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Original Research Article

Influence of oral health behaviour and beliefs on the oral health of 12- and 15-years school children, Ghaziabad city

Kartiki Mehrotra, Bhuvan Deep Gupta*, Ritu Gupta, Abhinav Bhargava, Sunil Kumar Chaudhary, Dipanshi Sharma

Department of Public Health Dentistry, ITS Dental College, Ghaziabad, Uttar Pradesh, India

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***Correspondence:**
Dr. Bhuvan Deep Gupta,
E-mail: bhuvandentist@gmail.com

ABSTRACT

Background: Dental caries is a multifactorial condition shaped by a combination of socio-demographic determinants and individual attitudes or perceptions. The objective of the study was to assess the association between oral health beliefs and the prevalence of dental caries among schoolchildren in Ghaziabad city.
Methods: This cross-sectional study was conducted among 12- and 15-year-old school children in Ghaziabad city during the academic year from January 2022 to January 2023. A pre-validated structured questionnaire on health beliefs was used. Children's oral health was assessed through a clinical examination.
Results: A total of 1,250 school children were examined. The correlation analysis between oral health belief and mean DMFT score yielded a correlation coefficient of -0.276, indicating a moderate negative correlation between these two variables. The negative sign suggests that the mean DMFT scores tend to decrease as oral health belief scores increase, and vice versa. In contrast, the correlation analysis between oral health beliefs and the presence or absence of gingival bleeding yielded a correlation coefficient of 0.054. This value suggests a very weak positive correlation between these two variables. The Structural equational model showed a substantial ability to predict dental caries, accounting for 37.5% of the variation in DMFT scores. In comparison, it accounted for 16.3% of the variation in gingival bleeding, reflecting a moderate level of predictive accuracy. Interestingly, the pattern for gingival bleeding was different-children with stronger oral health beliefs tended to report more instances of gingival bleeding.
Conclusion: The study concluded that there is a significant need to address self-efficacy barriers among school-going children, particularly in relation to oral health. The importance of oral health in school-age children is a key target group for oral health programs.

Keywords: Oral health, Beliefs, Behavior, School children, Dental caries

INTRODUCTION

Oral health is the fundamental aspect of holistic wellness and perceived life value. Individuals who maintain good oral health can consume food, communicate verbally, and engage socially without encountering pain, discomfort, or embarrassment.[1] The primary focus of dental health promotion has been ensuring good oral health.[2] Several studies have indicated that oral health is interconnected with both physical and psychological well-being, impacting various facets of life.[3]

Among children, the prevalent oral diseases include gingivitis and dental caries, with the latter affecting 60-90% of children worldwide dental caries in children is a complex oral condition influenced by multiple factors.[4] The age groups of 12 and 15 years are significant for global monitoring of dental caries. According to Oral

Health Surveys, the prevalence of dental caries at these ages was 98.76%, with a mean DMFT score of 3.84. In India, the reported prevalence of caries among 12-year-olds is 49%, while among 15-year-olds, it is 60%. Correspondingly, the mean DMFT scores are 1.95 for 12-year-olds and 3.31 for 15-year-olds.[5]

Oral diseases have ramifications beyond just physical health; they extend to economic, social, and psychosocial aspects. They significantly diminish the quality of life (QOL) for many individuals, impairing oral function, appearance, and interpersonal relationships, among other aspects of life.[6]

The oral health behavior of individuals plays a vital role in preventing and managing oral diseases. Their beliefs regarding their ability to engage in oral health practices, such as regular tooth brushing, interdental cleaning, and dental check-ups, are closely linked to their actual behavior. An individual's perception of their capabilities significantly influences their willingness to adopt and maintain these behaviors.

Furthermore, perceptions of self-efficacy extend beyond oral health practices to influence various other health behaviors as well.[7] Health behavior models provide valuable tools for oral health care providers to address patient behavior effectively.[2] Solhi et al conducted a study in Tehran focusing on female students, titled "utilizing the health belief model to enhance oral health." The study's findings revealed a noteworthy correlation between the oral health index and perceived benefits.[8]

Healthy habits and lifestyles established in youth are more likely to last. Throughout the school years, messages can be reinforced.[9] Schools continue to play a crucial role as a valuable platform for reaching children globally, and by extension, their families, and communities, efficiently and effectively. The school-age period shapes individuals' lifelong oral health behaviors, beliefs, and attitudes. In 2013, Jurgensen and Petersen conducted a review examining various school-based approaches aimed at enhancing oral health. Their analysis indicated that schools have the potential to create a conducive environment for promoting children's overall health.[10]

This study aims to outline the current prevalence of oral diseases among 12 and 15-year-old schoolchildren in Ghaziabad, analyze their self-care routines and dental visit patterns, and evaluate the impact of socio-behavioral factors on their experience with dental caries.

