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RESEARCH ARTICLE

ASSOCIATION OF PARENTING STYLES WITH CARIES STATUS, CARIES RISK AND BEHAVIOUR OF CHILDREN IN DENTAL SET UP

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ABSTRACT

Background: Parenting is a composite activity. Parenting styles may have an impact on the coping mechanisms adopted by the child in stressful situations. Parents are responsible towards the overall health of the child. Thus, the oral health and the risk of dental disease development in children may also be influenced by different parenting practices.
Aim: To study the association of parenting styles with caries status, caries risk, socioeconomic status (SES) and behavior of child in dental operatory.
Materials & Methods: The present analytical cross-sectional study was carried out in 200 parent-child pairs. A trained, calibrated and blinded post graduate student performed initial examination for caries status, risk assessment and oral prophylaxis in children aged 3-6 years reporting for their first dental visit. Another blinded examiner not involved in rendering treatment assessed the behavior of children at the time of treatment. Questionnaire was filled to assess the parenting styles and socioeconomic status of parents.
Results: A statistically significant association was noted between parenting styles and caries status ($\chi2$=137.0361, p=0.0001*), parenting styles and caries risk ($\chi2$=149.5972, p=0.0001*), parenting styles and behavior of children in during first dental visit ($\chi2$= 41.0532, p=0.0001*) and parenting styles and socioeconomic status ($\chi2$=121.9572, p=0.0001*).
Conclusion: When parenting was of authoritative type children had less caries (7.83%), low caries risk (86.09%), and more cooperative behavior in the dental operatory (76.52%) in comparison to children of parents with permissive and authoritarian parenting style. Higher socioeconomic status was associated with authoritative (66.09%) and permissive parenting (52.08%).

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INTRODUCTION

Parents have an irreplaceable role in the life of a child. Parenting styles have a significant impact on child's physical, cognitive, emotional and social development. Baumrind has categorised parenting into three types namely Authoritative, Authoritarian and Permissive. (Baumrind, 1971) (Table 1) Thus, effective parenting is an amalgamation of parental demands, responsiveness and warmth. Various factors alter the behaviour of the child in the dental office. Of which some are under the control of the dentist (dental attire, office environment, presence of parents in the operatory) whereas others are beyond the clinician's control (socioeconomic status, past dental experiences, home environment) (Tandon, 2009). Hence, it may also be influenced by the parenting styles since discipling practices adopted by parents while bringing up the child may vary from parent to parent. Increased parental control may cause positive child outcomes in the operatory whereas decreased parental accountability towards child's behaviour can lead to limited capacity of the child to behave on the dental chair. Also, various authors have reported the impact of parental dental anxiety on child's behaviour in the operatory. (Peretz *et al*., 2004; Rantavuori *et al*., 2004) Parents are the first teachers of a child. They play a pivotal role in inculcating values and development of healthy habits. This is of great relevance with regard to the dietary and oral hygiene habits of a child. Thus, the child rearing practices may influence the oral health status and the risk of developing dental problems in pediatric population. There is very little documented literature which has assessed the influence of parenting styles on caries status, caries risk and behaviour collectively. With this

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background the aim of the current study was to study the association of parenting styles with caries status, caries risk, behavior of child in dental operatory and socioeconomic status.

MATERIALS AND METHODS

The present analytical cross-sectional study was conducted in Department of Pediatric and Preventive Dentistry of our institute.

Study Population

Study population consisted of children and their parents reporting to the outpatient department of the Pedodontics and Preventive Dentistry, who fulfilled the following inclusion criteria:

1. 3-6-years old children of both genders reporting for their first dental visit.
2. No history of experiences in the medical set up evoking anxiety in the child.
3. Healthy children with no known medical disease or any condition impairing their cognitive development.
4. Absence of any acute symptoms during current visit (e.g. pain or swelling) due to dental problems.

Children who were not accompanied by their biological parents were not included in the study. Based on the inclusion criteria a sample size of 200 parent-child pairs were drawn using a simple random sampling technique.

