

Assessing Behavioural Prevention Strategies to Reduce Dental Caries in the Primary Schools of the State of Qatar- Case Study

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Abstract

Introduction: Multiple case studies were conducted using a public school and a private school to understand why the prevalence of dental caries was high among primary school children despite previous oral health strategies. The study is aimed to inform the refinement of current dental caries prevention behavioural strategies in Qatar for school children in both public and private settings.

Methods: Purposive sampling was used to select 5 pupils, 5 parents, 5 teachers and 2 school nurses for the case study. A semi-structured in-depth interview was conducted with the participants to understand issues relating to prevalence and control of dental caries among school pupils.

Results: The study found that home context plays a crucial role in terms of oral health motivation in Qatar. It was found that children are taught the most basic daily oral hygiene-related behaviours at home, including tooth brushing and dental flossing.

Discussion: The study revealed the role of parents at home in supporting oral health activities to motivate and empower children to take part in such behaviours. Also, parents and teachers work in collaboration to enhance oral health behaviours in children.

Keywords: Dental Caries, Schools, Students, Parents, Teachers, Behavioural Prevention Strategies, Oral Health Awareness, Education, Promotion, Qatar.

Introduction

Lack of oral hygiene and consumption of sugary snacks are the foremost causes of dental caries. To minimize the prevalence of dental caries and behavioural inhibition, policies are vital. The Policy Triangle [1] was used to evaluate the National Oral Health Design Project 1.9, emphasizing content, framework, performers, and procedures [2]. The evaluation revealed that school-based oral health is included as an objective of the policy. However, only a portion of school children was included in the past school oral health programme [3]. This case study reveals how advantageous dental caries inhibition therapies and policies are to the development of oral hygiene for Qatari primary school children by investigating the supporting behavioural policies via several studies performed. This study conducted among Qatari primary school children elaborates on the concept behind the fact that the children in schools are more likely to develop dental caries. Furthermore, it addresses what behavioural strategies could help prevent carries, including other oral and health problems in Qatari schools.

The main objective of this case study is to provide an inclusive and complete investigation on issues relating to oral health in Qatar by examining the knowledge of students, teachers, nurses, and parents regarding students' behaviours. The private and public primary schools served as research centers in exploring the causes and prevention of dental caries among the selected group of individuals. In Qatar, a public school nominated by the Ministry of education, and a private school were selected. The selection of the schools was based on the inclination of the institutions to participate. The selected groups containing five students, five parents, five teachers, and one nurse from each school were enlisted. The study was based on comparison data gathered from two sites, which may help inhibit partial results as the outcome of a variety of related factors of oral health programmes in selected schools. The details related to general oral hygiene practices, inhibitory policies for dental caries, and dental infections in Qatari primary school children through diversified methods have been mined from the author's PhD thesis.

Pilot Study

Before the case study, a pilot study was conducted to execute the qualitative study to gauge or estimate the Arabic and English study data package, the semi-structured interview guides, and the tape recorder. The pilot study was conducted with four parents and three children of families of dental professionals from Qatar. The participants included two parents who are Arabic speakers, two parents who are English speakers, and three children, out of which only two can speak English. All the participants in the pilot study went through the participant information sheet (PIS) and the criteria of consensus form before the interview. The model study declared that children feel comfortable with simple words in the interview and abundant time to reply. Images or pictures on the participant information sheet intrigued the children, whereas parents considered the interviews to be directed through extensive paperwork, referring to the consent form and PIS. One parent was not willing for her interview to be taken but later agreed to the policy when the author guaranteed that the interview details would be kept confidential and not be shared elsewhere. Hence, the pilot study also upgraded the confidence of the author, which helps a lot during the core study. This pilot study also revealed that English and Arabic semi-structured guides were suitable tools for the interview. The response from the participants led to slight changes: a simple language of communication for kids had to be administered, especially in Arabic; further explanation and amplification were provided during the interview, and questions that came up during the interview were accumulated.

