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ORIGINAL RESEARCH

Assessment of Oral Health Awareness among Supporting Staff of a Dental Institution: A Cross-sectional Survey

Bhuvaneshwari Nadar[1], Sapna Prasanna[2], Nisha Puranik[3], Sahil Dhingra[4], Radhika Deshpande[5], Meghnaa Subbarayalu[6]

Abstract

Background and objective: Supportive staff members are an essential component of the healthcare team for effective delivery of oral healthcare services. They act as a link between the dentist and the general population by giving information about oral health-related issues. Their behavior, knowledge, and attitude related to oral health are of prime importance for the effective delivery of services to the community. Therefore, a study was planned to assess the behavior, knowledge, and attitude related to oral health among the supporting staff of a dental institution.

Materials and methods: Descriptive, cross-sectional survey was conducted using a validated, structured, self/interviewer-administered, 36 items questionnaire among 179 supporting staff of the dental institution. Data were compiled and analyzed systematically to make the inference.

Results: The survey had 74% response rate. About 65 participants (49.3%) identified the correct number of teeth sets, 107 (81.1%) were aware that retention of the sweet foods between the teeth leads to tooth decay, and 91 (68.9%) were unaware of the anticaries effect of fluorides. Around 90 (68.2%) participants were unaware that plaque is a soft deposit on the tooth or teeth surface. Nearly 118 staff (89.3%) believed in regular dental checkup, 122 (92%) staff opined tobacco and smoking as a deleterious habit.

Conclusion: Supportive staff members were having good practice toward oral health with moderate knowledge and a positive attitude toward oral health. As the study was only conducted in a single dental institution, the results are generalizable only among this sample.

Keywords: Attitude, Behavior, Knowledge, Oral health, Supporting staff.

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Background and Objective

The mouth is a window to what's going on in the rest of the body, often serving as a helpful vantage point for detecting the early signs and symptoms of systemic disease—a disease that affects or pertains to the entire body, not just one of its parts. Oral diseases are among the most prevalent noncommunicable diseases and major components of the global burden of diseases. A healthy mouth and dentition not only allows a person to enjoy food and speak properly but also gives him/her more social confidence. It is also a reflection of general health. Oral health can no longer be seen as merely the absence of oral disease or infirmity. It is part of everyday living and is an essential dimension to the quality of life.[1]

Oral health care is provided through different oral healthcare delivery systems in India. Dental colleges are one such system providing oral healthcare service where professionals and supporting staff cater to the needs of individuals and the community. The supportive staff in dental college (staff nurses, receptionists, laboratory technicians, attenders, and the housekeeping staff) are considered as a part of community-based oral health awareness programs. They act as a link between the dentist and the general population.[2] Knowledge of oral health is considered to be a prerequisite for health-related behavior.[3] Health workers' knowledge, attitude, and practices (KAP) toward oral health to a great extent influence the community as they can extend health education at the first contact in the community and hence should possess good oral health knowledge.[3] Healthcare workers with good oral health knowledge and practices are said to play a positive role in the oral health care of special children.[4]

Effective communication with patients is the cornerstone of quality dental care and oral health outcomes. The supportive staff is a body consisting of people other than the healthcare provider (doctor) who assist in providing care to the patient.[5] The patients approach them more comfortably and frequently regarding suggestions given to them after the treatment is performed. These staff members are exposed to procedures performed either by being assistants or viewers. The information that is absorbed will be shared among their environs,[5] which in turn influences the knowledge and attitude of other people toward the utilization of dental services. Low oral health literacy contributes to disease and its treatment is costly. Being able to understand health information and how to obtain services is critical to oral health management. Providing education or experience-based exercises may impact positively on behaviors toward this patient population. Therefore, knowledge and attitude regarding oral health among dental healthcare workers is crucial. The goal of all patient interactions should be to empower the patient to obtain, understand, and act on information that is needed for optimal health. As dental

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practitioners, we must provide practical and theoretical support to nonteaching staff so that they are able to perform their duties better.

