

## Short Communication

# The Correlation between Oral Health and Learning Ability

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**Aim:** To determine the relationship between children's oral health status and school attendance and performance. **Materials and Methods:** A cross-sectional study using a closed-ended questionnaire. The survey was constructed using paper as well as an online link. The questionnaire included questions about the knowledge of parents, brushing frequency, and dental visits. 184 subjects participated in the study, descriptive statistics of frequency distribution and percentages were calculated for the categorical variables. All the data were analyzed by using SPSS version 25 (Armonk, NY: USA). **Conclusion:** There was a negative correlation between oral health and learning ability. 25% of kids do not go to school because of dental problems and most parents have a bachelor's degree, also parents do not supervise their kids and use a rich fluoridated toothpaste that can lead to dental fluorosis.

**Keywords:** Oral health, Children, Correlation, Dental caries, Learning ability.

## INTRODUCTION

Caries is a significant public health problem affecting pre-school children, and the most common chronic disease of childhood, affecting 28 percent of children two to five years of age, or over four million children nationwide. [2] Dentistry has come to emphasize early childhood as an important time to introduce proper oral health practices to address this growing problem. [8] Regular oral hygiene practices, professional oral health risk assessment, and the first dental visit should all occur after the child's first birthday. [8] Some targeted programs exist, but it appears that in general, oral health receives little attention, particularly in those programs that do not receive federal funds. [8]

The quality of child care, including oral health activities, can be influenced by a number of non-regulatory and regulatory approaches, including technical assistance, credentialing of individuals, accreditation standards, funding standards, and licensing requirements. [8] These programs can provide oral health services such as brushing of children's teeth in the classroom, education of the child or parent, and assurances that the child has a dental visit. [8] By Educating parents on proper hygiene techniques, including daily brushing, is necessary for promoting children's oral health starting in early childhood and preventing ECC from developing into cavities later in life. [3]

It is important that the oral health needs of infants and young children be addressed as early as possible and as a part of well-child care since the dental disease is preventable. [2] Collaboration has the potential to improve the effectiveness of health promotion education and enhance the opportunity for a child to have a lifetime free from preventable oral disease. [2]

## MATERIALS AND METHODS

This is a cross-sectional study using a closed-ended questionnaire. The survey was constructed using paper as well as an online link. The questionnaire included questions about the knowledge of parents, brushing frequency, and dental visits. 184 subjects participated in the study, descriptive statistics of frequency distribution and percentages were calculated for the categorical variables. All the data were analyzed by using SPSS version 25 (Armonk, NY: USA).

## RESULTS

A total of 184 subjects participated in the study, in which most of them were Saudi nationals (90.2%), married (66.8%) having 1-3 children (69.6%). More than half of the children were in the age range of 9-12 years (52.7%). A very high number of

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mothers (95.1%) compared to the fathers (4.9%) who participated in the study.

Most of the study participants were in the age range of 18-30 years (40.8%), followed by 31-40 years (23.9%), 41-50 years (23.9%). The least number of participants were in the age group of 50 years and above (11.4%). A high percentage of participants had bachelor's (67.4%) level of education followed by Secondary (21.7%), higher than bachelor's (8.7%) and less than secondary education (2.2%),

More than half (56.5%) of the study participants mentioned that their children brushed their teeth once daily. Nearly (40.2%) participants took their children regularly (every 6 months or a year) to the dentist for examination.

Just less than half (48.6%) (out of 110) participants never thought of taking their children for regular examination. While (29.7%) and (21.6%) avoided regular dental examination as their children did not suffer from pain and any previous bad experience, respectively.

Most of the study participants (80.4%) mentioned that their children start using toothbrushes and toothpaste at the age of 2-4 years. While the majority (56%) did not supervise brushing and flossing of their children. Half of the parents used soft toothbrushes and while the other half mentioned that their children used very soft toothbrushes. More than half (52.2%) of the study subjects used fluoride-rich toothpaste for their children. Less than half (48.9%) of the study participants knew about the wiping of the baby's gum before the eruption of the teeth. Responses to the questions related to the oral health of the children are displayed.

When asked about the effect of oral health on their children, (26.6%) mentioned problems with the appearance of the teeth. Seventeen parents, out of (n=49) complained of caries and 39 mentioned the absence of front teeth. While one-fourth (25%) parents complained about the refusal of their children to go to school due to dental problems. More than one-fourth (25.5%) of parents said that they remained absent from work due to the dental problems of their children.