Materials and Methods

The aim of this case study was to obtain through qualitative strategy in-depth information by opting for the discernments of people with enough information about the problem in question [4]. The application of the qualitative tool is to evaluate oral health in Qatar primary school through the perceptions of teachers, parents, children, and school nurses. The application of qualitative study was used to explore the following objectives:

- Comprehend how oral health behavioural prevention policies operate in the context of public and private primary schools in Qatar.
- Evaluate why primary school children's oral health knowledge and actions in Qatar remain inflexible despite oral health programmes in schools.
- Evaluate the framework and mechanisms that may reinforce the motivation of primary school children and their parents in Qatar to recover their oral health attributes.
- Recognise how the changes in oral health behaviour may remain sustained among primary school children in Qatar.

In this study, the constructivist model standardization is the collaborative approach between the author and participants who are the main participants in the study.

Goal-oriented sampling was implemented in this project to select and recruit the participants. Purposive sampling requires recognizing and enlisting the participants who have a background related to the study problem and have enough grounded information about the field of research⁵. Ethics approval was obtained from the Ministry of Education in Qatar & Bangor University. The

agreement forms and PIS were emailed to school nurses who assisted in printing them. The school coordinator in public school and school nurses in private school conveyed the information to the parents and teachers according to the conveyed guideline about the study and distributed the required information or packages by calling them.

The specific features of the case study ensured the selection and enlisting of participants as five students-both male and female from primary grades 2 to 6 from each public and private school with their parents based on the following criteria: school (public/private); gender (male/female); nationality (Qatari/non-Qatari); education status of parents (educated/illiterate); upbringing (students who were born and studying in Qatar); commencement of grade one in Qatar; grade (1-6); experience of previous school oral health programme (yes/no). However, students who just arrived in Qatar and students and parents who were not medically fit were excluded.

Participants included 10 children and parents, 2 of which were also teachers, 8 other teachers, 1 teaching assistant and 2 school nurses, which makes a total of 31 participants. Audiotapes were used to record the interviews and the responses of participants. The information gathered from the participants was transcribed to make it easier for the researcher to evaluate the result obtained from the perception of the participants.

The responses from the participants including students, teachers, school nurses and parents were examined by applying thematic analysis [6,7]. This involves drawing together similar codes from the transcripts and applying them to develop themes in a meaningful manner [8]. Analogous codes were combined to generate new themes to answer the research problem. The themes were systemized in the configuration according to the requirement of the research. To acquire desired research results, these themes were found to be truly assertive. As part of the case study approach, the analysis of the case was performed to enhance the richness of data [9]. Richness of data was explored with the perspectives including commentary and conflicting perspectives, rigidities and dynamics [10]. From interviews, the raw data obtained were converted into written format for analysis purpose. This written data acquired from raw data was then converted into interview transcripts.

Results and Discussion

The level of awareness and knowledge of oral health, accountability on oral health diseases, proprietorship and position of control, the effectiveness of oral health educational programme, oral health facilitation based in school, policies to prevent oral caries and strategies to help in progressing oral health all have been assessed to be significant factors in enhancing the concept of dental hygiene within Qatari primary school students. The responses recognized were based on themes that parents reflected during interviews, concerned with parental knowledge about oral health, oral hygiene practice among parents, dental caries among children, oral health propagation in schools, facilitators for school oral health facilitation, Qatari context, sociodemographic change in oral health and behaviour change strategies. In addition, the themes conducted through interviews with school teachers and school

nurses were: oral health knowledge; awareness of oral health hygiene among children, school nurses, and staff; the severity of dental caries among students; propagation of oral health in Qatari primary schools; sociodemographic differences related with oral health; and behavioural controlled policies.

Themes from Children's Interviews

Level of awareness and knowledge of oral health

The leitmotif of the level of awareness of oral health pronounces the children's level of awareness in relation to oral health practices and issues. The interviews are the source from where the theme was recognized from private and public schools in Qatar. Qatari primary school children's views related to oral health behaviour were thus assessed. Most of the students (n=8) declared that they know a lot about oral health and hygiene. The students were allowed to share their interpretation, which showed that most of them are aware of oral health hygiene with sufficient basic knowledge of what it entails. The students concluded that ignoring sugary foods such as chocolate and cleaning the teeth will help prevent dental decay, caries formation, and tooth infection. The majority of public school students have a high awareness of oral health and basic knowledge about dental health protection than their private school counterparts. The conclusion based on the children's perception indicates that awareness about oral health and oral decay prevention keeps fit and facilitates the new generation to maintain good oral health by obtaining and absorbing enough knowledge towards the respective target. For instance, a student from public school elaborated on oral health and defined his perspective, saying, "It means I should not be sick."

