# Parents' willingness to enroll their children in preventive dental care programs in Jeddah, Saudi Arabia.

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**Abstract**—Background: Preventive dental care is intended to reduce the likelihood of development of tooth decay. Parents have an essential role in ensuring that their children receive the suitable preventive dental care, and their decisions affect the well-being of their children. therefore this study aimed to investigate parents' willingness to enroll their children in preventive dental care programs in Jeddah, Saudi Arabia. Methods: This study is cross-sectional study, was conducted among the parents in Jeddah, Saudi Arabia, during November and December, 2022. The study was carried out using self- administered questionnaire consisting of a cover page and four main sections was distributed to parents in Jeddah region online. Results: The study included 113 parents, 69.9% of them were mothers. Only 38.1% knew the meaning of preventive dentistry, 21.2% were have been notified of Preventive Dental Care Programs for Children. 76.1% would like to enroll their child in a preventive dental program. 30% thought that cost of dental care may prevent them from enroll their child in a preventive dental program. Conclusion: parents in Jeddah, Saudi Arabia have a good attitude towards the preventive dental care programs for their children, and they revealed their desire to enroll their children in such programs.

**Keywords**: Preventive dental care programs, Dental caries, Chronic diseases, Caries lesions, Dental sealants , Fluoride varnish.



## 1 INTRODUCTION

Dental caries is a persistent silent epidemic disease [1], it is one of the most common chronic diseases among children around the world [2,3]. According to a WHO report, about 60–90% of schoolchildren around the world have experienced caries and it is most prevalent in Latin American and Asian countries [4]. In Saudi Arabia, the prevalence of caries among children is high and has increased in the last decades with an estimated of 70% [5].

The aetiology of caries is complex and requires consideration of genetic, environmental and risk factors [6], regarding caries risk factors, it include; high number of cariogenic oral bacteria, insufficient saliva flow, frequent consumption of high sugar food, poor oral hygiene, lower fluoride exposure, and low socioeconomic demographic status [7].

Untreated caries negatively impacts on children's lives [6,8]; since the short-term impacts of untreated caries include pain, discomfort, emergency visits, hospitalization, and even death [3,6], while in the long term untreated caries increases the chance of declining oral health and increasing the risk of caries lesions in permanent teeth [3].

Early identification of risk factors and implementation of oral health preventive practices at a young age can control the progression of caries [9]. Caries can be prevented through the integration of procedures taken at home (such as; oral hygiene and diet), dental office or other care locations (such as; dental sealants and fluoride varnish), and a community wide (such as; water fluoridation) [8]. Epidemiological studies reported that the

decrease in caries prevalence is associated with the application of community and individual preventive measures that emphasize guidance regarding diet, oral hygiene habits, and rational use of fluoride [10].

Dental preventive measures should begin in in early years of life [11]. American Academy of Pediatric Dentistry AAPD confirms the importance of beginning professional oral health intervention in early childhood and continuing through adolescence and beyond [12]. In general, parents are the care takers of their children and make crucial decisions about their general health, consequently, parents' attitude and behavior toward preventive dental care for their children will ultimately influence their children's receiving of preventive dental care [11]. Thus, understanding parents' attitude toward preventive dental care may help the preventive dental care programs to be more successful in the community and increase in the number of children receiving preventive dental care [13]. Therefore, this study aimed to investigate parents' willingness to enroll their children in preventive dental care programs in Jeddah, Saudi Arabia.

## 2 Materials and methods

This cross-sectional study was conducted among the parents in Jeddah, Saudi Arabia, during November and December, 2022. The inclusion criteria of this study were any parents residing in Jeddah region who have currently or had previously children aged 14 years and younger. Parents who did not meet our inclusion criteria, or who refused to participate, were consequently excluded from this study.

The study was carried out using self-administered research instrument (questionnaire), the questionnaire consisted of a cover page and four main sections. The cover page included a definition of the study and its objectives, in addition to the researchers' pledge not to disclose any personal information related to the respondents, and to use their answers only for the purpose of scientific research. Regarding the four main sections; the first section included questions about personal information, the second section included questions about parents knowledge about preventive dentistry and the Pediatric Preventive Dental program, the third parents attitude towards preventive dentistry and the Pediatric Preventive Dental program, and the fourth section included questions about parents caring of their children's teeth. The questionnaire was formulated in Google forms and was sent online to participants, none of participants was forced to fill the questionnaire.