A search of available published literature revealed a relative scarcity of studies that assessed the oral health-related knowledge, behavior, and attitudes of supporting staff of a dental institution in Davangere city. The research question was what is the knowledge, attitude, and behavior related to oral health among the supporting staff of a dental institution in Davangere city? The present investigation was aimed to assess the oral health-related awareness among the supporting staff of a dental institution in Davangere city. Objectives were to assess the behavior, knowledge, and attitude related to the oral health of the supporting staff of a dental institution. The data obtained from this study could help in formulating appropriate educational programs to enhance the knowledge of supporting staff on various aspects related to oral health and to motivate them to utilize the oral healthcare services available at hand. They can be utilized in translating oral health messages and behavior modification strategies to large communities in total in a long way.

Materials and Methods

An observational, descriptive, cross-sectional survey was conducted among supporting staff of Bapuji Dental College and Hospital, Davangere city. The study included all supporting staff of the institution under the following categories:

- **Administrative staff:** reception counter, examination section, student admission section, and library staff;
- **Maintenance staff:** equipment maintenance staff, engineer staff, and infrastructure maintenance staff;
- **Dental auxiliary staff:** hygienist, dental technicians, and staff nurses;
- **Attendant staff:** peons, garden maintainers, cleaners, and security guards.

The study sample consisted of 179 supporting staff members of the institution. The data were collected from them at their respective departments and sections. Supporting staff members who gave voluntary informed written consent and present on the date of data collection were included. Ethical approval was obtained from the Institutional Review Board (Ref no-BDC Exam: 291/2018–19). Permission was sought from the principal of the institution to conduct the survey. Voluntary written informed consent was obtained from the study participants after explaining to them the purpose of conducting the study and procedure of collecting the data through a participant information letter. They were assured that the personal identification of the participants will be maintained confidential. The time period set for the data collection was two months, from January to February 2018.

Description of Research Instrument

The research questionnaire was designed based upon available references from previous studies.[2,5–7] Questionnaire consisted of four sections to collect information about demographic characters, oral health behavior, knowledge, and attitude toward oral health.

The questionnaire was tested for content validity by three experts (one public health dentist, one periodontist, and one prosthodontist) and the content validity index (CVI) for the total scale was computed. A satisfactory level of agreement was found (CVI = 0.86) among the panelists. A pilot study was conducted to check the clarity or understanding of the questions by the respondents and face validity. The questionnaire was administered to four participants and constructs of the questionnaire were acceptable to them on the face.

The questionnaire was both self/interviewer-administered for those who are unlettered. The investigators were three dental interns trained by the principal investigator for the administration of the questionnaire to maintain a standardized method of administration of the questionnaire. Administrators' followed the predesigned format to administer the questionnaire. It was done to minimize any potential impact of administers' behavior on respondents' answers. The data so obtained were compiled and subjected to analysis using Statistical Package for Social Sciences software version 20. Descriptive statistics were generated in terms of frequencies and percentages.

Results

Demographic Details

The present study invited 179 staff members to participate, and 132 completed the questionnaires yielding a response rate of 74%. Of the completed questionnaires, 81 (61.4%) were male. The mean age of the study population was 46.3 years with an age range between 20 and 70 years. About 96 (73.8%) had <25 years of experience with a mean of 19.7 years of experience.

Among the 132 study participants, 36 (27.2%) were auxiliary staff, 61 (46.2%) of them were attendant staff, 8 (6.1%) were maintenance staff, and 27 (20.5%) were administrative staff.

Oral Health-related Behavior

It was noticed that a majority of the participants, 127 (96.2%), brushed their teeth using toothbrush and paste, 75 (56.8%) were not using any other additional aids for cleaning. Only 77 staff (58.3%) brushed their teeth twice daily and 74 (56.1%) of participants brushed their teeth with a soft-bristled brush. Nearly 61 (46.2%) participants cleaned their teeth for about 2 minutes, but 55 (41.7%) participants were not aware of the type of toothpaste they were using. About 30 (22.7%) of them were using toothpaste to the full length of the bristles.