Responsibility for oral health diseases

The children's perception in the given category representing the theme of responsibility for oral health diseases showed the role of awareness in protecting themselves from dental diseases. The purpose of the theme is to elaborate on whether the students from private and public schools are aware of their duty to prevent dental diseases. They also recognise their responsibility in terms of the fact that dental hygiene could decrease among them when they do not observe oral health. The responsibilities of students in private and public schools, including dental caries as one of the oral health diseases, have thus been discussed.

According to students, dental caries is counted in oral health diseases and symbolized as holes in teeth. Therefore, the duties of a student include protecting their teeth from dental caries via preventive measures and strategies designed. For instance, Sarah from the Qatari public school claimed that dental caries is symbolized as the holes in her teeth, stating, "Holes in teeth." Younus from the public school described caries as, "Holes. It's like animals that want to eat my tooth".

Not taking too many sweets and sugary food is also included in the major preventive measures. Students themselves suggested that dental caries is commonly and easily formed by extensive sugary food intake, such as eating too many sweets. The students were aware that preference for too much intake of sugary stuff could destroy their teeth which may lead to hole formation within teeth. In the perception of some students, dental caries treatment should be accompanied by dentists' supervision in eliminating caries

and infection persistence removal. This also plays a helpful role in guiding oral hygiene. Dentists and nurses act as a protector by administrating the prevention strategies in protecting dental caries production. Thus, the student's behaviour is vital in promoting a healthy lifestyle and mindful eating habits to prevent dental caries, accompanied by dental care visits to remove dental caries.

As discussed earlier, dental caries is a serious problem. The degree of severity depends on the frequency of infection. The students make themselves vulnerable to caries and infections. Students' consciousness in private and public schools towards their responsibilities in preventing dental caries was increased significantly during the research duration according to the findings, general observations, and people's perceptions. The students became vastly aware that adopting a healthy lifestyle and avoiding sweet meals would profoundly reduce caries formation. Thus the students' behaviours play a crucial role in oral health maintenance.

Ownership and locus of control

The theme of ownership and locus of control entails how students can take care of themselves in maintaining oral hygiene and good quality of life in terms of health to control dental diseases. The participants shared the behavioral attempts and oral health prevention strategies used in this regard. The diversified behavioural strategies applied by students in maintaining their oral health include brushing their teeth as the first and best step, and brushing teeth after every meal is the best way to prevent dental caries. Private and public schools described their preventive measures and controlled behavioural adaptations in maintaining and inhibiting oral caries and oral infections. For instance, from a public school, Rayah explained, "I brush my teeth three times a day, after every meal by using toothpaste." Mariam, another candidate from the private school, admits that she brushed her teeth two times a day in promoting her good oral health. She further discussed, "two times in the morning and one time before going to bed."

The students agreed here that brushing teeth at least twice a day is an effective method to control dental caries. Some declared that brushing thrice a day is probably better to maintain oral hygiene. However, several students mentioned that they would not opt for brushing thrice a day because of various inconveniences, such as their motives, tiredness, sleep, and not enough time. Considering the frequency of brushing among students, it supports that most students are conscious about proper brushing and agree that oral healthcare programs' implementation is a must in sustained healthcare measures. Behavioral administration such as tooth brushing, dental flossing, diet modifications, and dental visits are common.

Effectiveness of oral health educational program

The theme of the oral health programme's effectiveness emphasized the impact on maintaining oral health and suppressing dental caries through preventive or inhibitory measures or strategies. The oral health programme was a rudimentary bridge between public awareness and the source to propagate information from one end to the other. The level of dental care enhanced the consciousness among students, teachers, parents, and nurses also. Watching online videos proved to be an effective tool in promoting dental

care and dental clinic visitations to prevent dental caries and tooth decay.

The majority of the students were well aware of the risks associated with oral caries. They also had attended the former oral health programmes conducted by the government. Such programmes are beneficial in enhancing the rate of awareness among students to make the new generation more conscious about their fitness and health issues. Based on the information shared by students, they provided an effective response in administering the preventive measures in the oral care area of hygiene. Most of the students indicated that oral healthcare skills are advanced by monitoring and modifying tooth brushing campaigns among the students and the dental care visits on proper nodes with respective dentists.