The statistical analysis program (SPSS v.26) has been used in the study in data entry and analysis, with using the necessary statistical methods to achieve the objectives of the study.

## 3 Results

***First: parents' personal information***

Among the 113 parents participating in the study, 69.9% of them were mothers, 30.1% were fathers, 88.5% were Saudi nationals, their ages ranged from less than 30 years to more than 50 years, and 42.5% of them were in the age group 30- 40 years. Nearly two-thirds of the participants 61.1% have a bachelor's degree or higher, and most of them have a monthly income of more than 5,000 riyals.

As for their distribution according to the number of children, 30.1% have four children or more, 26.5% have three children, 28.3% have two children, and 15% have one child. Almost half of the children (47.8%) have health insurance, while 52.2% do not have health insurance.

*Table (1)*

| | N (%) |
|---|---|
| **Gender** | |
| Male (father) | 34 (30.1%) |
| Female (mother) | 79 (69.9%) |
| **Age** | |
| Less than 30 | 20 (17.7%) |
| Between 30-40 | 48 (42.5%) |
| Between 40-50 | 32 (28.3%) |
| More than 50years old | 13 (11.5%) |
| **Nationality** | |
| Saudi | 100 (88.5%) |
| Other | 13 (11.5%) |
| **Level of education** | |
| Bachelor & above | 69 (61.1%) |
| High school | 32 (28.3%) |
| Intermediate | 10 (8.8%) |
| Elementary | 2 (1.8%) |
| **Monthly income** | |
| Less than 5000 SR | 12 (10.6%) |
| Between 5000-10000 SR | 54 (47.8%) |
| More than 10000 SR | 47 (41.6%) |
| **Number of children** | |
| One child | 17 (15%) |
| Two children | 32 (28.3%) |
| Three children | 30 (26.5%) |
| Four children or more | 34 (30.1%) |
| **Your children have health insurance** | |
| Yes | 54 (47.8%) |
| No | 59 (52.2%) |

***Second: Parents knowledge about preventive dentistry and the Preventive Dental Care Programs for Children.***

Table (2) shows the parents distribution according to their knowledge of preventive dentistry and the children's preventive dental program. Where the results indicated that 36.3% of parents believe that the child's first visit to the dentist should be at the age of 3 years, 35.4% believe that the child's first visit to the dentist should be at the age of 6 years.

75.2% of parents believe that the child regular visit to dentist is necessary. Despite this, 58.4% of parents reported that their children visit the dentist on a regular basis, while 38.1% of them reported that their children visit the dentist only when a problem arises.

56.6% of parents know that preventive dental treatment (pit and fissure sealants,

fluoride application) can prevent dental caries in future, 40.7% were told by the doctor about pit and fissure sealants and fluoride application.

38.1% of parents reported knowing about preventive dentistry, and 21.1% were previously notified of any Preventive Dental Care Programs for Children. We also note that 64.6% of parents prefer to be informed about the Preventive Dental Care Programs for Children through phone messages.

*Table (2)*

| | N (%) |
|---|---|
| **First dental visit should be at what age?** | |
| 1st year | 20 (17.7%) |
| 3rd year | 41 (36.3%) |
| 6th year | 40 (35.4%) |
| Others | 12 (10.6%) |
| **Reasons for your child's visit to the dentist?** | |
| When problem arises | 43 (38.1%) |
| Regular follow up | 66 (58.4%) |
| Others | 4 (3.5%) |
| **Do you think that regular visit to dentist is necessary?** | |
| Yes | 85 (75.2%) |
| No | 28 (24.8%) |
| **Did you know that preventive dental treatment (pit and fissure sealants, fluoride application) can prevent dental caries in future?** | |
| Yes | 64 (56.6%) |
| No | 49 (43.4%) |
| **Have your dentist ever told you about pit and fissure sealants and fluoride application?** | |
| Yes | 46 (40.7%) |
| No | 67 (59.3%) |
| **Do you know what preventive dentistry is?** | |
| Yes | 43 (38.1%) |
| No | 70 (61.9%) |
| **Have you ever been notified of any Preventive Dental Care Programs for Children?** | |
| Yes | 24 (21.2%) |
| No | 89 (78.8%) |
| **By which way would you like to be informed about the Preventive Dental Care Programs for Children?** | |
| Brochure | 8 (7.1%) |
| Telephone | 9 (8%) |
| Phone message | 73 (64.6%) |
| Email message | 19 (16.8%) |
| Workshop | 4 (3.5%) |

