

Assessment of knowledge and attitude of parents regarding transmissibility of dental caries in children aged 3-12 years in south Bangalore

¹Dr. Suma G, Professor, Vokkaligara Sanga Dental College, Bangalore

²Dr. Athmiya JS, 2nd Year MDS, Vokkaligara Sanga Dental College, Bangalore

Corresponding Author: Dr. Athmiya JS, 2nd Year MDS, Vokkaligara Sanga Dental College, Bangalore

Citation of this Article: Dr. Suma G, Dr. Athmiya JS, “Assessment of knowledge and attitude of parents regarding transmissibility of dental caries in children aged 3-12 years in south Bangalore”, IJDSIR- May - 2022, Vol. – 5, Issue - 3, P. No. 562 – 566.

Copyright: © 2022, Dr. Athmiya JS, et al. This is an open access journal and article distributed under the terms of the creative commons attribution non-commercial License. Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Introduction

¹The concept that dental caries is an infectious, transmissible disease solidified after the seminal paper by Keyes in 1960.⁴ The notion that dental caries is the result of bacteria goes back to the turn of the last century, but the definitive demonstration of its infectious nature was presented by Keyes³. Dental caries is a transmissible infectious disease in which mutans streptococci (MS) are generally considered. Streptococcus mutans and Streptococcus subbrings are the most prevalent to be the main etiological agents caries-associated organisms from humans. Since that time, clinicians and researchers continue to look for ways not only to understand what this means but also to devise measures that address the infectious nature of this disease³. MS are spread vertically in the population, mostly but not exclusively from mothers to their children, during a short period around 2 years of age studies using phenotyping and/or genotyping methods strongly suggest that the mother is the major primary

source of infection for children who carry S. mutans and/or S. subbrings strains, and that saliva is the main vehicle by which transfer of MS may occur⁵ Although the transmissible nature of dental caries is relatively well established in the literature, little is known whether information regarding this issue is correctly provided to the population. Therefore, the aim of the present study was to evaluate, by means of a questionnaire, the information and usual attitude of parents and caretakers regarding the transmissibility of caries disease.⁵

Materials and Method

100 parents of children aged 3-12 years with no systemic condition or pathology visiting the department of Pediatric and preventive dentistry VS dental college and hospital, Bangalore were included in the study , a comprehensive questionnaire with apparent validity was designed covering views of parents regarding transmissibility of dental caries in children and the data was statistically analysed.

Results

A total of 100 parents were interviewed for the study, out of which 47 males (47%) and 57 females (57%), out of 100 children 45% were males and 55 % were females. Children were divided into three groups according to the age, 65 % answered carious is a disease, 10% reported it is not a disease ,25% were not aware. when they were asked if dental caries can be transmitted from mother to child 45% answered yes 13% answered no and 42 % parents dint know, 28 % knew sharing of food can caused transmission of carious, 39 % answered no and 33 %did not know, 94 %parents answered it was important for all family members to have separate tooth brush,1% did not think it was important for all family members to have separate tooth brush ,5% were not aware.

88 % of adults were used to blow and taste food, 5% did not , 92% shared utensils and 8% did not. when asked about brushing methods 92% knew the right method and 8% percent did not , only 25% of parents thought caries can be transmitted among siblings /friends ,of the child , 10 % thought carious cannot be transmitted among siblings/friends and 65 percent did not know ,10 % thought carious can be transmitted from mother to child during child during child birth , 13 % did not think it can be transmitted and 77 % did not know .

Questionnaires

1.WHEN DO U THINK IS THE RIGHT AGE TO MAKE FIRST DENTAL VISIT?

- WHENEVER THERE IS PAIN
- 6 MONTHS
- DON'T KNOW

2. DO YOU BLOW AND TASTE THE FOOD?

- YES
- NO

3. DO U SHARE UTENSILS WITH YOUR CHILD?

- YES
- NO

4.DO U KNOW THE CORRECT METHOD OF CLEANING?

- YES
- NO
- DON'T KNOW

5. DO U THINK THE CARIES CAN BE TRANSMITTED AMONG SIBLINGS/FRIENDS OF THE CHILD?

- YES
- NO
- DON'T KNOW

6. DO U THINK THE CARIES CAN BE TRANSMITTED FROM MOTHER TO CHILD DURING CHILD BIRTH?

- Yes
- NO
- DON'T KNOW

7.DO U THINK DENTAL CARIES IS A DISEASE?