For instance, Wedded discussed, *“They will ask us to be seated, and then a doctor will demonstrate how to brush the teeth using a big tooth and brush. We also saw a video about the importance of brushing teeth. After that, they started calling us in groups of 3 for the dental check-up in another room. For those who required dental follow-up, they informed their parents...My mom received a message later to follow up with the doctor in my case...They also distributed free toothbrushes and kinds of toothpaste to all students.”*

Whereas the majority of students from the public school had participated in the facility-related oral health strategies, the private students were not mostly involved in the oral care programme as the participants within the research covered only second grades. Therefore, oral care facilities and preventive measures should also be applied for students, teachers, parents, and nurses in the private schools to enhance awareness and practical implementation of dental care.

School-based oral health promotion

Health day celebration and GCC health week celebration is an interactive campaign in oral health issues to appreciate the field's efforts and develop an interest in oral hygiene issues, including proper tooth brushing and investing in routine check-ups directed by an oral care professional. Hence, the theme of school-based oral health promotion activities includes the strategies the school has taken in facilitating its audience, including parents, students, teachers, and nurses. The dental caries prevention models also allow students to implement dental care. Students agreed that their schools have promotion activities that support dental care practices. For instance, Nawal mentioned, *“They teach us about healthy food and how to brush our teeth.”*

From the reports, the responses gathered indicated that some activities involved in oral healthcare were being inducted in both private and public schools in Qatar. The participants showed that the practice is equally beneficial in guiding other staff and individuals to spread information about oral health by necessitating tooth brushing and dental check-ups and guided visits to dental clinics. Students shared that school-led dental care activities in the promotion of dental care are essential. However, the policies are not regulated properly and are still uncoordinated. Thus, a more comprehensive and well-coordinated oral health programme model should be designed and implemented in everyday practice

in the public and private schools in Qatar.

Personal Detachment to the issue

This theme presents the concept of alienation to the occurrences of dental problems among other students. This theme was based on students' perceptions about dental caries formation and inhibitory strategies. Students in both private and public schools observed that some of their fellows got infected by tooth decay in the form of “holes in the teeth,” bad odour from the mouth and black teeth. For instance, Rayah mentioned, “Some of them have and others don't.” Some students claimed that they could identify dental caries by bad breath and change of colour of teeth. For instance, Younus mentioned that *“Yes. Many of them. Around ten of them in my class. Yes, I ask them to stop eating sweets and start eating healthily.”*

Students' perceptions were so enhanced that, through various signs, they had collected critical information using observations regarding the prevalence of dental caries in their fellow students. Thus, the awareness had to lead them to the extent where the students can assist their fellows in removing the prevalence of dental caries through oral health prevention and behavioural change strategies, including tooth brushing habits and avoiding extensive sugary food. Thus, the research had played a vast role in enhancing awareness in Qatar schools.

In summary, the ‘Champions in oral health’ were specific students that became significantly aware that they can easily guide their classmates in regulating oral hygiene and preventing oral disorders typified as dental caries and dental infections. Also, they can easily assist their fellows or even other individuals in opting towards the behaviours that are best implemented in preventing tooth decay and oral caries formation. Furthermore, it was specifically noted that the students who are in lower classes should be made aware of the importance of oral hygiene, suppressing dental caries, and enhancing a healthy lifestyle by their seniors.

Themes from Parents' Interviews

Oral hygiene practice among parents

The theme describes the level of understanding that parents have of oral health practices. This generates an understanding concerning parental awareness about dental caries and oral hygiene practices. Parents of both public and private schools in Qatar were able to share their perceptions of health. Responses of parents showed a high degree of understanding about oral hygiene and oral health behaviour and practices. The theme of oral hygiene practice among parents describes parents' level of understanding towards oral health practices.

Generally, parents showed a high degree of awareness about dental health. Parents' reactions showed that they are better at understanding dental caries and can assist their children in preventing caries by cultivating healthy habits. This includes encouraging their children such that they would be able to adopt healthy habits themselves. Sugary food should be avoided and healthcare routines implemented by the parents first, as children learn by actions rather than words. For instance, Salam shared that, *“It means taking care of our teeth to avoid dental caries, washing them regularly and changing the toothpaste from time to time*

because I heard that it becomes ineffective if used for prolonged periods.” Thus, parents can act as role models in their children’s life by preventing themselves from tooth decay and dental caries. They should also promote practices for sustaining healthy gums, eradicating bad breath, and avoiding sugary food to inhibit the progression of caries. Personal experiences, internet searching, and people’s qualitative perception could thus be used as basic and profound tools to broaden the sense of awareness in parents. The use of toothbrushes and selecting toothpaste smartly was also an important aspect to make their children habitual of these qualities. These attributes will pass from generation to generation if the consistency remains in demand.