Figure (1) shows the most important sources of information for parents about oral and dental health. The most important of these sources were: social media 35%, health care provider 35%, internet 32%, awareness campaigns 31%.

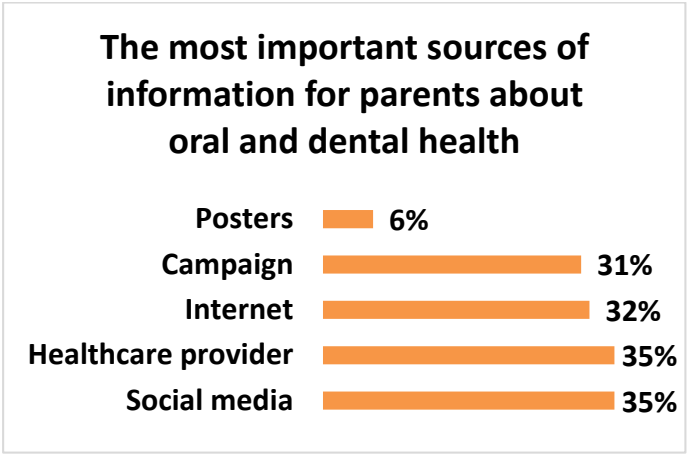


*Figure (1)*

***Third: Parents Attitude towards preventive dentistry and the Preventive Dental Care Programs for Children.***

Table (3) shows the attitude of parents towards preventive dentistry and the preventive dental program for children, as we note that 71.7% of parents Believe that dental problems are as serious as other health problems, 76.1% of them want to enroll their child in a preventive dental program. This is because they are concerned about the health of their children and to prevent dental caries.

50.4% of parents believe that follow up children's teeth in the pediatric preventive dental program should be mandatory, and here worth mentioning that 84.1% of parents do not believe that their children learned enough about oral health in school and from family that they do not need a preventive dental program.

When parents were asked about the reason for their refusal to e enroll their children into a dental preventive program, 33.6% answered that the reason for this is that their children will be uncooperative, and 7.1% answered because their Children's teeth are not yet completed and no benefit from follow up it, while 3.5% of them answered that their Children's teeth are not yet completed and not affected by diseases.

When asking parents about their belief that preventive dental procedures will be painful for their children, 77% of them answered that they believe that they will not be painful. It is worth mentioning that 32.7% of parents believe that p preventive dental procedures won't be sufficient for their children.

*Table (3)*

| | N (%) |
|---|---|
| **Do you Believe that dental problems are as serious as other health problems?** | |
| Yes | 81 (71.7%) |
| No | 32 (28.3%) |
| **Would you like to enroll your child in a preventive dental program?** | |
| Yes | 86 (76.1%) |
| No | 27 (23.9%) |
| **If yes, why?** | |
| I am worried about my child's health | 26 (23%) |
| To prevent dental caries | 60 (53.1%) |
| **Do you think that enrolling children's teeth in the preventive dental care program should be Mandatory or Optionally?** | |
| Mandatory | 57 (50.4%) |
| Optionally | 56 (49.6%) |
| **Do you think that your children learned enough about oral health in school and from family that they do not need a preventive dental program?** | |
| Yes | 18 (15.9%) |
| No | 95 (84.1%) |
| **Why do you refuse to enroll your child into a preventive dental care program?** | |
| Children's teeth are not yet completed and not affected by diseases | 4 (3.5%) |
| Children's teeth are not yet completed and no benefit from follow up it | 8 (7.1%) |
| Child will be uncooperative | 38 (33.6%) |
| Others | 63 (55.7%) |
| **Do you think that preventive dental procedures will be painful for your children?** | |
| Yes | 26 (23%) |
| No | 87 (77%) |
| **Do you think that preventive dental procedures won't be sufficient for your children?** | |
| Yes | 37 |

| | |
|---|---|
| | (32.7%) |
| No | 76 (67.3%) |

Figure (2) shows the barriers preventing parents from enrolling their children in a preventive dental care program. The most important of these barriers were: cost of dental care 30%, being busy and lack of dental insurance 23%, and lack of awareness about the program 21%.