METHODS

This study was a cross-sectional school-based study aimed at evaluating the influence of oral health behavior and beliefs on the oral health of 12- and 15-year-old school children in Ghaziabad city, Uttar Pradesh, India. The study was conducted by a single calibrated examiner from the Department of Public Health Dentistry at I.T.S. Centre for Dental Studies and Research, Murad Nagar, Ghaziabad.

Study setting and population

The study was conducted in private and government schools in Ghaziabad, Uttar Pradesh, India. The target population included children aged 12 and 15, as defined by the WHO, to facilitate international comparisons and monitor disease trends.

The 12-year-old group represents a critical age for sampling due to the transition from primary school, while the 15-year-old group represents a stage where permanent teeth have been exposed to oral conditions for 3-9 years.

Ethical clearance and permissions

The research protocol received approval from the Institutional Ethical Committee of ITS-CDSR Murad Nagar, Ghaziabad (ITSCDSR/IIEC/2021-24/PHD/02). Permission was also obtained from school authorities and informed written assent was secured from the study participants and their parents.

Training and calibration

The examiner received extensive training to ensure consistency in clinical assessments. Calibration exercises were conducted to achieve a diagnostic agreement level of 85-95%. Duplicate examinations were performed on 5-10% of the sample to detect and correct diagnostic variations.

Inclusion criteria

Children aged 12 and 15 years. Students present on the day of the survey. Children who provided assent and whose parents gave written informed consent.

Exclusion criteria

Students were unwilling to participate. Participants undergoing orthodontic treatment. Participants with special needs or systemic illnesses could bias results.

Pilot study

A pilot study with 40 students was conducted to assess the feasibility of the main survey and refine data collection procedures. The sample size was estimated from the pilot study data using the formula: $n=NZ2P\ (1-P)\ d2(N-1)+Z2P\ (1-P)$.

Assuming a 97% confidence interval, a margin of error of 3%, and a dental caries prevalence of 40%, the required sample size was estimated to be 1250.

Data collection

A structured questionnaire was administered, covering socio-demographic variables, oral health behaviors, and beliefs. The oral health belief questionnaire included items rated on a 5-point Likert scale. The dentition status was assessed using the WHO Assessment Proforma of Children 2013.

Clinical examination

Examinations were conducted using a plane mouth mirror and CPI probe under natural daylight. Adequate infection control measures were maintained, including the use of sterilized instruments and disposable gloves, and masks.

Statistical analysis

Data were compiled and analyzed using SPSS v25.0. Cohen's kappa statistics were used to assess examiner reliability. Descriptive statistics, Chi-Square tests, Independent T-tests, and Pearson correlations were employed to examine relationships between oral health beliefs and mean DMF and gingival bleeding. The significance level was set at $p<0.05$.