- YES
- NO
- DON'T KNOW

8. CAN DENTAL CARIES BE TRANSMITTED FROM MOTHER TO CHILD?

- YES
- NO
- DON'T KNOW

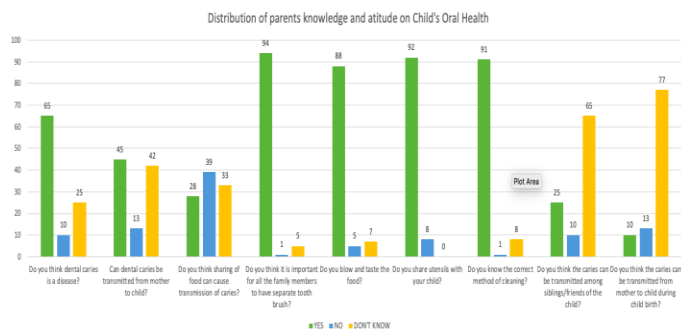
9. DO YOU THINK SHARING OF FOOD CAN CAUSE TRANSMISSION OF CARIES?

- YES
- NO DON'T KNOW

10. DO YOU THINK ITS IMPORTANT FOR ALL THE FAMILY MEMBERS TO HAVE SEPARATE TOOTH BRUSH?

- YES
- NO
- DON'T KNOW

Statistical Analysis



Discussion

In the present study questionnaires were used to analyse the knowledge of parents regarding transmissibility of dental caries. Caries is a major problem in underdeveloped countries, affecting 60-90% of school-children²Dental caries is an infectious and transmissible disease because it is caused by bacteria colonizing the tooth surfaces. Unlike most infectious diseases affecting humans, caries arises from an imbalance of the indigenous oral flora rather than a foreign infectious agent³The transmission of *S. mutans* represents one of the key steps towards childhood caries that should be stopped by preventive measures.

MS spread vertically within a population, usually from mothers to their children, during a short period around 2 years of age. The concept of dental caries as an infectious and Transmissible disease, convincingly demonstrated by Keyes¹⁴ (1960), is very well established the scientific field. The transmission of *S. mutans* is a key step towards childhood caries that should be arrested by

preventive methods . However, this concept is not known by great part of the population, who answered inadequately the questions regarding this subject in the present study.

Furthermore, almost half a century after Keyes' demonstration, clinicians and researchers have only begun to gain insight into the role and relative contribution of bacteria to the caries process⁵

Few studies have been directed at efforts to interfere with the chain of caries transmission in humans. Detailed knowledge regarding the acquisition and transmission of infectious agents aids to predict which children are at risk^{6,11} and facilitates a more comprehensive approach towards prevention^{5 11}

In this context, it is of great importance that public health strategies are promoted to reduce the likelihood or level of MS colonization of mothers and other caretakers, since these strategies can delay the infection of children by cariogenic bacteria and consequently decrease their risk for dental caries⁵.

Conclusion

As prevention is always better than cure, parent's knowledge can be one of the main key factors in preventing oral diseases and promoting the oral health of their children. There is a need to enhance dental health education activities, targeting parents of school-going children, so that strategies to prevent dental caries start at an early age. Detailed knowledge regarding the acquisition and transmission of infectious agents aids to predict which children are at risk and facilitates a more comprehensive approach towards prevention . Hence, promotion of public health strategies to reduce the likelihood or level of colonization of mothers and other caretakers by MS is of great interest, since these

approaches can delay the infection by cariogenic bacteria of children and consequently decrease their risk for dental caries.

