

ORIGINAL ARTICLE

Parent's Perception and Attitudes Towards Brushing Their Children's Teeth

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ABSTRACT

Objective: This study was aimed to assess parental perception and attitudes regarding dietary and oral hygiene habits of their children.

Study Design: Questionnaire Based Survey

Place and Duration of Study: Parents of children who visited a tertiary care dental hospital in Peshawar over a period of 1 year (July 2019 to June 2020) were encompassed in this study.

Materials and Methods: Parents of 352 children aged 1-6 years visiting a tertiary care hospital were asked to fill a questionnaire with Ajzen's Theory of Planned Behavior consisting of standard questions about intention, attitude, subjective norms, perceived behavioral control, indulgence, maternal oral health behavior and dietary habits and scored on Likert's Scale.

Results: Out of 352 interviewed, parents showed average attitudes, subjective norms, and perceived behavioral control (PCB) with mean scores of 4.61, 5.54, 7.89 respectively. 72.44% of the study sample confirmed weak intentions towards brushing their child's teeth. General multivariate regression model analysis revealed a significant correlation of attitudes, subjective norms, and PCB towards intention. However, strong intenders showed weak indulgence (mean 5.05). 87% of the parents were not accustomed with the fact that nighttime breastfeeding can cause caries.

Conclusion: Parents showed weak perception and intentions towards brushing their children's teeth twice daily which might endure a negative impact on their child's oral health and should be addressed while designing policies concerning oral health.

Key Words: Caries, Intention, Indulgence, Perception, Subjective norms.

Introduction

Early childhood caries (ECC) is a multifactorial disease in primary teeth of children aged 6 years or less presenting with any caries, cavitated or filled tooth surface in one or many teeth¹. Conferring to various theoretical models at multilevel, the burden of ECC is multifactorial in origin and involves influences at individual, family and community levels and provides empirical evidence of social, cultural, ethnic, parental attitudes and knowledge of

perceptions serving as major contributing factors towards the origin of this disease^{2,3,4}. In general ECC is more prevalent in children with lower socioeconomic status in developed countries^{5,6}. However, the reverse was reported in Pakistan⁶. Being multifactorial, ECC for instance is influenced by a variety of parental factors including parental own oral hygiene habits, parental distress, dysfunctional parental behaviors and especially an association between maternal and toddler's tooth brushing habits is reported^{7,8}. A study reported that parental own oral health related knowledge, attitudes and being proactive towards dental treatment of their children had a greater impact on caries score of the children than their own behaviors⁹.

Theory of Planned behavior (TPB) has successfully explained a wide divergence in several health-related behaviors including behaviors related to oral hygiene care¹⁰. According to TBP, the very intention to perform a behavior is the actual predecessor of performing that very behavior for instance, tooth brushing. This intention to brush is then influenced by their attitudes toward brushing, subjective norms about brushing and perceived behavioral control

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towards tooth brushing.¹¹

This study focuses on the objective of assessment of perception and attitude in the direction of brushing their children's teeth among parents visiting a tertiary care hospital in Peshawar.

Materials and Methods

This baseline survey constituted parents of 352 children, aged 1-6 years who attended a tertiary care hospital in Peshawar over a period of 1 year (July 2019 to June 2020). Patients above 6 years were excluded from the study. Sample size was calculated using G-Power with effect size of 0.03 and α -error of 0.05 using convenience sampling technique. Ethical ratification was obtained from the Ethical committee of Rehman College of dentistry (Ref. No. 19-11-032). Parents of the children attending Paediatric dentistry were briefed about the purpose of the study and an informed consent was taken from all who volunteered for participation.

A questionnaire was designed after a few revisions in an already validated interview in accordance to our study population⁹. All the questions were in accordance with the components of Ajzen's Theory of Planned Behavior highlighting their intention, attitude, subjective norms, perceived behavioral control, indulgence, maternal oral health behavior and dietary habits. Each component consisted of standard questions marked on Likert's scale from 1-5, with 1 highlighting a strong and highest number and 2-5 scores labelled as weak intentions.

Data analysis was done using SPSS version 22. To tabulate means, standard deviation and percentages of all the continuous variables, descriptive statistics were performed. Eta square was used to highlight the amount of dispersion and associations. Independent sample t test for parametric analysis and significance level was set at $P \leq 0.001$. 95% confidence interval was used for estimating a proposed range of values.

