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Perception Pertaining to Oral and Systemic Health: A Mixed Method Model

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Abstract

Background: Oral health is an indispensible part of general health is an often ignored by masses including health care personnel. There have been health policies launched by the government recently including oral care but to what extent the people are aware of these policies are yet to be assessed. **Aim:** To assess the oral health status and perception pertaining to link between oral and systemic health, Ayushman Bharath Yojana and the concept of Universal Health Coverage (UHC) amongst the people visiting the exhibition on 64th Institute Day, AIIMS, New Delhi, India. **Materials and Methods:** People who came to the dental booth at the exhibition over a period of 3 days from 25th September 2019 to 27th September 2019, fulfilling the inclusion criteria were included in the study. Data collection was performed through clinical examination and open ended questionnaire for the assessment of perception regarding association between oral health and systemic health**,** concept of Universal Health Coverage and Ayushman Bharath Yojana. **Result:** Mean DMFT score was found to be 2.6 ± 3.4, 41.3% had bleeding on probing, 2.8% showed dental trauma and 2% had dental fluorosis. Nearly 73.6% felt that oral health does affect general health. Majority of the study population was not aware of the concept of UHC. Around 60% participants were aware of the Ayushman Bharath Yojana. **Conclusion:** The study findings conclude the need to spread awareness amongst masses about government health policies and effects of oral health on general health.

Keywords: Ayushman Bharath, Oral Health, Systemic Health, Universal Health Coverage, Perception

1. Introduction

Oral health is an indispensible part of general health. It affects the overall quality of life of a person encompassing physical, functional, social and psychological aspects but is often ignored by people in the developing countries like India which is already over-burdened with an enormous amount of prevalent systemic health diseases[1]. The usual practice of considering oral health as a separate entity from general health has worsened the plight. In India, less than 2% of country's GDP is spent on public health; out of which oral health takes a back seat as it is usually not targeted in the government health policies[2].

The prime concern is that this negligence towards oral health is not limited to general population. It has been documented in the literature that the health care professionals and personnel are also negligent towards their oral health[3]. Although they play a vital role in spreading and inculcating the basic health education amongst the masses as they are often looked upon as icon

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of health preservation for many people around them, but their health knowledge is reflected by their attitude and behaviour towards maintenance of general and oral health[3].

Over the years, constant efforts have been made by the Government of India to bring about health reform through health schemes and by strengthening the existing three tier health care delivery system. Recently, the Indian government launched an ambitious health care scheme named National Health Protection Mission, also referred to as "Ayushman Bharath Yojana (ABY)", "Modicare" or "Pradhan Mantri Jan Arogya Yojana" on 25 September 2018 with the aim of providing a defined medical benefit cover of Rs. 5 lakh per family per year to its beneficiaries. This program has two components i.e., upgrading primary health care through establishing more of Health and Wellness Centres (HWCs) and providing financial protection for secondary and tertiary health care through National Health Protection Scheme[4]. ABY is one of the many actions taken by the government of India for the achievement of Universal Health Coverage (UHC) which promotes the maximum proportion of population coverage under the range of health services available and the financial protection provided by the government for the same. It basically aims for an equitable quality of health to one and all[5].

However, the challenge that stands today is the dissemination of this information to its rightful beneficiaries and a further analysis of the awareness and use of these policies amongst the masses. It has been observed that only 10% to 30% of public health services are been utilised by the people in India[6]. A major chunk of masses are still either deprived of basic health facilities or have a mammoth amount of out of pocket expenditure (67%) for the same[7].

The current study was conducted at an exhibition held in a tertiary health care centre based on theme of 'Universal Health Care' accentuating on World Health Organisation's primary objective of 'Universal Health Coverage'. This exhibition was a melange of various medical and paramedical specialities showcasing their efforts in advancing health to a new level. People working and visiting the tertiary health care centre were the major attendees of this exhibition. The aim of this study was to assess the oral health status and perception pertaining to link between oral and systemic health, Ayushman Bharath Yojana and the concept of Universal Health Coverage amongst the people visiting the exhibition on 64th Institute Day, All India Institute of Medical Sciences (AIIMS), New Delhi, India.

2. Materials and Methods

2.1. Study Design and Setting

This was a mixed method model conducted among the individuals attending the oral health booth at the AIIMS exhibition held from 25th September 2019 to 27th September 2019 on the occasion of 64th Institute Day, AIIMS, New Delhi, India.