Reference

1. Sakai VT, Oliveira TM, Silva TC, Moretti AB, Geller-Palti D, Biella VA, Machado MA. Knowledge and attitude of parents or caretakers regarding transmissibility of caries disease. *J Appl Oral Sci.* 2008 Mar-Apr;16(2):150-4. doi: 10.1590/s1678-77572008000200013. PMID: 19089208; PMCID: PMC4327636.
2. @article{Chachra2019AQS,title={A Questionnaire-based Study to Assess the Level of Awareness among Parents about Preventive Measures and its Relationship with Dental Health Status of 6–12 Years Old Children in Panchkula, Haryana, India},author={Sanjay Chachra and Sakshi Bamba and Himanshu Duhan},journal={Journal of South Asian Association of Pediatric Dentistry},year={2019}}
3. Caufield, Page & Li, Yihong & Dasanayake, Ananda. (2005). Dental caries: An infectious and transmissible disease. *Compendium of continuing education in dentistry* (Jamesburg, N.J. : 1995). 26. 10-6.
4. KEYES PH. The infectious and transmissible nature of experimental dental caries. Findings and implications. *Arch Oral Biol.* 1960 Mar;1:304-20. doi: 10.1016/0003-9969(60)90091-1. PMID: 14408737.
5. Berkowitz RJ. Mutans streptococci: acquisition and transmission. *Pediatr Dent.* 2006;28(2):106-9.
6. Caufield PW. Dental caries – a transmissible and infectious disease revisited: a position paper. *Pediatr Dent.* 1997;19(8):491-8.
7. Caufield PW. Dental caries – an infectious and transmissible disease. Where have we been and where are we going? *N Y State Dent J.* 2005;71(2):23-7.
8. Chan KM, King M, Kilpatrick NM. Can infants catch caries? A review of the current evidence on the infectious nature of dental caries in infants. *N Z Dent J.* 2005;101(1):4-11.
9. Emanuelsson IR, Thorqvist E. Genotypes of mutans streptococci tend to persist in their host for several years. *Caries Res.* 2000;34(2):133-9.
10. Ersin NK, Kocabas EH, Alpoz AR, Uzel A. Transmission of *Streptococcus mutans* in a group of Turkish families. *Oral Microbiol Immunol.* 2004;19(6):408-10.
11. Florio FM, Klein MI, Pereira AC, Gonçalves RB. Time of initial acquisition of mutans streptococci by humans infants. *J Clin Pediatr Dent.* 2004;28(4):303-8.
12. Grindefjord M, Dahllof G, Nilsson B, Modeer T. Stepwise prediction of dental caries in children up to 3.5 years of age. *Caries Res.* 1996;30(4):256-66.
13. Grönroos L, Saarela M, Mättö J, Tanner-Salo U, Vuorela A, Alaluusua S. Mutacin production by *Streptococcus mutans* may promote transmission of bacteria mother to child. *Infect Immun.* 1998;66(6):2595-600.
14. Keyes PH. The infectious and transmissible nature of experimental dental caries. *Arch Oral Biol.* 1960;1:304-20.
15. Kohler B, Andreen I, Jonsson B. The earlier the colonization by mutans streptococci, the higher the caries prevalence at 4 years of age. *Oral Microbiol Immunol.* 1988;3(1):14-7.
16. Kohler B, Lundberg AB, Birkhed D, Papapanou PN. Longitudinal study of intrafamilial mutans streptococci ribotypes. *Eur J Oral Sci.* 2003;111(5):383-9.

17. Li Y, Caufield PW, Dasanayake AP, Wiener HW, Vermund SH. Mode of delivery and other maternal factors influence the acquisition of *Streptococcus mutans* in infants. *J Dent Res.* 2005;84(9):806-11.
18. Mattos-Graner RO, Li Y, Caufield PW, Duncan M, Smith DJ. Genotypic diversity of *mutans streptococci* in Brazilian nursery children suggests horizontal transmission. *J Clin Microbiol.* 2001;39(6):2313-6.
19. Mattos-Graner RO, Rontani RM, Gaviao MB, Bocatto HA. Caries prevalence in 6-36-month-old Brazilian children. *Community Dent Health.* 1996;13(2):96-8.
20. Napimoga MH, Hofling JF, Klein MI, Kamiya RU, Gonçalves RB. Transmission, diversity and virulence factors of *Streptococcus mutans* genotypes. *J Oral Sci.* 2005;47(2):59-64.
21. Newbrun E. Preventing dental caries: breaking the chain of transmission. *J Am Dent Assoc.* 1992;123(6):55-9.
22. Roeters FJ, van der Hoeven JS, Burgersdijk RC, Schaeken MJ. Lactobacilli, *mutans streptococci*, and dental caries: a longitudinal study in 2-year-old children up to the age of 5 years. *Caries Res.* 1995;29(4):272-9.
23. Russell MW, Childers NK, Michalek SM, Smith DJ, Taubman MA. A caries vaccine? The state of the science of immunization against dental caries. *Caries Res.* 2004;38(3):230-5.
24. Slavkin HC. *Streptococcus mutans*, early childhood caries and new opportunities. *J Am Dent Assoc.* 1999;130(12):1787-92.
25. Smith DJ. Dental caries vaccines: prospects and concerns. *Crit Rev Oral Biol Med.* 2002;13(4):335-49.
26. Tanzer JM, Livingston J, Thompson AM. The microbiology of primary dental caries in humans. *J Dent Educ.* 2001;65(10):1028-37.
27. Taubman MA, Nash DA. The scientific and public-health imperative for a vaccine against dental caries. *Nat Rev Immunol.* 2006;6(7):555-63.