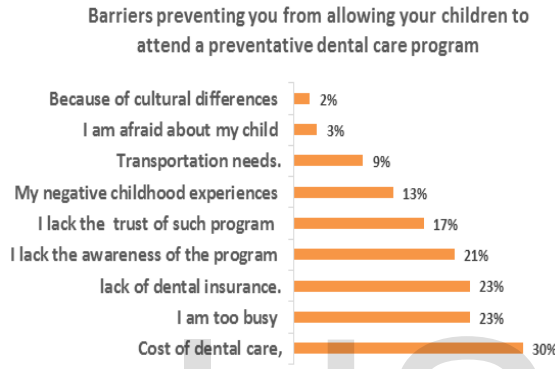


*Figure (2)*

***Fourth: Parents caring for their children's teeth.***

Table (4) shows the parents distribution according to the health care they do for their children's teeth, as we note that 69.9% assure to brush their children's teeth twice a day, 71.7% supervise brushing their children's teeth with toothpaste twice a day, 47.8% are not interested in knowing whether the toothpaste contains fluoride. 45.1% of parents check their children's teeth for anything unusual once a month, 38.1% of parents take their children to the dentist once a year, and 35.4% have child undergone preventive dental treatment.

*Table (4)*

| | N (%) |
|---|---|
| **How often do your child's teeth been brushed?** | |
| Twice a day | 79 (69.9%) |
| Once a day | 30 (26.5%) |
| Twice weekly | 2 (1.8%) |
| Once weekly | 2 (1.8%) |
| **How often do your child's teeth been brushed with any toothpaste?** | |
| Twice a day | 81 (71.7%) |
| Once a day | 27 (23.9%) |
| Twice weekly | 3 (2.7%) |
| Once weekly | 1 (0.9%) |
| Rarely | 1 (0.9%) |
| **How often are your child's teeth brushed with non-fluoride toothpaste?** | |
| Twice a day | 15 (13.3%) |
| Once a day | 6 (5.3%) |
| Twice weekly | 2 (1.8%) |
| Rarely | 36 (31.9%) |
| Never | 54 (47.8%) |
| **How often do you check your child's teeth for anything unusual?** | |
| Daily | 4 (3.5%) |
| Weekly | 11 (9.7%) |
| Monthly | 51 (45.1%) |
| Never | 47 (41.6%) |
| **How often does your child eat or drink anything other than plain water before going to bed (and after he/ she have brushed his/her teeth, if teeth are brushed)?** | |
| Daily | 31 (27.4%) |
| Weekly | 35 (31%) |
| Monthly | 20 (17.7%) |
| Never | 27 (23.9%) |
| **How often do you take your child to the dentist annually?** | |

| | |
|---|---|
| Once | 43 (38.1%) |
| Twice | 26 (23%) |
| Three times | 9 (8%) |
| Four times or more | 5 (4.4%) |
| Never | 30 (26.5%) |

| **Have your child undergone any preventive dental treatment?** | |
|---|---|
| Yes | 40 (35.4%) |
| No | 73 (64.6%) |

## 4 Discussion

Current increases in caries prevalence among young children, highlights the need for establishment of preventive dental care programs for all children [14]. Given that parents play an important role in ensuring their children receive preventive oral care, this study aimed to investigate parents' willingness to enroll their children in preventive dental care programs in Jeddah, Saudi Arabia.

