

MOTHER'S KNOWLEDGE REGARDING ORAL HEALTH PRACTICES AND RISK FACTORS WITH RESPECT TO THEIR CHILDREN IN THE TWIN CITIES OF PAKISTAN

Laila Mustafa, Amna Masood, Madeeha Bangash*, Sahd Rashid, Kamran Khan, Shahreen Zahid

Shifa College of Dentistry, Islamabad Pakistan, *Rehman College of Dentistry, Peshawar Pakistan

ABSTRACT

Objective: To analyze the way mothers perceive oral health in their children, the importance of oral health amongst children, so that preventive advice and regime can be tailored accordingly and reinforced during the pandemic.

Study Design: Questionnaire base survey.

Place and Duration of Study: This study was conducted in the various sectors of the twin cities of Pakistan, from May to Sep 2020.

Methodology: This study was a questionnaire-based study in which survey forms were distributed online as well as in person among mothers above 18 years of age. A questionnaire was formulated and distributed amongst different areas and sectors of the twin cities in Pakistan. The data was analyzed quantitatively and entered in SPSS version 23 for analysis.

Results: Mothers from various socioeconomic backgrounds had dissimilar knowledge with regards to oral health. There was a greater gap in the knowledge of mothers from low and high socioeconomic status as compared to middle and high.

Conclusion: It is imperative that knowledge regarding oral health practices, preventive measures, risk factors of oral diseases should be imparted equally in the various socioeconomic areas of the country. Also, a widespread oral health plan to indoctrinate preventive knowledge as well as basic knowledge of oral health practices is strongly recommended.

Keywords: COVID 19, Children, Knowledge, Mothers, Pandemic, Risk factors.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

COVID 19 pandemic had a negative impact on the delivery of dental services globally. The average recall is 3, 6, 9 or 12 months of children that are below 18 years¹, unfortunately due to COVID 19 pandemic this could not be followed². As a wide variety of the dental procedures are elective ones, therefore restrictions were placed upon them all over the world by the American Dental Association (ADA), Royal College of Surgeons (RCS)³, National Command and Operation Centre, Pakistan (NCOC)⁴.

Parents, especially mothers greatly influence the development of their children's good oral health care behaviors. Their greater understanding of good oral hygiene practices and dietary habits significantly contribute towards develo-

ping good oral health care practices of their children⁵. Health care behaviors comprise a complex variety of knowledge, attitude and behaviors which can all impact oral health⁶. Poor maternal health or knowledge can significantly influence the overall maternal and child's health, for example it can increase the risk of early childhood caries in their children⁷. A Japanese study established that poorer the gingival condition of mothers, the less likely it will be for her child to be caries free⁸.

Development of caries is a multifactorial process comprising of the biological factors (diet, biofilm, and host) that act directly on the tooth to cause de-mineralization⁹, and factors like socioeconomic status, education, oral hygiene knowledge¹⁰, modulate or modify the outcome of caries. Although caries is a preventable disease¹¹, it still affects 3.5 billion people across the world. According to WHO out of these 3.5 billion, 530

Correspondence: Dr Madeeha Bangash, Assistant Professor, Rehman College of Dentistry, Peshawar Pakistan
Received: 10 Jun 2020; revised received: 20 Oct 2020; accepted: 29 Oct 2020

million are children who are suffering from early childhood caries. As compared to asthma, dental caries is about four to five times more prevalent among children¹². Oral health disease poses a huge burden on the health and social systems of a country. Most low and middle-income countries like Pakistan are unable to provide proper oral health care. As most oral diseases are preventable by impeccable oral hygiene practices, it is imperative that more attention should be paid on the prevention of oral diseases.