Dental caries among students

This theme was pursued to determine whether parents were aware of dental caries to easily recognize these as destructive in their children’s oral health or not. Through the responses assembled from parents, they were also observed to be well aware of the strategies by which they can cultivate healthy habits in their children. For instance, Wafa shared, *“Yes, but I am following with dentist. My son problem that he has been scared from his last visit to the dentist; his father changed to the dentist, and he is the one who is following with him now since I can’t withstand being in a dentist clinic. I am afraid, but his father is supportive of him and motivates him.”*

Parents were also receptive to the idea of dental check-ups for getting dentist’s recommendations for their children’s oral health. According to them, these visits are essential and can be highly advantageous in children’s oral health. In addition, they were curious to know about preventive measures to assist their children through healthcare policies, as reported in the parental responses in both private and public schools.

The prevalence of dental caries and tooth decay is becoming widespread. It would be a deleterious threat to the oral health of Qatari people if not treated properly and urgently. Parents recognised the enhanced urgency of dental caries preventive models that could comfortably be implemented in routine. Parents from public and private schools in Qatar shared that their children had dental caries and tooth decay emergencies. Thus, they visited the dentist for check-ups. Dentists promoted the awareness of oral decay prevention strategies among Qatari parents to indirectly educate the next generation and enhance the awareness that parents have primary responsibility concerning children’s oral health.

Impacts of school oral health activities on children

It has been proven that oral healthcare activities designed by the school have integrated children’s role within them significantly. Children are observed to be involved in the enhancement of oral health behavioural development at a higher pace. Parents mentioned increased interest and curiosity in public and private schools’ children’s lives for dental visits. These activities boosted their confidence in them. For instance, Wafa supported, *“For my child, yes it did a lot that lecture he attended at school, and of course following from home side too.”*

According to parents’ perception, this curiosity and exuberance in dental hygiene are short-lived in children, but some have suggested

that consistency was much more noted in their experiences. Whereas, some parents stated that they had seen no progress in dental care routine. For instance, Wajed explained that *“No, not much. Initially, they get excited because of gifts, and they are eager for the first couple of months and then start skipping although I keep advising them.”*

Parent’s responses accompanied with progressive and comprehensively designed oral health activities by the school played a corresponding role in the building of mindful behaviours for healthcare and preventing dental decay involving the contribution of both private and public schools in Qatar.

Disconnection between oral healthcare behaviour in school and at home

Opinions of the parents generate diversified assumptions based on perceptions and observations of parents. Parents deliberately recognized that children are not well aware of the general healthcare routine, especially those in lower grades, such as grades 1, 2, and 3. Parents became frustrated that children were not consistently following the oral healthcare measures at a regular pace. Yahya shared, *“With regards to oral health, nothing is happening. We are all at fault.”*

Moreover, because of interrupted oral healthcare applications, dental caries generation was common. Therefore, parents proposed that schools should promote strict instructions and follow-up procedures to encourage the children to show consistency in dental caries prevention even in lower grades. For example, Nawal presented that, *“By motivating the student and encouraging them to participate in all related activities.”*

Parents were looking optimistic that the children will consistently follow the healthcare measures in preventing dental caries after completing primary studies. However, some parents indicated worries that an irregularity in some primary school children’s healthcare routine may disrupt their regular oral healthcare routine. Some parents were observed to reinforce children to promote these preventive measures in acquiring their desired results in oral healthcare. However, some parents are still struggling to sustain these behaviours in their children.

Oral Health Promotion in Schools

School support for oral health

The theme describes the roles of schools regarding dental health practices and oral health behaviours. The main finding here is the efficiency in the field of oral healthcare and prevention models driven by behavioural strategies that have been targeted to get desired results. Based on parents’ perceptions, tooth decay could be prevented through regular oral check-up routines and regulating oral hygiene. Some parents indicated that schools should play their role in guiding and educating children about the necessity of oral hygiene and oral health issues in general. For instance, Mariam mentioned, *“They have activities but to some extent. They had a lecture this year in this school, but I am not sure if it was for the whole school. Even in the past, when my children were in another school, they brought home approval letters for a trip to the dentist.”* Healthcare practices and oral hygiene should thus be a priority in school practices.