About 18 (13.6%) participants changed brush only when the bristles worn off. Regarding the direction of brushing stroke, 52 (39.4%) staff brush their teeth in a combination of vertical, horizontal, and circular motion and 119 (90.2%) had the habit of cleaning their tongue. A majority of the staff, 66 (50%), never experienced pain or discomfort in their teeth or the gums for a year. Most of the participants, 46 (34.8%), reported that they visit the dentist only when there is pain. And 16.7% participants reported absence of pain or any discomfort as the reasons for not visiting dentist. About 39 (29.6%) were using tobacco products (Table 1).

Oral Health-related Knowledge

When assessing the knowledge related to oral health, only 65 participants (49.3%) correctly knew the correct number of teeth sets and 52 (39.3%) participants correctly responded to the number of milk and permanent teeth. Only 73 (55.3%) participants were aware of the main purpose of brushing and 59 (44.7%) participants believed that brushing is to achieve clean and healthier teeth. Around 90 (68.2%) participants were unaware that plaque is a soft deposit on the tooth or teeth surface. One half of participants believed gum bleeding as an indicator of inflammation whereas

Table 1: Response of the participants to oral health-related behavior

Questionnaire	*Responses*	*Frequency (%)*
Q1: Teeth cleaning aids used with a toothbrush	Toothpaste	127 (96.2)
	Toothpowder	2 (1.5)
	Charcoal	2 (1.5)
	Any other method (specify_____)	1 (0.8)
Q2: Additional aid used along with the tooth-brush	Mouthwash	23 (17.4)
	Tongue cleaner	22 (16.7)
	Toothpick	4 (3)
	Dental floss	8 (6.1)
	None	75 (56.8)
Q3: Frequency of tooth brushing	Once daily	51 (38.6)
	Twice daily	77 (58.3)
	More than twice daily	4 (3)
Q4: Duration of brushing	Less than 1 minute	12 (9.1)
	One minute	19 (14.3)
	Two minutes	61 (46.2)
	More than 2 minutes	38 (28.7)
	Don't know	2 (1.5)
Q5: Toothpaste used	Fluoridated	23 (17.4)
	Nonfluoridated	16 (12.1)
	Herbal	38 (28.8)
	Don't know	55 (41.7)
Q6: Amount of tooth-paste used	Full length of the bristles	30 (22.7)
	Half-length of the bristles	42 (31.8)
	Pea size	56 (42.4)
	Just peck	4 (3)
Q7: Type of toothbrush used	Hard bristle	8 (6.1)
	Medium bristle	39 (29.5)
	Soft bristle	74 (56.1)
	Don't know	11 (8.3)
Q8: Frequency of replacement of the toothbrush	1 month	18 (13.6)
	6 months	34 (25.8)
	3 months	62 (47)
	When the bristles are worn out	18 (13.6)
Q9: Habit of cleaning the tongue	Yes	119 (90.2)
	No	13 (9.8)
Q10: Habit of rinsing the mouth after every meal	Yes	109 (82.6)
	No	23 (17.4)
Q11: Direction of the brushing stroke	Vertical	26 (19.7)
	Horizontal	33 (25)
	Circular	21 (15.9)
	Combination of above	52 (39.4)
Q12: How often do you visit the dentist in a year?	Once	26 (19.7)
	Twice	33 (25)
	Never	27 (20.5)
	Only when pain present	46 (34.8)
Q13: If never, what is the reason for not visiting the dentist?	Fear of dental treatment	5 (3.8)
	Cost of treatment is high	4 (3)
	No pain or discomfort in the teeth or gums	22 (16.7)
Q14: Do you use any tobacco-containing products?	Yes	39 (29.6)
	No	93 (70.4)
Q15: How often in the last 12 months, did you experience pain or discomfort in your teeth and gums?	Many times	7 (5.3)
	Occasionally	45 (34.1)
	Never	66 (50)
	Don't remember	14 (10.6)

65 (49.2%) believed that gum bleeding was because of tooth infection. The majority of supporting staff, 107 (81.1%), were aware that the retention of sweet foods between the teeth will lead to decaying of the teeth and 91 (68.9%) were unaware of the anticaries effect of fluorides. The majority of the participants 95 (71.9%) knew that a healthy mouth and teeth are an indicator of a healthy body. And 116 (87.9%) identified tobacco chewing and smoking as the reasons for oral cancer. About 24 participants (18.2%) were not aware about the management of irregularly placed teeth (Fig. 1).