Results

Out of 352 parents who responded, about 46% believed that children are prone to caries and the majority of parents (91%) agreed to the fact that high intake of sugar can cause caries, while 60% highlighted fizzy drinks as one source of caries. Surprisingly, about 87% didn't know that caries can be caused by breastfeeding at night. Ambivalence was recorded regarding the idea of introducing

sugary food to their children at meals time or between meals. Majority of the parents (69%) assumed that tooth brushing is only necessary after the eruption of all teeth in the mouth and in contrast to a minority of only 11% who considered tooth brushing important soon after the eruption of the first tooth in the mouth. While notably a high percentage (81.8%) was cognizant of useful effects of fluoride in the toothpaste as shown in Table I.

Table I: Frequency Distribution of Parent's Oral Hygiene Knowledge

	Yes n (%)	No/Don't Know n (%)
Are children more prone to caries?	163(46.3)	189(53.7)
Are caries caused by regular intake of sugar?	321(91.2)	31(8.8)
Do fizzy drinks cause caries?	214(60.8)	138(39.2)
Are caries caused by breastfeeding at night?	46(13.1)	306(86.9)
Should sugary food be taken along meals?	54(15.3)	298(84.7)
Should sugary food be taken between meals?	103(29.3)	249(70.7)
Is tooth brushing necessary after the eruption of the first tooth in mouth?	40(11.4)	312(88.6)
Is tooth brushing necessary after eruption of all teeth in mouth?	243(69)	109(31)
Are caries prevented by tooth brushing?	306(86.9)	46(13.1)
Are caries caused by fluoride?	64(18.2)	288(81.8)

Parents showed favorable attitudes (mean 4.61) and subjective norms for child's brushing (mean 5.54) and a strong perceived behavioral control for tooth brushing (mean 7.89). Parental indulgence for brushing showed an average mean of 5.05. While a mean of 12.03 for frequent maternal oral hygiene performance. 72.44% of the study sample confirmed weak intentions towards tooth brushing of their children's teeth as shown in Table II.

Table II: Range, Means and Standard Deviation (SD) For Sum of Scores for Attitude, Subjective Norms, Perception, Indulgence and Maternal Oral Hygiene Behavior

	Range (Max-Min)	Mean (SD)
Attitude towards brushing child's teeth	7 (9-2)	4.61(1.79)
Subjective norms for child's tooth brushing	7 (9-2)	5.54(1.91)
Perceived behavioral control for tooth brushing	14 (15-1)	7.89(3.09)
Parental indulgence for tooth brushing	7 (9-2)	5.05(1.98)
Maternal oral hygiene behavior	13 (18-5)	12.03(3.29)
Intention		
- Strong n(%)		n=97(27.5%)
- Weak n(%)		n= 55(72.44%)

Note: Frequency(N) Of Parent's Intention to Brush Their Child's Teeth Twice Daily N (%)

Table III shows associations between intention and parental attitude and subjective norms were highly significant as revealed by independent sample t test ($P<0.001$) and mild significance with perceived behavioral control ($P=0.006$). In contrast there was no significant association found between indulgence and maternal oral hygiene behavior.

Table III: Independent Sample t Test for Parent's Attitude, Maternal Oral Hygiene Behavior And Perception By Intention To Brush Their Child's Teeth

	Strong Intention Mean (SD)	Weak Intention Mean (SD)	P- value
Attitude towards brushing their child's teeth	4.43(1.62)	4.68(1.85)	0.000**
Subjective norms for child's tooth brushing	5.55(1.92)	5.53(1.913)	0.000**
Perceived behavioral control for tooth brushing	7.8(3.12)	7.92(3.09)	0.006
Parental indulgence for tooth brushing	5.01(1.91)	5.06(2.01)	0.528
Maternal oral hygiene behavior	11.8(3.28)	12.09(3.305)	0.456

$P<0.001$ **

While keeping intention to brush their child's teeth as a fixed factor a multivariate GLM (General Linear Model) analysis was performed as shown in Table IV. The mean values provide evidence that intenders showed a more frequent attitude, subjective norms and perceived behavioral control. In contrast strong intenders showed weak indulgence and vice versa. All the components of TBP showed a significant discrimination between the two groups with partial eta squared apart from maternal oral hygiene behavior which failed to maintain a significant relationship in multivariate GLM analysis.