Responses collected from most private and public schools proved that the schools had played a significant role in upgrading and building oral healthcare behaviours in children. Parents discussed the role of school-wide efficiency in oral hygiene and dental care programme by interacting with children in some oral hygiene-related programme including teaching sessions, by following healthcare routine such as teeth brushing and avoiding excessive sugary food, punctuality in bedtime routine and dental clinic trips accompanied with a dental check-up with timely follow-ups. For instance, Nawal mentioned, *"We receive letters about dental check-ups from the school. They also organized a trip to the dentist some time back. So it is once per year."*

Oral health in the school curriculum

The theme of oral health in the school curriculum outlines the need for incorporating oral health education as part of class lessons. The parents indicated that the school awareness programme would boost consciousness about the children's hygiene and maintain healthy oral hygiene. The parents highlighted the role of teachers in this regard. They indicated the teachers as role models for students, with the students following their practices. Thus, teachers should try to build up characters or behaviours within their students in promoting oral health, which would be an influential asset in regulating oral health. In this way, oral health integration at the classroom level should be assisted. For instance, Wafa shared, *"I think there were in the last year or the year before in the science something related to oral health for my other son, but I am not sure."* Parents added further that the schools should conduct programmes to instruct the students on how to improve tooth brushing and enhance toothpaste selection awareness. According to parents, schools should start a lesson in the students' routine syllabus to promote guidance of healthcare measures and versatile behaviours opting towards oral hygiene. Moreover, parents included that children should know about different methods of teeth cleaning and develop a variety of methods in preventing teeth from decaying.

Involvement of parents in school health oral activity

The theme elaborates the role of parents in shaping the oral behaviour of school children within the oral health activities in school. The interaction of parents is necessitated in the school activities of children to heighten the scale of awareness in children, implement oral healthcare measures and productive healthcare behaviours, and promote oral health in children in general. School authorities responded that parents were much more interested in participating in the school's healthcare objectives and activities, acting as a bridge between school activities and developing a healthy lifestyle. Unfortunately, they have not been given an opportunity. For instance, Salma supported, *"Yes, parents are involved, however mostly for academic purpose but not much for the health activities."* Parent-teacher meetings are also based on student's academics. For instance, Wafa shared that, *"They call us in all academic things only, and nothing regarding their health hygiene or oral health."* Parents were more profoundly interested in their children's oral health by interacting with them and the school staff in the activity program.

Previous facility-based oral health programme

Some parents in school also reported that it is a good option for their children to include PHCC as part of routine dental check-

up visits. It was an efficient tool in developing interest in their children to be careful of their oral healthcare routine. The dental check-up letter follow up programme has already been proved to be impactful in designing and refining behaviours in children. Children should try to avoid sugary food consumption at higher rates. For instance, Rehab shared that, *"Yes, I think I heard about it a couple of years back when they took my daughters and then gave us follow up appointments at PHCC."*

Although parents were aware of their children's routine dental visits to the PHCC, it seemed they were not involved in the process. For instance, Mariam shared that, *"I think she was in grade 4, and they took her to the PHCC. They did a dental check-up, and I don't know more than that."* It has thus been proven that parents play an immense role in their child's health and wellbeing. Accordingly, it has been suggested that the school should increase the involvement of parents in oral activities. Hence, parents play a great role in both categories to build oral health behaviours and dental caries inhibitory programmes.

Awareness of new school programme

Most of the parents are not well aware of the oral healthcare incentives and preventive applications. Thus, their attention was piloted through this research to attempt the interviews and lead them to a new level of awareness regarding oral healthcare measures. For instance, Mansour shared his observation, *"I don't see any programmes being implemented."* Poor parental awareness in the category of oral health stresses the role of parents in reinforcing them to generate greater awareness in maintaining oral hygiene. This practice can be done by enhancing the interaction of parents in school designed activities in the progression of oral health.