2.2. Participants

People who attended the dental check-up booth set up by the Centre for Dental Education and Research CDER, AIIMS, signed the consent to participate in the study and underwent oral examination were enrolled and included. Individuals below 18 years of age were only examined and given oral hygiene instructions but were not included in the study. A total of 277 individuals visited the booth in three days out of which 242 fulfilling the inclusion criteria were included in the study. Patients requiring dental treatment were then referred to the Centre for Dental Education and Research, AIIMS.

2.3. Sample Size

A non-purposive, convenience sampling was done. People who came to the dental booth at the exhibition over a period of 3 days from 25th September 2019 to 27th September 2019, fulfilling the inclusion criteria were included in the study.

2.4. Data Collection

Data was collected through examination and open ended questionnaire. Five trained dentists carried out the oral examination of all the individuals with plane mouth mirror and Community Periodontal (CPI) probe under good illumination on portable dental chairs. For the oral hard tissue status, decayed, missing and filled teeth were recorded along with presence of wasting diseases of teeth i.e., abrasion, attrition, erosion, dental trauma and dental fluorosis while the soft tissue was examined for presence of gingival bleeding, pocket formation and oral mucosal lesions. Training and calibration of the examiners was carried out at CDER, AIIMS New Delhi, under the guidance of an expert examiner. The inter-rater reliability between the examiners showed substantial agreement for observations and measurement with 0.8 Kappa value.

The questionnaire was broadly comprised of demographic details and open ended questions for the assessment of perception regarding:

a) Association between oral health and systemic health
b) Concept of Universal Health Coverage and
c) Ayushman Bharath Yojana.

2.5. Statistical Analysis

The data collected was statistically analysed using Statistical Package for Social Sciences (SPSS, IBM version 20.0). Descriptive statistics was used to determine the frequencies, mean and standard deviation of variables considered in the study and qualitative assessment was done by following qualitative analysis principles. Responses to open ended questions were recorded through an audio tape recorder. The verbatim of the participants were first translated to English. The data was then analysed based on thematic analysis using Microsoft Excel. Both semantic and latent theme analysis was applied (Braun and Clarke) to assess not only what the participants have reported but also to concentrate on its interpretation and implementation. Initial codes were then generated by organising the data into more systematic pattern. Thereafter, themes were identified that gave more specific information regarding the answer to the research question. This was further refined to sub themes to give discrete notion of the responses to the research questions.

3. Results

3.1. Demographic Characteristics of Study Population

A total of 242 individuals were examined under the study with the mean age of 35.7 ± 11.7 years. Males (67.3) visiting the dental booth for check-up out-numbered females (32.6) substantially. Nearly, 70% people were from AIIMS while 33% were others who came to visit the exhibition (Table 1).

3.2. Oral Health Status

On oral examination, mean DMFT score was found to be 2.6 ± 3.4. There was no significant difference in mean DMFT between males and females (p=0.73) or with respect to age (p=0.36). A substantial number of study population showed gingival bleeding on probing (41.3%) and few exhibited gingival pockets. Almost equal distribution of 8.2% and 7.4% was observed with respect to abrasion and attrition respectively. 2.8% showed dental trauma and around 2% had dental fluorosis. Amongst oral mucosal lesions, maximum prevalence was seen that of leukoplakia followed by smoker's palate and tobacco pouch keratosis (Table 2 and Table 3).

Table 1. Demographic status of the participants

VARIABLES	N (242)	%
Age (years)		
18-33	121	50
34-49	86	35.5
50-65	35	14.5
Gender		
Male	163	67.3
Female	79	32.6
Workplace		
AIIMS	162	66.9
Outside AIIMS	80	33.0

3.3. Association between Oral and Systemic Health

A substantial number of participants associated oral health with general health. Nearly 27% shared a view that oral health affects general health but they could not relate to any organ or system specifically. However, around 15% connected oral diseases with gastrointestinal diseases while others thought that oral diseases have adverse effects on lungs and heart and could even lead to cancers. This could be deciphered through following responses (Table 4)

"Oral cavity diseases effects liver if we don't chew properly and digestion is also effected"

"Effect is present on whole body"

"Oral cavity diseases can effects general health. Oral health can affect heart, kidney, sugar and tension"

"I think stomach. According to me if oral health is not maintained, the bacterial flora may get entry to stomach"

"Oral disease may lead to heart disease"

"Oral disease may lead to Cancer"

