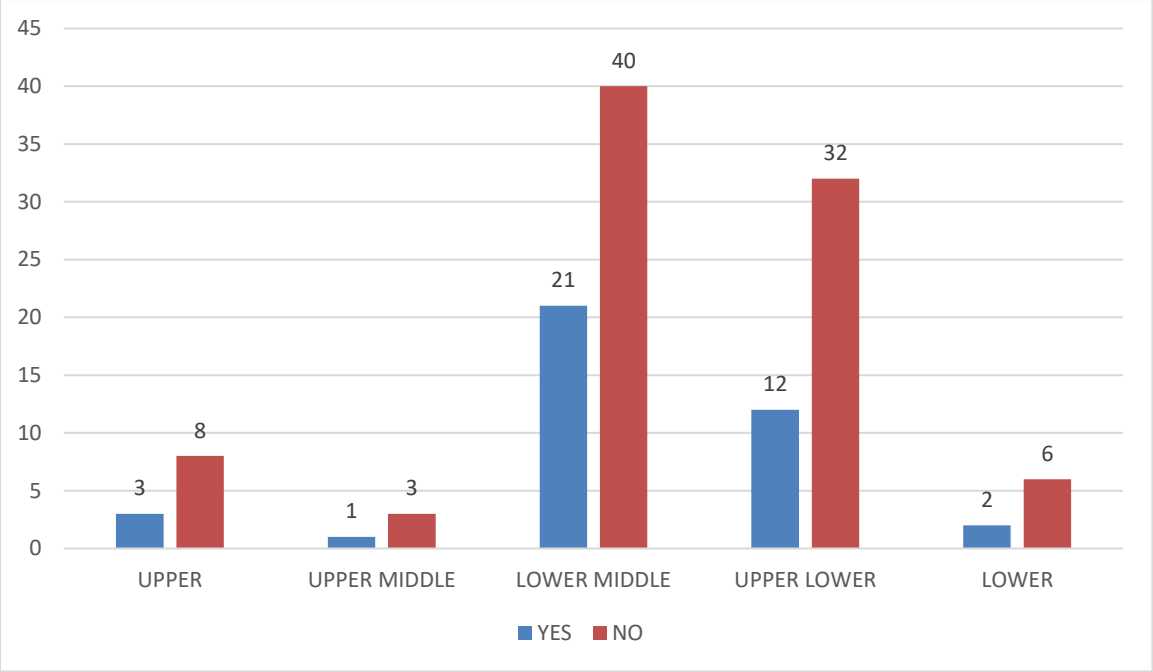

FIGURE 3: FREQUENCY DISTRIBUTION OF UTILISATION OD DENTAL SERVICES ACCORDING TO AGE

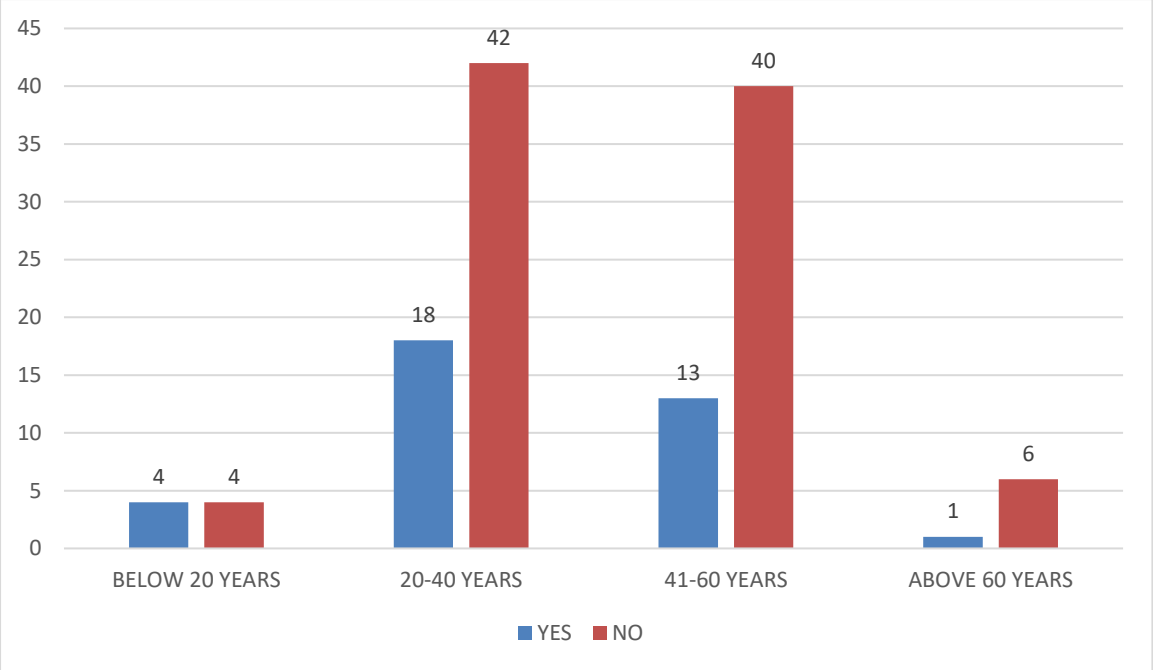

FIGURE 4: FREQUENCY DISTRIBUTION OF UTILISATION OD DENTAL SERVICES ACCORDING TO RELIGION

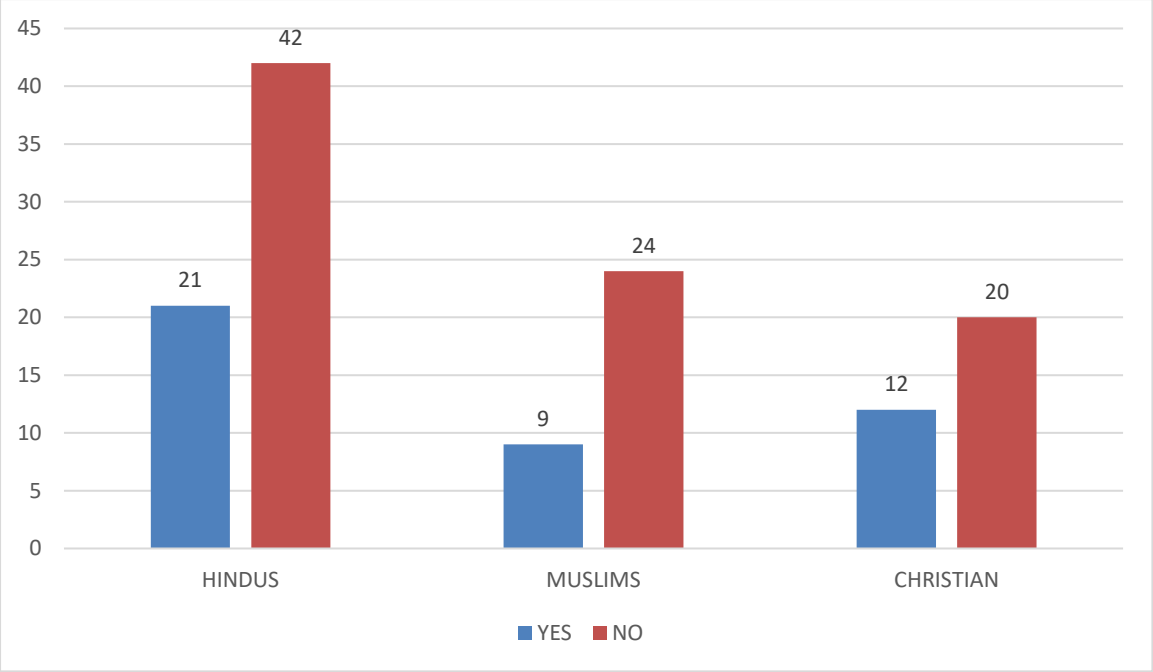

TABLE 4: UTILISATION OF DENTAL SERVICES AMONG THE URBAN AND RURAL POPULATION

S.no	QUESTIONAIRRE	OPTIONS	Rural (n-49)		Urban (n-79)		P-value
			Frequency(n)	Percentage (%)	Frequency(n)	Percentage (%)	
1.	Do you visit a dentist on a regular basis	**Yes**	48	37.5	63	49.2	0.013*
		No	1	0.8	16	12.5	
2.	What was the source for identification of your dentist	**Friends**	8	6.2	9	7.0	0.041*
		Colleague	9	7.0	22	17.2	
		Relative	13	10.1	32	25	
		Neighbour	10	7.8	10	7.8	
		Doctor belonging to other speciality	4	3.1	4	3.1	