Stakeholders for school oral health promotion

The stakeholders in promoting healthcare services have involved all teachers, nurses, parents, selected students, and caretakers, which have played a significant role in promoting and progressing oral healthcare routines. For instance, Mahmoud shared, *"In schools, it should be the nurse, and at home, it is the parents, especially the moms...Everybody in the school should be involved."*

Schools and parents have also suggested the role of several stakeholders involving Healthcare Ministers, Ministers of Education, and Public Health Ministers. Schools play a major role in stakeholder's integration within this area. This theme particularly emphasized the imposition of nighttime dental care routines by the stakeholders.

School oral health should thus be prompted through multidisciplinary and multi-sectoral approaches to attain targeted results. Parents play a central role in understanding what measures are to be taken initially and how these are beneficial in oral healthcare routine.

Themes from Teachers and School Nurses' Interviews

Inclusively, the school nurses (n=2) and most teachers (n=8) were well aware of healthcare manifestations and oral healthcare routine. They described oral healthcare in terms of proper teeth brushing, avoiding consumption of sugary food, nighttime oral care routine approach, dental clinic visits for check-ups at regular

intervals, and fluoride-based toothpaste. For instance, Dorah, a public-school nurse, mentioned, *“It means when we take care of our teeth and the internal health by eating healthy food. It means how to take care of teeth like how to clean, types of healthy food, etc.”*

These are the behaviours and strategies by which to become aware of the importance of oral health. Through these approaches, oral health could be administered and better recovered if needed. For instance, Dorah mentioned, *“We took it during our studying and also through what we see in our daily life.”*

Oral hygiene practice among teachers and school nurses

The teachers and nurses involved in this research have good knowledge about oral healthcare routines and have a greater frequency in sustaining nighttime teeth brushing habits with a fluoride-based toothpaste. Hence, this department played a diversified role in promoting healthcare routine and respective behaviours in maintaining oral hygiene. For example, Samar explained, *“Primarily its morning and night, although I know we are supposed to do more than that. Now we know the right way of brushing teeth and deep brushing.”*

The severity of dental caries among students

Some teachers and school nurses expressed their concern over the high rate and severity of dental decay among students. For instance, Dorah elaborated, *“Yes, most of the problems are about caries, abscess etc. Manhealthy girls come to me complaining about a toothache.”*

Some of the teachers have played a role in guiding their students if they were suffering from dental caries or tooth decay, whereas, some teachers did not agree that it was their responsibility to assist their students if they were experiencing dental caries issues. Such teachers suggested their students to first go to dentist appointments. For instance, Huda clarified, *“I didn't interfere so far in these matters. Because it is outside my domain.”*

Discussion

Oral healthcare among all ages is a critically discussed area especially among lower grade students and those who are facing inequality and have poor income output on a monthly basis. These oral healthcare issues including dental caries, tooth decay, tooth flossing, cavity formation, bad breath issue and change of colour of teeth can be rectified by administering teeth brushing, planned dental check-ups every month, use of fluoride-based toothpaste, application of specific mouthwash, and bedtime oral hygiene, which should be administered strictly. This oral health associated lifestyle and behaviour should be implemented within the lower grade students. These habits should be proper and strictly followed by children at home under parental supervision. If parental supervision is integrated by the actions and examples of parents, this issue could further be managed and monitored. Teachers are not only mentors but they are the role models of their students, thus

what teachers instruct, they should also act upon it themselves first. It can transmit the message more powerfully and with undeniable emphasis that could automatically be picked up by students which will then show in their outcome responses. Teachers should assist their students in creating a healthy lifestyle in developing healthy eating habits and reducing unnecessary sugary food intake.

By promoting interactive and appreciative activities about oral healthcare routine services and behaviour development among students, teachers, parents and nurses, the schools will generate a healthier environment. The awareness level of all stakeholders was highlighted during the research. Ministry of education, Ministry of Public Health and all higher associative authorities should thus be involved in research curriculum to propel oral health vastly within all groups from lower-income families to high-income families. Altogether, awareness of personal oral hygiene and consistency in actions is a must to build up mindful actions towards eating and behavioural manifestations, and by strictly following the respective dentist. A healthy environment will generate another healthy generation where awareness will flow without any hindrance and blockage. Staying healthy, especially in terms of oral hygiene is thus a necessity. It should be made a common requirement for students as they may grow to incorporate these healthy practices throughout life, ultimately contributing to the establishment of a healthy global community in the case of oral hygiene.

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