## DISCUSSION

The semi-structured questionnaire approach was an opportunity to allow mothers to openly share their perspectives, answers, and how different factors affect their children's oral hygiene practices. [10] As the baby's teeth begin to erupt around the age of 6 months, parents have questions about the role of baby teeth. Counseling visits during this stage should include a discussion about how baby teeth promote biting and chewing for healthy nutrition, hold space for permanent teeth, and permit oral articulation required for developing speaking skills. [9] The baby's gums and tongue should be cleaned after every feeding. In communities with non-fluoridated water, parents should seek their doctor's advice about fluoride supplements when the child reaches 6 months of age. [9]

Several studies have shown that reductions in mutants streptococci in pregnant women may result in a delayed or diminished transfer of caries-inducing bacteria to infants. [9] Poor dental experiences with older children also motivated mothers to improve dental hygiene regimens for younger siblings; increased maternal awareness about oral health more generally, prompted them to start oral hygiene routines at earlier ages with the younger siblings. [3] Studies show that information on the socio-economic status of parents and oral hygiene practice should be considered when planning dental health education services for caregivers of young children. [10]

## CONCLUSION

Within the limitation of this study, it showed a negative correlation between oral health and learning ability. However, it showed 25% of kids do not go to school because of dental problems and most parents have a Bachelor's degree, also parents do not supervise their kids and use a rich-fluoridated toothpaste which can lead to dental Fluorosis. Multiple factors at child-, family- and community-level influence young children's oral health and their oral hygiene practices. [3] An opportunity exists to enhance the limited attention to oral health in state regulations. [9]

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## CONFLICT OF INTEREST

There is no conflict of interest among the authors.

## REFERENCES

- [1] AbdAllah, E.A., Metwalli, N.E. and Badran, A.S., 2018. Effectiveness of a one-year oral health educational and preventive program in improving oral health knowledge and oral hygiene practices of a group of Autistic Egyptian children and their caregivers. *Future Dental Journal*, 4(1), pp.23-29. Available from: URL; <https://www.sciencedirect.com/science/article/pii/S231471801730071X>
- [2] Council, O., Policy on Oral Health in Child Care Centers. Available from: URL; <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.674.7306&rep=rep1&type=pdf>
- [3] Finlayson, T.L., Cabudol, M., Liu, J.X., Garza, J.R., Gansky, S.A. and Ramos-Gomez, F., 2019. A qualitative study of the multi-level influences on oral hygiene practices for young children in an Early Head Start program. *BMC oral health*, 19(1), p.166. Available from: URL; <https://www.ncbi.nlm.nih.gov/pubmed/31349826>
- [4] Goldfield, S., Wright, M. and Oberklaid, F. (2003), Parents, infants and healthcare: Utilization of health services in the first 12 months of life. *Journal of Pediatrics and Child Health*, 39:249-253. Available from: URL; [https://www.dhsv.org.au/data/assets/pdf\\_file/0004/43672/GP-fact-sheet\\_OH\\_early-childhood\\_FINAL-2015-04-27.pdf](https://www.dhsv.org.au/data/assets/pdf_file/0004/43672/GP-fact-sheet_OH_early-childhood_FINAL-2015-04-27.pdf)
- [5] Holt K, Barzel R. 2013. Oral Health and Learning: When Children's Oral Health Suffers, So Does Their Ability to Learn (3rd ed.). Washington, DC: National Maternal and Child Oral Health Resource Center. Available from: URL; <https://www.mchoralhealth.org/PDFs/learningfactsheet.pdf>
- [6] Hong, L., Ahmed, A., McCunniff, M., Overman, P. and Mathew, M., 2008. Obesity and dental caries in children aged 2-6 years in the United States: National health and nutrition examination survey 1999-2002. *Journal of public health dentistry*, 68(4), pp.227-233. Available from: URL; <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1752-7325.2008.00083.x>
- [7] Jones, K. and Tomar, S.L., 2005. Estimated impact of competing policy recommendations for age of first dental visit. *Pediatrics*, 115(4), pp. 906-914. Available from: URL; <https://www.ncbi.nlm.nih.gov/pubmed/15805363>
- [8] Kranz, A.M. and Rozier, R.G., 2011. Oral health content of early education and childcare regulations and standards. *Journal of*

- Public Health Dentistry, 71(2), pp.81-90. Available from: URL; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3381936/>
- [9] Ramos-Gomez, F.J., 2005. Clinical considerations for an infant oral health care program. Compendium of continuing education in dentistry (Jamesburg, NJ: 1995), 26(5 Suppl 1), pp.17-23. Available from: URL; <https://www.ncbi.nlm.nih.gov/pubmed/17036540>
- [10] Tang, R.S., Huang, S.T., Chen, H.S., Hsiao, S.Y., Hu, H.Y. and Chuang, F.H., 2014. The association between oral hygiene behavior and knowledge of caregivers of children with severe early childhood caries. Journal of Dental Sciences, 9(3), pp.277-282. Available from: URL; <https://www.sciencedirect.com/science/article/pii/S1991790213000469>