The present study revealed insufficient level of knowledge about preventive dentistry and its procedures among our participants. Almutairi [15] found similar results at her study in Riyadh that the majority of parents had limited knowledge about preventive dentistry procedures. While, AlSadhan and his colleagues [16] found that the majority of adults in Riyadh have the correct knowledge about preventive dental care. The difference in the results between these studies may be due to the difference in the time of its conduct or the difference in the questionnaire used in each study. But in general, there is a need to increase parents' awareness about preventive dental care for their children. Dental professionals are responsible for encourage parents regarding preventive treatment methods in order to achieve optimum oral health for their children [11]. However, in our study less than half of parents were notified about pit and fissure sealants and fluoride application by their dentist.

only 21% of parents in this stud y have been notified about preventive dental care programs for children. When they were asked about the suitable way to be informed regarding preventive dental care programs for their children, they suggested the phone message as the best way to inform them about the preventive dental care programs for children. The use of communication methods recommended by parents themselves, in addition to taking into account the levels of literacy in the community and the multiple responsibilities of parents, may increase the acceptance of preventive dental care programs for children and overall enrollment.

The preventive process need to begin in early age to ensure a successful outcome, in addition to build the relationship between the child and dental staff. So, the children oral healthcare visit should be considered as the base of preventive education and dental care throughout lifetime [17]. European Academy of Pediatric Dentistry, American Academy of Pediatric Dentistry, American Dental Association, American Academy of Pediatrics, Australian Dental Association, and Australian Dental Association recommend to start the first dental visit

early, at the time of the first tooth eruption (around age 6 months) or at the latest age of 12 months [18, 19]. In the present study, only 17.7% reported that first dental visit should be within the first year.

Regular dental attendance provides preventive dental care that can resulting in minimum oral diseases, decreased dental treatment requirements, and lower negative oral outcomes [20]. The majority of our participants (75.2%) thought that regular dental visit is necessary, while 23% take their children to the dentist twice a year. This percentage was relatively higher than that reported in many studies in Saudi Arabia by Aqeeli et al. [21], El Bcheraoui et al. [22], Alhumiad et al. [23], (9.5%, 11.5% and 14.4%, respectively). In general, the frequency of regular dental visits among Saudi population is considered low, although free dental health services are available [21]. On the contrary, preventive dental care visits of children in the U.S. reached 72% [24], and 81.7% in New Zealand [25]. This higher rate of preventive dental care visits in these two countries could be due to the increased education and oral health awareness between parents.

In the present study, parents believe that dental problems are as serious as other health problems. They showed a good attitude towards the preventive dental care programs for their children, they were aware about them, and the majority of the participants expressed their desire to enroll their children in such programs. This is an auspicious sign of the possibility of applying and succeeding the dental care programs for children in the Kingdom of Saudi Arabia.

Regarding the barriers of enrolling children in preventive dental care programs, participants mentioned many factors that impact their ability to enroll their children in preventive dental care programs including; cost, lack of insurance, being busy, lack of awareness, lack of trust, childhood experiences, transportation, fear. These factors have been identified in many previous studies [26-29]. In our study, cost was the most common barrier, followed by being busy and lack of dental insurance, since more than half of our participants' children don't have health insurance. This indicates the need to make such preventive programs free or at a symbolic price, to urge more people to participate in these programs and to ensure better oral health for the younger generation. It worth to mention that, Pourat et al. [30] found that using preventive services in 2005-2007 was associated with lower treatment expenditures in 2008. Okunev et al. [31] also found that regular preventive dental care was associated with significant reductions in overall dental care costs, compared to dental care costs for those individuals who received no or few preventive visits. Which means, in general, prevention programs, although they are costly at the beginning, will reduce a large financial burden on the government in the future.

This study has some limitations that may impact the results. Firstly, the data collected is self-reported and therefore may contain bias. Secondly, the small sample number. If the sample number was larger, the results would have become more representative. Therefore, the researcher recommends conducting research on the same topic that includes a larger number of participants.

## 5 conclusion

This study showed that parents in in Jeddah, Saudi Arabia, have insufficient level of knowledge about preventive dentistry and its procedures. However, they showed a good attitude towards the preventive dental care programs for their children, and they revealed their desire to enroll their children in such programs. Cost was the most common barrier for enrolling children in preventive dental care programs.

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