Oral Health-related Attitude

Assessment of attitude towards oral health showed that 118 staff (89.3%) believed that dental checkups should be done on a regular basis. About 122 (92.4%) and 121 (91.7%) staff were of the opinion that tobacco chewing and smoking are bad for oral health. Nearly 85 (64.3%) members felt that efficient cleaning of the teeth cannot be done without toothpaste and 101 (76.5%) agreed that hard bristles of the toothbrush will damage the teeth and gums. Around 102 (77.3%) staff reported that immediate replacement for missing tooth/teeth is very much necessary and 123 (93.2%) staff were of the opinion that dentists play a very important role in the prevention of oral disease. The majority of the participants, 125 (94.7%), were willing to get their family members for a routine dental checkup. And 126 (95.5%) staff were in a positive attitude to render their help in motivating or educating their friends, relatives, and children to have regular oral health checkups (Fig. 2).

Discussion

Supportive staff are the imperative members with no or minimum qualifications required to facilitate services in dental institutions. They may collaborate or work alongside the dental professionals' team in effectively delivering services to the community. For this reason, their knowledge, attitude, and practices related to oral health play an important role.[1] Hence, the present cross-sectional survey was conducted to assess the knowledge, attitude, and behavior related to oral health among the supporting staff of a dental institution in Davangere city.

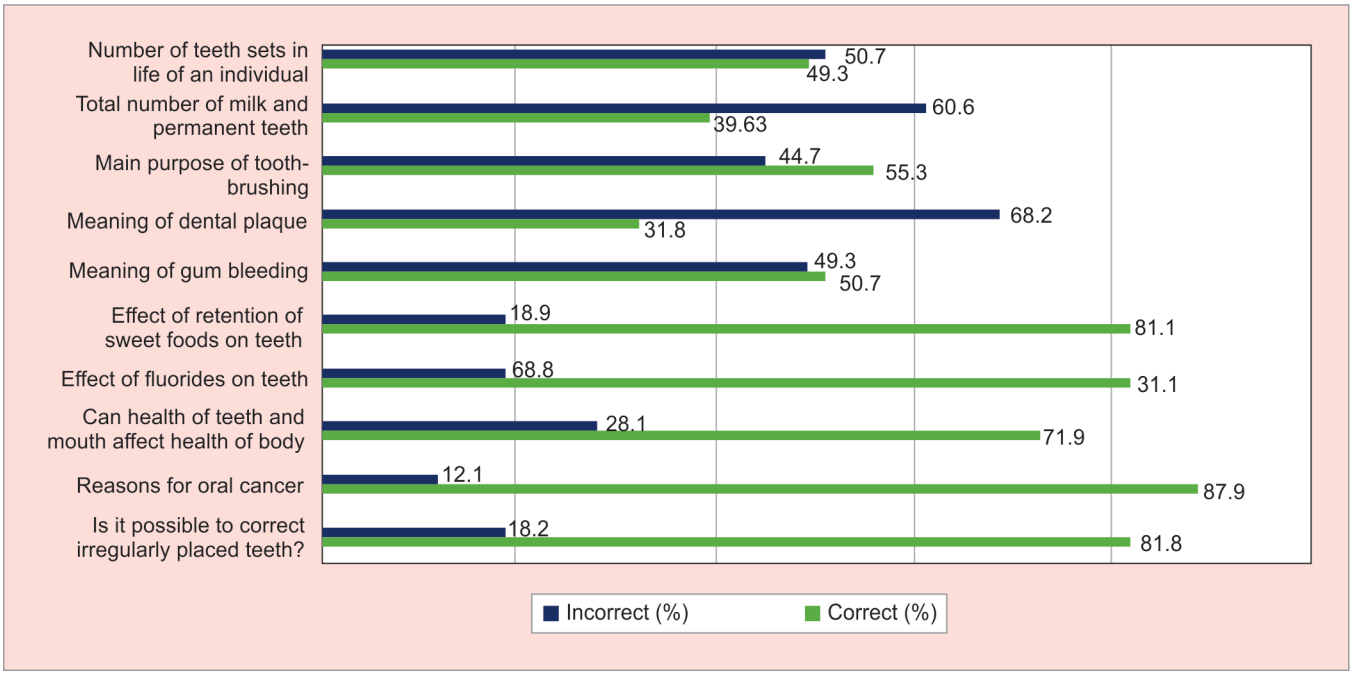

Fig. 1: Frequency distribution (%) of study participants based on their responses related to oral health knowledge