Table 2. Oral health status of the participants

ORAL HEALTH MEASURES		N (242)	%
Dental Caries Experience	Patients with Decay teeth	140	58%
	Patients with Missing teeth	48	19.8%
	Patients with Filled teeth	45	18.6%
Periodontal Status	Gingival bleeding	100	41.3
	Pocket	21	8.6
Wasting Diseases of Teeth	Abrasion	20	8.2
	Attrition	18	7.4
	Erosion	26	10.7
	Dental Trauma	7	2.8
	Dental Fluorosis	5	2.0
Oral Mucosal Lesions	Leukoplakia	3	1.2
	Smoker's palate	1	0.4
	Tobacco pouch keratosis	1	0.4

Table 3. Dental caries experience with gender and age

	MALE	FEMALE	TOTAL	18-33 YEARS	34-49 YEARS	50-65 YEARS
	mean ± sd	**mean ± sd**	**mean ± sd**	**mean ± sd**	**mean ± sd**	**mean ± sd**
Mean Decayed teeth	1.6 ± 2.1	1.7 ± 2.1	1.72 ± 2.1	1.9 ± 1.8	1.5 ± 2.3	1.6 ± 2.4
Mean Missing teeth	0.9 ± 2.7	0.3 ± 1.1	0.76 ± 2.3	0.5 ± 1.4	1.1 ± 3.2	0.9 ± 2.1
Mean Filled teeth	0.3 ± 0.7	0.6 ± 1.2	0.39± 0.9	0.3 ± 0.9	0.5 ± 1.1	0.2 ± 0.5
Mean DMFT	2.7 ± 3.6	2.5 ± 2.9	2.6 ± 3.4	2.5 ± 2.6	2.8 ± 4.0	2.7 ± 4.0
	p = 0.73 (Mann-Whitney U test)			**p= 0.36** (Kruskal Wallis H test)		

"Oral cavity disease affects the whole system. Since, food goes to the internal organs"

3.4. Awareness about Universal Health Coverage (UHC)

Majority of the study population was not aware of the concept of UHC. Few interpreted it as a model to provide equal health from scratch to everyone irrespective of social status, caste, creed, colour or religion. On the other hand, others shared views against the concept that it has not been implemented efficiently and is skewed as per individual interest. The following quotations highlight this notion (Table 4)

"Health coverage should be provided to all age group, urban and rural should cover doctors and paramedicals"

"I think coverage is not good. I think money minting happens"

Table 4. Awareness about the universal health coverage, Ayushman Bharath and Oral and General Health Association

Questions	Themes	Sub themes	Responses	Frequency of mention (%)
What do you know about Universal Health Coverage?	Unaware	Don't know	"No, I don't know"	80.5
	Awareness	Complete health	"Provide health from grass root level without any bias"	5.7
		Equal health	"Yes, packages should include primary care, should be strengthened and proper referral should be done. Awareness camps should be done" "Health for all"	3.7
		Coverage	"UHC is poor because the needy are not getting benefit. People are less motivated and unaware. Need to be improved"	1.1
What do you know about Ayushman Bharath?	Unaware	Don't know	"Heard about it, but don't know"	37.6
	Awareness	Insurance	"Basically insurance coverage to the people who cannot afford. Government spreading awareness to very low income people"	14.5
		Government	"Yes, government scheme for more than five lakh, by Prime Minister of India.	17.8
		Card	"Card will be made for free treatment by the government"	4.5
		Treatment	"Yes, government schemes for poor, free treatment in government hospitals"	9.5
		For poor	"Yes, launched by government to support poor people"	19.3
Does oral health effects general health?	Unaware	No/ Don't know	"Don't know much"	26.4
	Awareness about the effects but not specific	General Health	"Oral health tells about overall health"	27.2
	Specific to Cancer	Cancer	"Oral disease might lead to cancer" "Oral cancer might occur, bleeding gums is a sign of oral cancer"	5.3
	Specific to Heart disease	Heart	"Heart and gastro intestinal system can be affected. If teeth are not ok then diet will be affected. If at young age dental care is not taken care, at old age it will affect"	9.5
	Specific to Lung disease	Lungs	"Yes, oral health can affect general health; whole body from top to bottom gets affected. Respiratory health can be affected"	4.9
	Specific to GI disease Stomach	Digestion	"Yes, difficulty in eating affects digestive system and entire system"	7.4
			"I think stomach. According to me if oral health is not maintained, the bacterial flora might enter the stomach"	7.0

"UHC is poor because the needy are not getting benefit. People are less motivated and unaware. Need to be improved."