		Dentist	3	2.3	1	0.8	
		Advertisement	1	0.8	0	0	
3.	What is the most common reason for you not going to a dentist	**Lack of transportation**	2	1.5	4	3.1	0.193
		Clinic/hospital locality is not easily available	1	0.8	4	3.1	
		No felt need	40	31.2	64	50	
		Financial burden	4	3.1	6	4.6	
		Lack of time due to preoccupation	1	0.8	0	0	
4.	Do you visit a dentist based on the specialization	**Yes**	21	16.4	39	30.4	0.15
		No	28	21.8	40	31.2	
5.	How often do you visit your dentist atleast once	**6-12 months**	42	32.8	66	51.6	0.32
		1-2 years	3	2.4	9	7.0	
		3-5 years	2	1.5	2	1.5	
		5-10 years	2	1.5	2	1.5	
6.	Would you like a dentist to notify you when it is time for your regular dental check-up	**Yes**	25	19.5	43	33.6	0.48
		No	24	18.8	36	28.1	

7.	If you would like your dentist to notify you when it is time for a check-up, what would be your preferred mode to receive notification	**Phone call**	2	1.5	6	4.7	0.45
		Text message	45	35.1	69	53.9	
		E-mail	3	2.3	3	2.3	
8.	How satisfied are you with the attitude and behavior of your dentist	**Very satisfied**	36	28.1	60	46.9	0.14
		Somewhat satisfied	10	7.8	14	10.9	
		Not satisfied	4	3.1	4	3.1	
9.	How do you feel when you are waiting at the reception area during the dental visit	**Relaxed**	37	28.9	25	19.5	0.038 *
		A little uneasy	10	7.8	40	31.2	

		Anxious	3	2.4	13	10.1	
10.	How do you feel when you are waiting on the dental chair at operating area while the dentist arranges the required things to being the treatment	**Relaxed**	10	7.8	15	11.7	0.16
		A little uneasy	32	25	54	42.1	
		Tensed	3	2.4	6	4.6	
		Anxious that i sometimes break out in sweat or almost feel physical risk	4	3.1	4	3.1	
11.	Which is your most frightening dental procedure you have experience so far	**Teeth cleaning**	10	7.8	5	3.9	0.84
		Dental drill	5	3.9	2	1.5	
		Tooth removal	32	25	70	54.7	
		Not had any such experience till date	2	1.5	2	1.5	
12.	Do you have any health insurance	**Yes**	25	19.5	39	30.4	0.72
		No	24	18.8	40	31.2	

Table 4 shows the Utilisation of dental services among the urban and rural population. P-value <0.05 was considered to be statistically significant. While assessing the association it was shown that question regarding the regular visit to dentist, source of identification of dentist and mode of feel when you are waiting at the reception area during the dental visit had statistically significant results which showed much difference was seen among the urban and rural population. Whereas other questionnaire had similar opinion among the rural and urban population with statistically insignificant results.

DISCUSSION

The utilisation of dental services depends upon various factors in which age plays a very important role. The old age group people are considered to be a burden to the society due to high demand of treatment needs (Palati,2020). Study conducted by Wu et al (2022) shows that only 3.4% of the rural elderly had a dental visit in the past one year. In the present study it was shown that much information was not gathered about the dental visit within the previous years because that may also analyse the change in psychological aspect of accepting the treatment needs. Psychological behaviour is a broad area which is found to be the independent factor in our study.

The current study showed that the people did not consider dental care as a major factor which affects the health. The utilisation of dental care was not seen to be used by majority of our study population which was accordance with the study conducted by Poudyal et al (2010). The people were been mismatched by the normative and perceived need which is an essential key factor affecting the utilisation of dental care. The current study results showed no significant difference between the males and females which was similar to the results of Poudyal et al on the other hand the results were dissimilar in comparison with the study conducted by liddell and locker et al (1997). The assessment of questionnaire among the study participants showed that the dental treatment was only done went there is a felt need to the people and no regular check-up was done to monitor the oral health which was in accordance with the study done by lee et al (2023), showed that follow up is chosen to be an essential key to make the participants utilise the dental treatment. Higher individuals seek dentist through the contact of their relative and tooth removal is shown to be one of the fearful treatments in dental procedure. The while assessing the attitude of the patient to improve the service provided it showed that there were willing for follow up but the reminder text message on appointment should be insisted periodically. While assessing the difference among the urban and rural population it was showed that irrespective of rural and urban population, regular basis of

reminder and follow up is required to avail and utilise the dental services provided by government.