Aids Used for Assessment

I.Parenting styles

Parenting style was determined using a Parenting Style and Dimensions Questionnaire (PSDQ). (Robinson and Mandleco, 1995) This validated and reliable questionnaire consisting of 32 items with responses based on a 5-point Likert scale (1=never, 2=once in a while, 3=half the time, 4=very often, and 5=always) categorises parents as Authoritative, Authoritarian and Permissive. It comprises of 15,12 and 5 items for Authoritative, Authoritarian and Permissive parenting respectively. The parenting style is determined based on the category in which the highest mean score is obtained.

II. Behaviour

It was assessed using Frankl Behaviour Rating Scale, categorising behaviour as definitely negative, negative, positive and definitely positive. (Frankl *et al*., 1962)

III.Caries Status

It was assessed using Nyvad's Caries Diagnostic System. A sensitive caries diagnostic criterion, it describes the initial manifestation of caries in precavitated stages. (Nyvad *et al*., 1999) Each tooth surface of all erupted teeth is classified according to 1 of the following criteria :0=sound; 1=active, surface intact; 2=active, surface discontinuity; 3=active, cavity; 4=inactive, surface intact; 5=inactive, surface discontinuity; 6=inactive, cavity; 7=filled; 8=filled with inactive lesion; 9=filled with active lesion; and X=extracted. (Nyvad *et al*., 1999)

IV.Caries Risk

It was determined using the caries risk assessment form developed by American Dental Association for ≥6 years. It doesn't require additional diagnostic aids like radiographs and salivary count, making it convenient for chair-side use. (American Dental Association (2016); American Academy of Pediatric Dentistry (2014))

V. Socioeconomic Status

Socioeconomic status was calculated using the revised Kuppuswamy scale. (Singh *et al*., 2017)

Procedure

The principal investigator explained the nature of the study to the parents of children who met the inclusion criteria. Once the parents were willing to participate, written informed consent was obtained followed by administration of the questionnaire to the parent who spent maximum time with the child. The questionnaire was designed in English and translated to local language (Kannada) in accordance with the WHO guidelines (World Health Organization. Process of translation and adaptation of instruments; 2007) by an expert committee comprising of translators and health care professionals having adequate proficiency in both the languages. The questionnaire comprised of two sections. The first section consisted of questions recording the demographic details namely age/sex of child, relation of respondent to child (father/mother), educational level and occupation of parent and annual family income. Based on these demographic details the socioeconomic status was determined using the revised Kuppuswamy scale. The second section comprised of PSDQ. The questionnaire was administered by face to face interview method in the language most suitable to the respondents. Approximately 15 minutes were taken to interview one subject. A post graduate student trained and calibrated on the Nyvads's caries diagnostic criteria and Caries Risk Assessment, performed the initial examination of children. Teeth were dried and examined with a no. 5 intraoral mirror (Manipal Instruments) and a no. 23 explorer (Manipal Instruments). Using an explorer dental plaque deposits were removed and the loss of tooth structure (cavitation) and the surface texture (rough, leathery and soft) was assessed. Radiographs were taken if needed. Thus, the caries status was assessed and marked as Present (indicating presence of caries) or Absent (indicating absence of caries).

Following this the caries risk assessment was done and the form was filled. After this oral prophylaxis was performed as a part of routine procedure for first dental. At this time another experienced staff member who was not involved in treating the child and was calibrated on Frankl Behaviour Rating scale assessed the behaviour of the child. Both of these examiners were blinded of the parenting style at all points of time. Only the principal investigator was exposed to the parenting style. The readings were tabulated and entered in Microsoft Excel sheets. The data was subjected to statistical analysis using SPSS software (version 20.0; IBM Company, Chicago, IL, USA). The statistical significance was set at $p < 0.05$. The Chi square test was used to study the association of parenting styles with caries status, caries risk, socioeconomic status and behaviour of child in dental operatory.

RESULTS

A total of 200 parent-child pairs were included in the course of the study. Amongst the children included 118 were males and 82 were females. The children belonged to the age group of 3-6 years with the mean age of 5.04±1.04 years. Mothers were respondent for 156 children whereas for 44 children fathers were respondents. Table 2 summarises the distribution of population according to sociodemographic characteristics. For the purpose of convenience and ease of statistical analysis the two-negative type of behaviour ratings were reduced to a single negative rating and similarly the two positives were clubbed into a single positive rating. Table 3 summarises the distribution of population according to various variables.