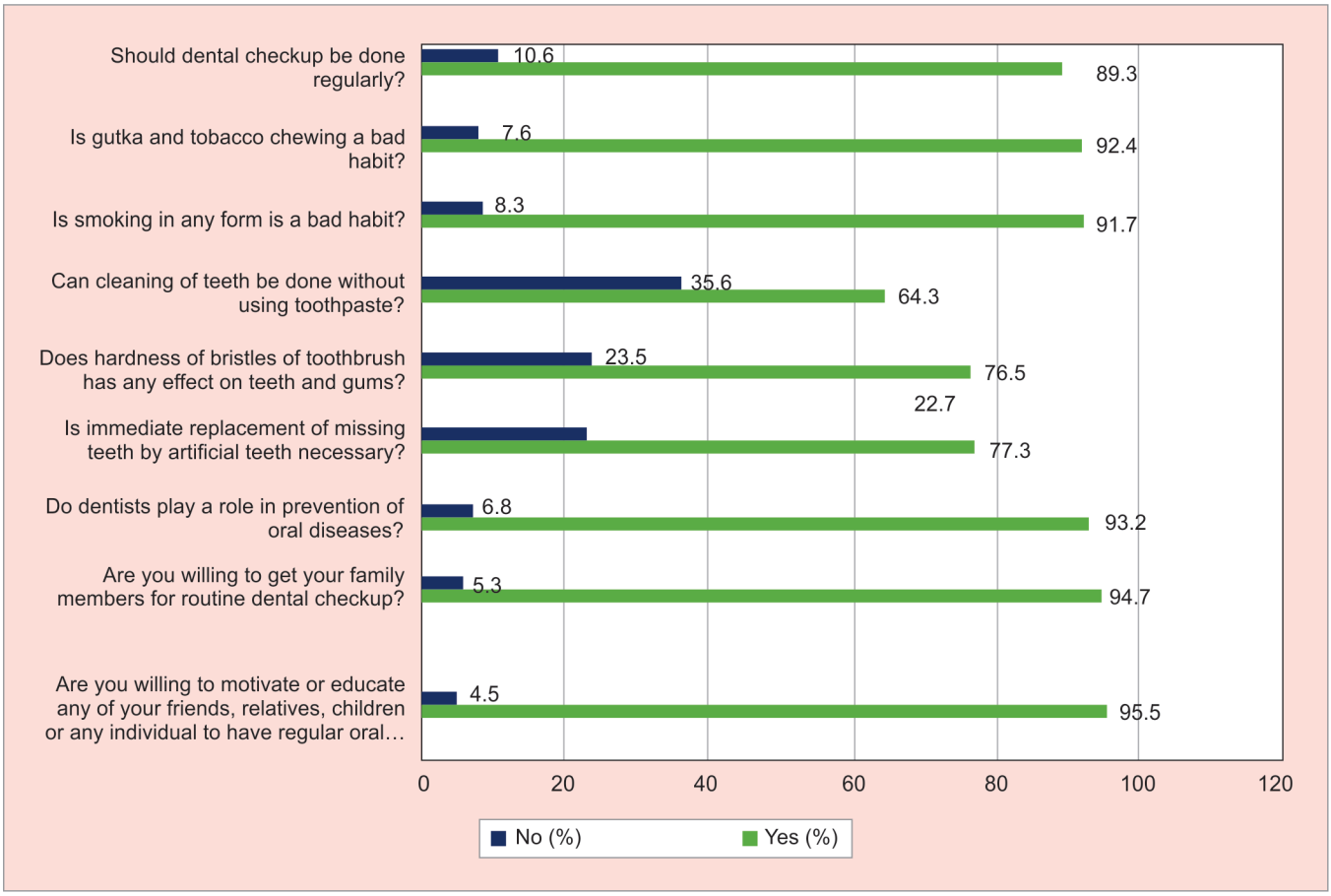

Fig. 2: Frequency distribution (%) of study participants based on their attitude toward dental health