"Yes, package should include primary care should be strengthened and proper referral should be done. Awareness camps should be done."

"It means providing health care from the grass root level without any bias."

"Provides health for all"

3.5. Awareness about Ayushman Bharath Yojana

Nearly 60% participants were aware of the Ayushman Bharath Yojana. They reported it as a health insurance scheme of up to Rs. 5 lakhs, launched by the government of India, for the medical treatment of poor people. Majority of them appreciated this scheme for providing free medical facilities to the needy while others complained of either not having access to it or unjustified use of this facility by some non-entitled beneficiaries or criticized it as the government propaganda to seek popularity. The following responses depict these findings (Table 4)

"Free treatment for farmer up to 5 lakh"

"For poor patients"

"It is a very very nice scheme"

"Ayshman Bharath is a good scheme"

"It is useless; mere propaganda by government"

"Facility for patients; exemption or concession of medical treatment for poor more than 5 lakh"

"Funds and medical card for needy and poor"

4. Discussion

Oral health has a significant impact on general health of a person and the society intoto. Government health insurance strategies not empowering oral health equally lead to wide disparity between the two components amongst the masses. Citizens of developing nation often squander their money and assets on basic health amenities due to mere lack of knowledge of usage of such schemes. Introduction and formulation of any program or policy goes futile if not enacted and allocated to the concerned devisees. The current study not only evaluates oral health status and participant's impression of its role in influencing systemic health but also pool the views of these people regarding the government most ambitious health insurance scheme i.e. Ayushman Bharath Yojana paving pathway to Universal Health Coverage in India.

The dental caries experience and gingivitis in the current study was lesser than that reported in other studies[8,9] who assessed the oral health status amongst the health care workers at primary centres. Mean decayed, missing and filled teeth were found to be lower than that documented by Sajjanshetty *et al.*[10] and Fotedar *et al.*[9]. Since, a majority of our study population belonged to AIIMS, this outcome represents a better oral health in health care workers and professionals employed at tertiary centres than that working at primary centres. Prevalence of dental fluorosis was very low and in accordance to Aggnur *et al.*[8]. The most prevalent oral mucosal lesion was leukoplakia which is in contrast to other studies where abscess was found to be most common oral lesion[9]. It was observed that nearly 74% of the participants were aware of the fact that oral health is associated with systemic or the general health. This finding differs from the study done by Ahmed *et al.*[11] where 92.5% physicians and 98.3% dentists agreed to this association. This is probably due to the fact that our study included small proportion of general public visiting the exhibition apart from health care personnel. However, close to that reported by Farrukh *et al.* (17%)[12], 26.4% participants in our study were not aware of this oral-systemic disease relation.

In the dearth of similar evidence with respect to awareness of ABY and UHC in the literature, we have compared our results with what was predicted for this government initiative. It was quoted by Bakshi *et al.*[7] in his review that implementing Ayushman Bharath might result in turmoil with already running other state health schemes. This was evident in our study too as few participants reported to have better scheme in their states. This corresponds to the following statement *"Yes, but it is not for Delhi people, state has better health schemes"*.

It was envisaged that a well-designed and an organised system will be required to promulgate this idea to the masses and for the enrolment and further medical treatment to ensure the success of this scheme[7]. A similar picture could be drawn from our study as many people were either not aware of this scheme or were confused with other government schemes like few participants

reported that "*it is government scheme for daughters*" or "*it has provided and contributed to toilet construction*"

NPHS was considered as misnomer by an author in his study for it provides greater care through private or corporate hospitals without much strengthening of government health centres[7]. In the present study, few of the participants considered this scheme as a sham and mode of imbibing fake notion in people's mind without actually causing any health benefits.

Lahariya *et.al.*[13] argued in his study that AYB program is a balanced approach benefitting people and partially leading to the Universal Health Coverage. Many participants in the current study had a similar opinion: "*Yes, it is a very good scheme*".

4.1. Limitation and Recommendation

Considering the small sample size of the population, the outcomes of the current study cannot be generalised. Since our study involved participants from all medical and paramedical fraternity along with small section of general public, it does not represent the true realm of medical professionals. Efforts should be made to instigate a more elaborative health promotion approach to connect oral- systemic aspects of health and spread an awareness regarding upcoming health schemes and concepts amongst the masses.

5. Conclusion

A comprehensive and efficient health care delivery system can be designed and implemented only if both the components of health i.e., oral and systemic are worked upon hand in hand. Further, it is required to make people aware of the universal health concept and health services provided to them by the government.

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