In accordance to the American Dental Association, a child's gums should be cleaned after every feeding, brushing should start with the eruption of the first tooth, and the child should have their first dental visit at no later than one year¹³. These simple facts if kept in mind, play a huge role in diminishing the prevalence of oral diseases especially caries. This survey aims to determine the extent of knowledge about oral health and preventive practices that a mother carries out at home in order to prevent her child from caries and oral disease. After defining vital areas that are lacking in the knowledge of mothers leading to better oral health of our children, we will be successful in laying out the initial steps that will help further the formation of oral health policies in our country. Working out the details in gaps within our oral health systems will help us to better cater to the oral health needs of children in the country.

METHODOLOGY

This study conducted in various sectors of the twin cities of Pakistan and was reviewed by the ethics committee at Rehman College of Dentistry. Written informed consent clause was added in all of the questionnaires that were distributed in the study. This was a questionnaire-based survey conducted in the twin cities (Islamabad and Rawalpindi) in Pakistan. Questionnaires were distributed and collected from the month of May 2020 to September 2020. The sample size was calculated as follows; total population of mothers above 18 years in the twin cities was checked via statistical website¹, out of

which mothers having children between 0-14 years were deduced and sample size was then calculated using the Raosoft sample size calculator. Socio-economic status of mothers was estimated by assessing the area of living, level of education of mothers, occupation of mothers and whether the children were going to a public or private school¹⁵. Mothers whose children had intellectual and physical disabilities and those who had dental anomalies that compromised oral hygiene care were excluded from the study.

Data Collection Procedure

The questionnaire was distributed by hand and electronically via google forms to the mothers. Out of 300 mothers to whom the questionnaire was distributed, 272 mothers responded positively, response rate was 90.6%.

The questionnaires used as reference were EGOHID (European Global Oral Health Questionnaire) and HU-DBI questionnaire (Hiroshima University, Dental Behavior inventory). The questionnaire was modified according to the feedback received in the initial stages of the study.

The questions in this study were further divided into five distinct sections. Section-I: Social Demographics: The mothers were divided into 3 groups Low socioeconomic, Middle Socioeconomic and High socioeconomic depending on of factors like their locality (area where they lived) and their occupation. Section II: Knowledge related questions in which the overall dental knowledge of the mothers was assessed. Section-III: Oral hygiene related questions that were meant to access the knowledge of mothers with regards to the Oral health practices of their children. Section-IV: Risk Factors: Which included questions that tested the consciousness among mothers regarding the various risk factors that were harmful to the child's oral health. Section-V: Dental Visits: This section was composed of questions that were meant to access the level of awareness among mothers regarding dental visits. Mothers were queried regarding the instances and need to visit the dentist.

The main independent variables was mother’s experience, social status and educational level. The dependent variables included mother’s knowledge regarding oral health practices and preventive measures with respect to their children. SPSS version 23 was used for descriptive analysis. Data was further evaluated via descriptive and inferential statistics in order to explore the distribution of variables. So as to measure the internal coherence of the questions in one section of the survey, we applied the reliability test on all of the sections. Any questions that did not cohere were discarded or modified as a consequence.

RESULTS

From 300 questionnaires distributed, a total of 272 questionnaires were received with a positive response from mothers.

The socioeconomic status shown in fig-1 denotes that a total of 47.8% mothers were from a low socioeconomic area, while approximately 25% were from both, middle and high socioeconomic areas. Mother’s occupation (fig-2) was distributed as follows, out of the 272 mothers whose data was gathered, 64% were housewives, 11.8% were teachers and doctors while only 11% were from other profession like housekeeping (maids).

Majority of the mothers (67%) were aware that caries was a disease while 18% did not consider it as a disease and 14% answered that they “don’t know”. Out of 272, 50% mothers responded that they should start brushing their child’s teeth as soon as they erupt while 35% stated that the child should brush his teeth himself when he is old enough to do so. On the other hand, 14% responded with ‘not sure’. Further analysis indicated insignificant variance between the mothers in the low and high socioeconomic. Majority of the mothers from low socioeconomic areas answered that a child should brush their teeth as soon they are able to themselves.