Table IV: Effect Size (Partial Eta Squared) For Parent's Attitude, Perception and Maternal Oral Hygiene Behavior by Intention to Brush Their Child's Teeth

	Strong Intention Mean (95%CI)	Weak Intention Mean (95% CI)	Partial Eta Squared
Attitude towards brushing their child's teeth	4.43(4.11-4.76)	4.68(4.45-4.91)	0.004*
Subjective norms for child's tooth brushing	5.55(5.16-5.39)	5.53(5.30-5.77)	0.000**
Perceived behavioral control for tooth brushing	7.8(7.17-8.43)	7.92(7.54-8.30)	0.000**
Parental indulgence for tooth brushing	5.01(4.62-5.40)	5.06(4.81-5.31)	0.000**
Maternal oral hygiene behavior	11.88(11.21-12.54)	12.09(11.69-12.50)	0.001

Note: Intention kept as fixed factor in multivariate general linear model.

$P<0.001$ **

Discussion

To our acquaintance this study is the first to assess intentions of tooth brushing and its covariates amongst parents of children aged 1-6 years visiting tertiary care hospital in Peshawar. The results are consistent with previous studies showing that the TPB components, attitudes, subjective norms, and perceived behavioral control, were independent significant control variables of parental intention to

brush their children's teeth and supports TBP for prediction of oral health related behaviors as well as intention of the parents to superintend their child's oral health^{12,13}. The appropriateness of the TPB model detected in this study harmonies with that of a meta-analysis of TBP concerning several health-related behaviors, which accounted for 44% of the contradiction in behavioral intentions.¹⁴

This study discovered that parents with strong intention to brush their children's teeth performed their own oral hygiene habits more frequently. However, these results were not significant in multivariate regression analysis concluding that parents' own oral hygiene performance was influenced by causal perceptions and attitudes. According to theory of socialization¹⁵, parental in specific mother's overt behavior has a significant influence on child's oral health behaviors implying this as a modelling process particularly in pre-school children.¹⁶

Results revealed that the parent's intention for brushing their child's teeth was motivated by their attitudes, perceived behavioral control and subjective norms in descending order. Strong intentions were thus owned by those parents who perceived promising consequences following regular tooth brushing in their children (good attitude) as well as parents who felt that they were capable of managing their children's teeth twice daily (strong perceived behavioral control) and who felt prescriptive pressure from family and people they knew regarding importance of tooth brushing (favorable subjective norms). These results were consistent with previous studies in which contribution of attitudes, subjective norms and perceived behavioral control towards parental intention was analyzed in the context of TBP^{12,17}. In contrast, strong indulgent parents who believed that it is not worth a quarrel to force a child to brush when he doesn't want to brush reported weak intentions to tooth brushing. Therefore, an increased tendency of parental indulgence had a negative impact on their intention to brush their child's teeth twice daily. Marshman Z reported that despite parents being aware of the importance of tooth brushing in children in the United Kingdom, child's behavioral problems as well as parent's own stress regarding their whining and timid behavior are the actual

barriers towards implementation of tooth brushing habits in their children.¹⁸

The behavioral mediators identified in this study can serve as substantial tools for designing community-based caries prevention programs. The level of the associations and the synchronization of the findings with TBP is an indicator of the reliability and validity of the results. However, when it comes to face-to-face interviews, social desirability, which is the tendency of survey respondents to answer questions in manner that is deemed to be more socially favorable than their true answers to escape negative evaluation, is one of the major documented problems¹⁹. It can take the form of "Over-reporting" a good behavior or "Under-reporting" a bad behavior. Therefore, the major limitation of this study was an inclination towards socially desirable which may be accredited to the very datum that parents were generally conversant about precautionary measures for caries anticipation.

Vagueness about the timing of giving sugary snacks to their kids was recognized as an area of ambiguity. In accordance with previous study²⁰, the majority of mothers did not recognize nighttime breastfeeding as a contributory factor for caries. Parental ignorance in this matter must be catered with awareness programs regarding this rehearsal, nevertheless, cultural as well as religious traditions that cheers breastfeeding till 2 years must be well-thought-out.^{21,22}

Conclusion

Overall parents reported weak perception and intention for regular tooth brushing behaviors. To motivate parents about their child's dietary and oral health related practices, their attitudes, subjective norms, and perceived behavioral control seems to be more important than their accurate oral health related information and should be addressed while designing oral health policies.

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CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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