With respect to oral hygiene practices, in the present study, more than half of the participants (58.3%) brushed their teeth twice daily, and similar results were reported in the study by Shetty et al.[2] (60%) and Ahmad et al.[8] (47.5%). But only 18% of supporting staff and 39% of paramedical staff had brushed twice daily in a study by Kalyan[5] and Amith et al.[9] These are considerably lower compared with studies in other countries, which showed that between 75% and 89% of adults brush twice a day.[2] These differences in the frequency of tooth brushing could be due to lack of awareness and the impact of dental/oral health education programs being organized at different places.[5]

In the study done by Amith et al.[9] 82% of the paramedical staff were using toothpaste, whereas nearly 96.2% used a toothbrush and toothpaste regularly in the present study. Similar results were also reported among nonteaching staff from Dakshin Kannada[2], South India,[5] and administrative staff at Taibah University.[8] This can also be attributed to increasing sources of information available through mass media and health education posters available in the dental hospital. Only one-third (17%) used other cleaning aids in addition to the toothbrush and toothpaste, which is lesser than reported by a study in Dakshin Kannada[2] and South India[5] (23.3 and 25%). Dental floss (6.1%) was the least used cleaning aid but only 2.6 and 0.5% had reported the same in the study done in Dakshin Kannada[2] and South India.[5] Also, in the present study, only 31.8 and 50.7% were aware of the meaning of dental plaque and gum bleeding, respectively. These numbers indicate that the participants were unaware of the role of dental floss in preventing periodontal problems. It also reflects the need to improve their oral health knowledge and their exposure to different oral hygiene aids available. Regarding the duration of brushing, 28.7% were spending more than 2 minutes compared to paramedical staff (56%) in the study by Amith et al.[9]

Almost 55 (41.7%) staff were not aware of the type of toothpaste they were using. This represents the level of ignorance and knowledge of participants regarding the effectiveness of the use of toothpaste and the benefit of using fluoridated one. About 42.4% were in the practice of using the correct quantity of toothpaste (pea size) indicating their awareness.

The majority of the participants (56.1%) were in the habit of using soft bristles brush higher than paramedical staff (49%) in the study by Amith et al.[9] About 47% of participants changed their toothbrush once in 3 months, which is slightly shorter compared to paramedical staff (55%),[9] whereas only 27.3% had reported the same in the study in Dakshin Kannada.[2] It was interesting to know that 90.2% of the participants had the habit of cleaning the tongue, slightly higher than that reported by Amith et al.[9] In a study among paradental staff 77% had the habit of rinsing the mouth after every meal whereas 82.6% had reported the habit in the present study indicating their good practice of cleansing out the tucked food particles. About 39.4% of the participants were practicing combination of horizontal, vertical, and circular methods of brushing but 25% reported following the wrong method (horizontal brushing). It clearly indicates their unawareness regarding proper brushing direction to prevent harm to gingival as well as cervical portion of the teeth.

It was interesting to see that despite working in the dental institution and availability of free dental services, about 20.5% never visited the dentist in their lifetime which is slightly higher than the paramedical staff in Amith et al.[9] study (8%), supporting staff in Dakshin Kannada[2] (5%) and 13% of administrative staff from Taibah University,[8] whereas, 24.5% of supporting staff in South India[5] had never visited the dentist. The major reason reported for nonvisit was the absence of pain or discomfort and other reasons include fear and cost. Similar results were reported in the study by Kalyan.[5] Forty-six (34.8%) participants visited the dentist only when they experienced toothache, but contrastingly 57% of participants had reported the same in the study by Kalyan.[5] This reflects that the participants were unaware of the importance of regular dental check-ups, as a preventive dental behavior as they were visiting the dentist based on their felt need and for symptomatic treatment. It is also documented that pain is the motivating factor in visiting a dentist.[5]