Table 1. Features of Various Parenting Styles

Parenting Style	Features
Authoritative	High parental responsiveness and high parental demand ;Warmth and involvement, reasoning/induction, demographic participation
Authoritarian	Low parental responsiveness but high parental demand; Clear parental authority, unquestioning obedience and punitive strategies
Permissive	High parental responsiveness but low parental demand; Tolerance, general acceptance of child's decisions and tendencies to ignore child's misbehaviour

Table 2. Distribution of study samples according to sociodemographic characteristics

Age (in years)	Number of subjects (n=200)	Percentage of subjects (%)
3	20	10.00
4	44	22.00
5	44	22.00
6	92	46.00
Mean age	5.04	
Sex		
Male	118	59.00
Female	82	41.00
Respondent		
Father	44	22.00
Mother	156	78.00

Table 3. Distribution of population according to various variables

	Number of subjects (n=200)	Percentage of subjects (%)
	Parenting style	
Authoritative	115	57.50%
Authoritarian	37	18.5%
Permissive	48	24%
	Behaviour	
Positive	115	57.50%
Negative	85	42.50%
	Caries status	
Present	86	43%
Absent	114	57%
	Caries Risk	
High	91	45.5%
Moderate	10	5%
Low	99	49.5%
	Socioeconomic status	
Upper	5	2.5%
Upper middle	35	17.5%
Lower middle	59	29.5%
Upper lower	101	50.5%

Table 4. Association between Parenting Styles and Behaviour, Caries Status, Caries Risk and Socioeconomic Status

	Authoritative	%	Authoritarian	%	Permissive	%	Total (n=200)
Behavior (χ^2= 41.0532, p=0.0001*)							
Positive	88	76.52	14	37.84	13	27.08	115
Negative	27	23.48	23	62.16	35	72.92	85
Caries status(χ^2=137.0361, p=0.0001*)							
Present	9	7.83	32	86.49	45	93.75	86
Absent	106	92.17	5	13.51	3	6.25	114
Caries risk (χ^2=149.5972, p=0.0001*)							
High	12	10.43	33	89.19	46	95.83	91
Moderate	4	3.48	4	10.81	2	4.17	10
Low	99	86.09	0	0.00	0	0.00	99
Socioeconomic status (χ^2=121.9572, p=0.0001*)							
Upper	76	66.09	0	0.00	25	52.08	101
Upper middle	39	33.91	7	18.92	13	20.83	59
Lower middle	0	0.00	25	67.57	10	27.08	35
Upper lower	0	0.00	5	13.57	0	0.00	5

*p<0.05

Parenting styles and Behaviour

The association of parenting styles with behaviour was statistically significant. Children of authoritative parents showed significantly more positive behaviour (88,76.52%) in comparison to children of authoritarian (14,37.84%) and permissive parents (13,27.08%). However, when the parenting was of permissive type children showed more negative behaviour (35,72.92%) in comparison to authoritative (27,23.48%) and authoritarian type (23,62.16%).

Parenting styles and Caries status

The association of parenting styles with caries status was statistically significant. When parenting was of authoritative type children had least caries (9,7.83%) in comparison to authoritarian (32,86.49%) and permissive parenting (45,93.75%).

Parenting styles and Caries risk

When parenting was of authoritative type more children exhibited low caries risk (99, 86.09%). However, more children exhibited high caries risk when parenting was permissive (46,95.83%) and authoritarian type (33,89.19%).

Parenting styles and socioeconomic status

The association of parenting styles with socioeconomic status was statistically significant. More authoritative (76,66.09%) and permissive parents (25,52.08%) belonged to upper SES, whereas more of authoritarian parents belonged to lower middle SES (25,67.57%). Table 4 summarises the association between Parenting Styles and Behaviour, Caries Status, Caries Risk and Socioeconomic Status.