CONCLUSION

Utilisation of dental services by the rural and urban population was found to be influenced by the age group. This will only be rectified if the people have a clarity between the normative and felt need which is considered as the major factor affecting the utilisation of dental services. The only health service available for the rural population is PHC, but majority of the PHCs has no dentist in it to provide dental care. The need of the study is to provide the knowledge and awareness of availing oral health care as a key strategy to improve the quality of life.

REFERENCES

1. Al Agili, D.E. and Farsi, N.J., 2020. Need for dental care drives utilisation of dental services among children in Saudi Arabia. International Dental Journal, 70(3), pp.183-192.
2. Bundy, J.D., Mills, K.T., He, H., LaVeist, T.A., Ferdinand, K.C., Chen, J. and He, J., 2023. Social determinants of health and premature death among adults in the USA from 1999 to 2018: a national cohort study. The Lancet Public Health, 8(6), pp.422-431.
3. Damar, M.U.H.A.M.M.E.T., 2022. What the literature on medicine, nursing, public health, midwifery, and dentistry reveals: An overview of the rapidly approaching metaverse. Journal of Metaverse, 2(2), pp.62-70.
4. Hekler, E., Anderson, C.A. and Cooper, L.A., 2022. Is It Time to Restructure the National Institutes of Health. American journal of public health, 112(7), pp.965-968.
5. Hartmann, C.F., Meucci, R.D. and Silva, A.E.R., 2023. Factors associated with the use of dental services in the previous 12 and 36 months by Brazilian older people residing in rural areas. Gerodontology, 40(2), pp.263-269.
6. Kamil, W., Kruger, E. and Tennant, M., 2021. Utilisation of Dental Services of Older People in Australia: An Economic Explanatory Model Based on Cost and Geographic Location. Geriatrics, 6(4), p.102.
7. Lim, M.A.W.T., Liberali, S.A.C. and Borromeo, G.L., 2020. Utilisation of dental services for people with special health care needs in Australia. BMC Oral Health, 20, pp.1-9.
8. Liddell, A. and Locker, D., 1997. Gender and age differences in attitudes to dental pain and dental control. Community dentistry and oral epidemiology, 25(4), pp.314-318.
9. Lee, H.H. and Melbye, E.L., 2023. Nursing home caregivers' acceptance of, and experiences with, a new digital intervention for oral healthcare: A qualitative feasibility study. Gerodontology. 22(8). pp.34–41.
10. Mumcu, G.O.N.C.A., Sur, H.A.Y.D.A.R., Yildirim, C.E.L.A.L., Soylemez, D., Atli, H.A.K.K.I. and Hayran, O.S.M.A.N., 2004. Utilisation of dental services in Turkey: a cross-sectional survey. International dental journal, 54(2), pp.90-96.

11. Palati, S., Ramani, P., Shrelin, H.J., Sukumaran, G., Ramasubramanian, A., Don, K.R., Jayaraj, G. and Santhanam, A., 2020. Knowledge, Attitude and practice survey on the perspective of oral lesions and dental health in geriatric patients residing in old age homes. Indian Journal of Dental Research, 31(1), p.22.
12. Poudyal, S., Rao, A., Shenoy, R. and Priya, H., 2010. Utilization of dental services in a field practice area in Mangalore, Karnataka. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 35(3), p.424.
13. Steenkamer, B., Vaes, B., Rietzschel, E., Crombez, J., De Geest, S., Demeure, F., Gielen, M., Hermans, M.P., Teughels, S., Vanacker, P. and van der Schueren, T., 2023. Population health management in Belgium: a call-to-action and case study. BMC Health Services Research, 23(1), pp.1-11.
14. Stormon, N. and Sowa, M., 2023. Child Dental Benefits Schedule Subsidised Existing Utilisation of Dental Care over Addressing Unmet Needs. Health & Social Care in the Community, 2023
15. Suresh, L.R., Rai, K., Hegde, A.M. and Dsouza, C.V., 2020. Barriers to Utilisation of Dental Services among Children with Disabilities in a Coordinated Healthcare Programme in Mangalore, South India: A Mixed Methods Study. Disability, CBR & Inclusive Development, 31(4), pp.66-89.
16. Salim, R. and Ramankutty, V., 2023. Barriers in utilisation of dental services among older people in South Kerala. International Journal of Oral Health Dentistry, 7(1), pp.20-28.
17. Wu, H.C., 2022. Priority Criteria for Community-Based Care Resource Allocation for Health Equity: Socioeconomic Status and Demographic Characteristics in the Multicriteria Decision-Making Method. In Healthcare, 10(7), p. 1358-1363.