About 92.6% mothers knew that juices and sticky foods were the most harmful foods posing a risk to their child’s teeth whereas 6.6% said that milk (bottled and breast milk) was the most harmful food for their child’s teeth. Concerning

the protocol that they followed when their child complained of a tooth ache, 56.6% mothers stated that they would take their child to the dentist while 30.9% declared that they would counsel their child and give him herbal medications. 11.8% mothers admitted that they would rather give their child over the counter pain medications than take him to the dentist. Regarding source of information with respect to dental pain, 52% mothers stated that they took oral health advice

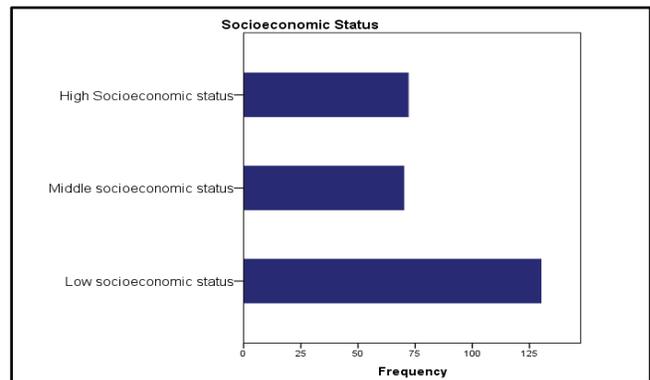


Figure-1: Illustrates the socioeconomic status of mothers.

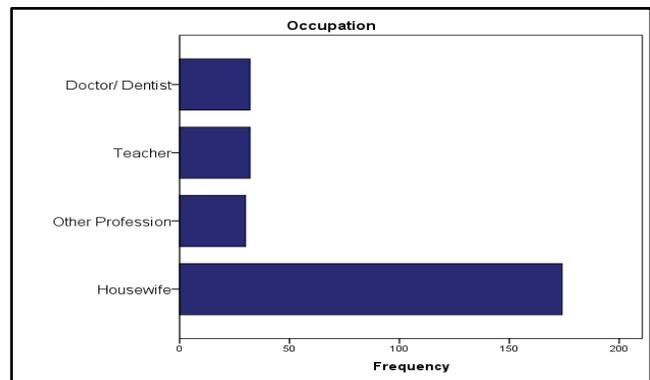


Figure-2: Demonstrates the various profession of mothers.

from the dentists, 37% mothers reported that they took it from their mothers or elders in their family while only 10% mothers stated that they took advice from the internet. Furthermore, univariate analysis showed that there was a significant difference in the responses of mothers from low and high socioeconomic areas. Majority of the mothers from high socioeconomic areas had satisfactory knowledge while mothers from low socioeconomic areas had inadequate or insufficient knowledge with respect to dental visits.

The overall frequency distribution of questions from all 4 sections is shown in the table. The percentages in the table denote the overall percentage of mothers having adequate or inadequate knowledge with respect to each section. The least percentage of ad-equate knowledge (19%) was

for socioeconomic status and dental visits *p*-value was 0.00, which exhibited a significant relationship between the two variables. Relationship between socioeconomic status and early childhood caries was found to be significant with the *p*-value at 0.002.

Table: Specifying the percentages of adequate and inadequate knowledge of mothers from various background.

Q No.	Oral Hygiene Practices		Risk Factors Knowledge		Knowledge of Oral Health		Knowledge of Dental Visits	
	Adequate	Inadequate	Adequate	Inadequate	Adequate	Inadequate	Adequate	Inadequate
Q1	80%	20%	74%	26%	78%	22%	19%	81%
Q2	51%	49%	73%	7%	56%	44%	29%	71%
Q3	79%	21%	89%	11%	76%	24%	52%	48%
Q4	41%	59%			62%	38%	57%	43%
Q5	38%	62%			68%	32%	54%	46%
Q6	58%	42%						

seen in the section related to dental visits. It was eminent that mothers from both the sides of the socioeconomic status were not well informed about the mea-sures that needed to be taken after their child complained of a tooth ache. An appropriate pro-protocol should be followed with respect to dental pain and emergencies therefore it is crucial that mothers have an in-depth knowledge of the protocol that needs to be exercised on their children.