DISCUSSION

Of the various factors exerting their influence on a child's development, role of parents and the child rearing practices adopted by them have an extremely significant impact. Thus, due to their paramount importance in a child's life, Parenting styles have been well studied over the years. In the present study, out of the three types of parenting styles studied, authoritative parenting led to more positive behaviour of the child in the dental office during first dental visit, less carious lesions and low caries risk as compared to permissive and authoritarian parenting. This can be attributed to the fact that authoritative parents exert firm control but at the same time do not hem the child in with restrictions. (Baumrind, 1966) This practice of striking the right balance perhaps allows the child to demonstrate improved emotional and social skills leading to a positive behaviour. The good oral health status such as low caries risk and less caries in the children of these parents is for the fact that they direct the child's activities in a rational manner, enforce their perspective on children keeping in mind child's special interests and set standards for future conduct. (Baumrind, 1966) Hence, using a rational explanation these parents can make the child understand how proper brushing habits and avoidance of cariogenic food can benefit them. It was noted that when parenting was of permissive type more children had negative behaviour, high caries risk and increased number of carious lesions as compared to children of authoritarian and authoritative parents. These parents have an affirmative attitude towards a child's actions, avoid exercising control and don't encourage the child to follow externally set standards. (Baumrind, 1966) All these contribute to negative outcomes of child behaviour in dental office. Greater allowance of the child to regulate his/her own activities with increased acceptance of their decisions by these parents could be a reason these children may not have healthy dietary and oral hygiene habits leading to increased caries, predisposing them to a high-risk status. In the current study children with authoritarian parents had negative behaviour, high caries risk and more caries. These parents control and shape the behaviour of the child according to a set pattern of conduct, the punitive strategies adopted by them during the course leads to social-emotional difficulties in these children making them anxious and hostile if frustrated. (Baumrind, 1966; Coie and Dodge, 1998; Jewell and Stark, 2003) This explains the negative child outcome of these pediatric patients in the dental office. Also, the low responsiveness of these parents, may influence their oral health choices, with the result their children may be predisposed to increased caries and greater risk. Our findings were in accordance with observations made by Howenstein *et al*. who correlated parenting styles with child behaviour and caries. They concluded authoritative parenting was associated with more positive behaviour during first dental visit and less caries. (Howenstein *et al*., 2015) Aminabadi *et al*. who studied the influence of parenting style on the choice of proper behaviour guidance strategies in Pedodontics also suggested that authoritative parenting as associated with more desirable behaviour as compared to permissive and authoritarian parenting. (Aminabadi and Farahani, 2008)

Parenting practices aimed at cognitive, emotional and social competence of children are influenced by families' resources devoted towards child-rearing, dependent on family income and their tendency to provide a rich and responsive language environment, which is influenced by parental levels of education. (Steinberg *et al*., 1991) Thus socioeconomic status influences the parenting style. In the present study authoritative and permissive parenting were associated with upper SES whereas authoritarian parenting was associated with lower middle SES. In case of authoritative parenting, the higher SES status is a reflection of their increased levels of parental education making them more responsible towards the child leading to better behaviour and improved oral health as noted in our study. In contrast in the present study permissive parenting was associated high SES and children with high caries risk and incidence.

This may be attributed to the fact that though these parents may have high education but since these parents are more acceptant towards the desires of child they may often fulfil their demands due to increased financial resources available in this socioeconomic group thereby spoiling them. It has been reported that parents in low socio-economic status groups tend to be harsher in their child-rearing, which is in accordance with the finding of our study where more of authoritarian parents were associated with lower SES. (Steinberg *et al*., 1991; September *et al*., 2015) Child rearing practices have changed over the years, which has adversely influenced the behaviour of child in the dental office, resulting in paradigm shift in behaviour management techniques used by pedodontists. (Casamassimo *et al*., 2002) Thus, with the knowledge of influence of SES on parenting and the impact of child rearing practices on behaviour and oral health of children, clinician can effectively plan their behaviour management techniques and at the same time educate the parents as well as children about good oral healthcare practices.

Conclusion

Authoritative parenting is associated with children having low caries risk, less caries and desirable behaviour in dental office during first dental visit. On the other hand, permissive parenting is associated with children at high caries risk, more caries and worse behaviour in dental office. Also Parenting styles were significantly related to SES with more authoritative and permissive parents belonging to higher SES and authoritarian parents belonging to lower SES.

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