Regarding their "dental knowledge," about 49.2% of the subjects knew the correct number of the dentition sets. Only 39.3% knew the correct number of deciduous and permanent teeth, which was slightly higher than reported by the administrative staff in Saudi.[8] The knowledge scores were high among other studies on nonteaching dental staff.[2,5] About 55.3% of subjects were aware of the purpose of tooth brushing, but only 31.1% were aware of the role of fluoride in dental caries. Contrasting results were seen in studies by Kalyan[5] (55%) and Ahmad et al.[8] (63%). About 17.4% were using fluoridated toothpaste, which was slightly higher than the study participants (14%) in Amith et al.[9] As the importance of tooth cleaning and the use of fluoride toothpaste are well recognized in caries prevention by Nyvad et al.[10] in 2003, the study results portray the inadequate knowledge and awareness of the preventive aspects of fluoride.

Most of the study participants (81.1%) opined that sugar causes dental caries similar to studies conducted on paramedical staff, supportive staff, and administrative staff.[2,5,8,9] This shows better knowledge regarding dental caries and its relation to sugar. Nearly 71.9% of subjects were aware that poor oral health can affect general health, and similarly 65% of nurses and x-ray technicians were aware of the same in a previous study.[7] About 81.8% were aware that irregularly placed teeth can be aligned as compared to one half of nurses and technicians in a study by Gowdar.[7]

About 87.9% correctly identified the reasons for oral cancer, and results are in line with a study in Dakshin Kannada.[2] Only 52% of nurses and 41% of technicians were aware of the same in the study by Gowdar.[7] Almost 92.4% considered gutkha and tobacco chewing as deleterious habits. But 29.6% of the staff used tobacco and tobacco products compared to 46% of the administrative staff at Taibah University.[8] This reflects that the supporting staff are in a state of cognitive dissonance.

Around 77.3% reported immediate replacement of missing teeth is very necessary. Also, the majority (89.3%) of supporting staff had a positive attitude towards regular dental visits. Attitude towards tooth replacement and a regular dental visit was better among the study participants as compared to healthcare workers in a medical university.[7] About 91.7% felt that smoking is a bad habit, whereas only 77% of nurses and 47% of technicians of the medical university were of the same opinion.[7] Majority of subjects, 93.2%, believed that dentists play a role in the prevention of oral diseases. About 95% of subjects had positive attitudes and were willing to bring and motivate their family members for a routine dental checkup.

In the present study, supporting staff were selected as their knowledge and attitude regarding oral health can extend health education at the first contact in the community. The cross-sectional nature of the study enabled the collection of data with limited resources. A direct personal approach was used for this survey because of the inherent advantage of an extremely good response rate. The major strengths of the study are as follows, good response rate(74%), use of validated questionnaire and flexible method of either self/interviewer administered survey by trained investigators. All these minimized bias and reduced instrument error.

Limitations

As it was a cross-sectional survey, knowledge, attitude, and behavior were assessed at a single point in time. The study being evaluated based on self-reported data derived from the supporting staff which would have led to some amount of social desirability bias in the form of over-reporting or under-reporting during the response process. These supporting staff may have varying levels of comprehension which may not reflect the actual knowledge and different auxiliaries and paramedics have different training methods and roles. We have not assessed oral hygiene status and treatment needs among the supportive staff, due to lack of time and resources. The study used a convenience sampling technique in a single institution, so generalizing the conclusions may be done with caution.

Conclusion

Supportive staff who participated in the present survey has good practice toward oral health with moderate knowledge related to oral health and showed positive attitude in improving oral health by having a regular dental checkup and showed interest in motivating family and friends to have a regular dental checkup.

Recommendations

Through the results of this survey, we can emphasize the need for oral health awareness programs, including basic knowledge regarding common oral problems and their prevention, the importance of regular visits to the dentist, and availability and use of oral hygiene measures to the support staff of dental institution aiming at improving the oral health awareness among them. By inculcating good practice and behavior related to oral health among supportive staff, we can definitely utilize the staff to bring about change in the general population. Future studies have to be conducted involving staff of other institutions, which would help us in planning the programs to enhance their knowledge, behavior, and attitude toward oral health, which will be ultimately helpful at the community level in reducing the disease burden.

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