The highest percentage of adequate knowledge was seen was at 89% in the section of risk factors where mothers had exceptional knowledge of the most harmful foods for their child’s teeth. Overall, it was distinguished that majority of the mothers were knowledgeable about the oral hygiene practices of their child while they did not have sufficient knowledge regarding the dental visits and the procedure that should be followed if their child has a tooth ache. In Inferential statistics, we applied independent sample t-test and post hoc tests; when age & knowledge were compared *p*-value of 0.036 showed that knowledge was not equally distributed in both the groups and experienced mothers had more knowledge as compared to young mothers. Analysing the variables socioeconomic status and knowledge of ECC(*p*-value 0.005) showed that a relationship does exist between the two variables. Furthermore, inferential statistics showed that

DISCUSSION

In developing countries like Pakistan, it is essential to develop a thorough oral health preventive plan for the mothers in order to decrease the overall burden on the public as well as private health sectors. If the mothers are practicing good oral health practices, it is more likely that they will inculcate these values in their children.

Several studies similar to this have been conducted in various parts of the world. A study in Jordan concluded that mother’s literacy rate is directly proportional to their children’s oral health status and access to oral health care¹⁶. In Saudi Arabia, a study found out that children whose parents had sufficient oral health knowledge are more likely to pass this on to their children. They also deduced that conducting a nationwide preventive oral health awareness plan would have countless benefits for the children of any country¹⁷. Another study conducted in Karachi (2018) concluded similar results to our study, that there is indeed a strong need to educate the mothers of Pakistan regarding oral health and preventive measures¹⁸. The areas covered in that study were only specific to Karachi.

The limitations of this study include that it was area specific within the twin cities of Pakistan. This was because the COVID-19 pandemic made it difficult for us to expand our research

beyond this area. In this study we found out that oral health knowledge and practices of mothers with regards to their children are dependent on several, key factors. These factors include the socioeconomic status of the mother, her education & occupation. The more well-informed the mother is, the less chances are of the child developing oral health problems in their childhood as well as later in life.

There was a noteworthy difference between the knowledge of mothers regarding oral hygiene practices, preventive measures and risk factors. Adequate difference was seen in the knowledge of mothers from the low and high socioeconomic areas. In addition to the above factors, this difference may also be due to lack of access to knowledge resources and healthcare. From our study we found out that there is indeed a dire need to close the gap in the knowledge of mothers from various backgrounds. For this to happen, we need to formulate a well thought out oral health preventive plan. This should include formation of different policies at public and private hospitals, information pamphlets of oral health and oral health camps in the outskirts of the main cities of Pakistan. Keeping in mind the COVID 19 pandemic, internet, television and social media can play a big role to implement oral hygiene education and preventive measures advice to the local population of Pakistan.

CONCLUSION

In summation, area wise and culturally tailored preventive programs as well as information pamphlets of oral health advice and knowledge need to be distributed in order to promote positive oral health practices in our community at large. Preventive advice of doctors (in the public as well as private sector) to child bearing mothers is also crucial for the enhancement of oral health practices and knowledge in our country. As this study was limited to certain areas in the twin cities, we recommend a study on a much larger scale in order to cover maximum areas of Pakistan. Also, a widespread oral health plan to indoctrinate preventive knowledge as well as

basic knowledge of oral health practices strongly recommended.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

REFERENCES

1. Dental recall: recall interval between routine dental examinations NICE guideline Second draft for consultation, 2004 [Internet]. <https://www.nice.org.uk/guidance/cg19/documents/dental-recall-second-consultation-nice-guideline2>.
2. New Zealand Herald 2020 [Internet]. <https://www.nzherald.co.nz/nz/about-50-per-cent-of-kiwi-kids-overdue-for-dental-checkups/5zb7soi25mlgbflowb7xnfjeey/Nov%202020>.
3. Al-Halabi M, Salami A, Alnuaimi E, Kowash M, Hussein I. Assessment of paediatric dental guidelines and caries management alternatives in the post COVID-19 period. A critical review and clinical recommendations. *European Archives of Paediatric Dent* 2020; 1(2020); 1-4.
4. Guidelines Return to Work Guidance for Providing Dental Care Services In COVID-19, NCOC [Internet]. https://ncoc.gov.pk/sop/49.%20200716%20Return%20to%20Work%20Guidance%20for%20Providing%20Dental%20Care%20Services_3201.pdf
5. Shearer DM, Thomson WM, Caspi A, Moffitt TE, Broadbent JM, Poulton R. Family history and oral health: findings from the Dunedin Study. *community Dentistry and oral epidemiology*. 2012; 40(2): 105-15.
6. Virtanen JI, Vehkalahti KI, Vehkalahti MM. Oral health behaviors and bacterial transmission from mother to child: an explorative study. *BMC Oral Health* 2015; 15(1): 75.
7. Shearer DM, Thomson WM, Caspi A, Moffitt TE, Broadbent JM, Poulton R. Family history and oral health: findings from the Dunedin Study. *community Dentistry Oral Epidemiol* 2012; 40(2): 105-15.
8. Sasahara H, Kawamura M, Kawabata K, Iwamoto Y. Relationship between mothers' gingival condition and caries experience of their 3 year old children. *Inter J Paediatric Dent* 1998; 8(4): 261-67.
9. Kidd E. The implications of the new paradigm of dental caries. *J Dentist* 2011; 39(1): S3-8.
10. Maguire A, Clarkson JE, Douglas GV, Ryan V, Homer T, Marshman Z, et al. Best-practice prevention alone or with conventional or biological caries management for 3-to 7-year-olds: the FiCTION three-arm RCT. *Health Technology Assessment (Winchester, England)* 2020; 24(1): 1-174.
11. Walsh T, Worthington HV, Glenny AM, Marinho VC, Jeroncio A. Fluoride toothpastes of different concentrations for preventing dental caries. *Cochrane Database Systematic Reviews* 2019; 3(3): CD007868.
12. Heng CC. Tooth Decay Is the Most Prevalent Disease. *Federal Practit* 2016; 33(10): 31-33.
13. ADA patient advice sheets [Internet]. http://www.ada.org/~media/ADA/Publications/Files/ADA_PatientSmart_BBTD.as_hxpbs.gov.pk.
14. Pradhan NA, Ali TS, Hasnani FB, Bhamani SS, Karmaliani R. Measuring socio-economic status of an urban squatter settlement in Pakistan using WAMI Index. *J Pak Med Assoc* 2018; 68: 709-14.
15. Pradhan NA, Ali TS, Hasnani FB, Bhamani SS, Karmaliani R. Measuring socio-economic status of an urban squatter settle-

- ment in Pakistan using WAMI Index. *J Pak Med Assoc* 2018; 68(5): 709-14.
16. Rajab LD, Hamdan MA. Early childhood caries and risk factors in Jordan. *Community Dental Health* 2002; 19(4): 224-29.
17. Wyne AH, Chohan AN, Al-Dosari KH, Al-Dokheil MA. Oral health knowledge and sources of information among male Saudi school children. *Dentist* 2004; 27(106): 53-61.
18. Mubeen N. Mother's Knowledge, attitude and practices regarding dental caries and oral hygiene among children (age 1-5 ys) in Civil Hospital, Karachi. *Int J Dent Oral Health* 2015; 2(4): 1-6.
-