RESULTS

Both age groups and genders demonstrated no significant differences in responses, so the frequency tables present the subjects. Table 1 shows the demographic characteristics of participants and their oral hygiene practices. This table compares oral hygiene practices and habits among two groups of children, one aged 12 years (n=625) and another aged 15 years (n=625). The data are categorized into several variables, and for each variable, the table provides the number (n) and percentage (%) of participants in each group who fall into specific subcategories. At age 15, the gender distribution shifts towards a higher proportion of females. Deleterious habits appear only in this older age group. Both age groups exhibit high rates of teeth cleaning and toothpaste use, with an increased use of toothbrushes at age 15. Regular brushing frequency improves from age 12 to 15, with more frequent brushing observed among the older children. Most 15-year-olds spend 2-5 minutes brushing their teeth. There is a decrease in the frequency of bleeding gums when brushing from age 12 to 15. Younger children tend to change their toothbrushes more frequently. Fluoridated toothpaste is predominantly used in both age groups, and the horizontal brushing technique is more common. Additionally, there is a slight shift towards bilateral mastication in the older group. Table 2 shows the association between oral health belief and the number of decayed teeth was assessed through linear regression analysis for different age groups. For 12-year-olds, the constant is 2.481 and the unstandardized β is -0.571, with a 95% confidence interval ranging from -0.902 to -0.239 and a significant p-value of 0.001. For 15-year-olds, the constant is 2.598 and the unstandardized β is -0.637, with a 95% confidence interval from -0.963 to -0.310 and a highly significant p-value of less than 0.001. When considering the overall population, the constant is 2.508, with an unstandardized β of -0.592, a 95% confidence interval from -0.822 to -0.362, and a p-value of less than 0.001, indicating a significant association between oral health belief and the number of decayed teeth across all age groups. The significant p-values (≤0.05) in all cases highlight the strong relationship between better oral health beliefs and a reduced number of decayed teeth. Table 3 shows the association between oral health belief and gingival bleeding was evaluated using binary logistic regression analysis for different age groups. For 12-year-olds, the constant is 0.782 and the Exp (β) is 0.929, with a 95% confidence interval ranging from 0.440 to 1.960 and a non-significant p-value of 0.846. For 15-year-olds, the constant is -1.573 and the Exp (β) is 1.443, with a 95% confidence interval from 0.749 to 2.780 and a non-significant p-value of 0.273. When considering the overall population, the constant is -1.237 with an Exp (β) of -1.569, a 95% confidence interval from 0.984 to 2.500, and a non-significant p-value of 0.059. These results indicate a non-significant association between oral health belief and gingival bleeding across all age groups.

Table 1: Demographic details and oral hygiene practices.

Variable	Category	12 years (n=625)		15 years (n=625)	
		N	%	N	%
Gender	Male	350	56	300	48
	Female	275	44	325	52
Deleterious habits	Present	0	0	125	20
	Absent	625	100	500	80
Oral hygiene practices					
Years you have been living in the same place?	0-5	287	45.9	288	46.1
	6-10	213	34.1	212	33.9
	>10	125	20	125	20
Source of drinking water	River	25	4	0	0
	Borewell	600	96	625	100
Do you clean your teeth?	Yes	600	96	625	100
	No	25	4	0	0

Continued.

Variable	Category	12 years (n=625)		15 years (n=625)	
		N	%	N	%
Do you use toothpaste to clean your teeth?	Yes	600	96	625	100
	No	25	4	0	0
Do you use any of the following to clean your teeth?	Toothbrush	525	84	600	96
	Wooden toothpicks	0	0	0	0
	Plastic toothpicks	0	0	0	0
	Thread (dental floss)	0	0	0	0
	Charcoal	75	12	25	4
	Chewstick / miswak	25	4	0	0
	Others	0	0	0	0
How often do you clean your teeth?	No brushing	25	4	0	0
	Irregular brushing	75	12	50	8
	Once a day	300	48	325	52
	Twice a day or more often	175	28	250	40
	Tooth brushing performed by a child	50	8	0	0
How much time do you take to brush your teeth?	<2 min	250	40	225	36
	2 to 5 min	175	28	275	44
	>5 min	200	32	125	20
How often do you see blood when brushing?	Always	75	12	25	4
	Often	75	12	125	20
	Sometime	150	24	150	24
	Never	325	52	325	52
Frequency of changing toothbrush	0-3 month	575	92	475	76
	3-6 month	25	4	25	4
	6-1 year	25	4	125	20
Type of toothpaste	Fluoridated	525	84	550	88
	Non- Fluoridated	100	16	75	12
Technique for toothbrushing	Horizontal technique	400	64	425	68
	Roll technique	225	36	200	32
	Others	0	0	0	0
What is your chewing habit?	Unilateral mastication	442	70	384	61.4
	Bilateral mastication	183	29.3	241	38.6

Table 2: Association between oral health beliefs and the number of decayed teeth.

Age (years)	Constant	Unstandardized β	95% Lower CI	95% Upper CI	P value
12	2.481	-0.571	-0.902	-0.239	0.001*
15	2.598	-0.637	-0.963	-0.310	<0.001*
Overall	2.508	-0.592	-0.822	-0.362	<0.001*

Dependent variable: No of decayed teeth; Linear regression analysis; * indicates a significant association at p≤0.05

Table 3: Association between oral health belief and decayed teeth.

Age (years)	Constant	Exp (β)	95% Lower CI	95% Upper CI	P value
12	0.782	0.929	0.440	1.960	0.846
15	-1.573	1.443	0.749	2.780	0.273
Overall	-1.237	-1.569	0.984	2.500	0.059

Dependent variable: Gingival bleeding; Binary logistic regression analysis

Table 4: Structural equation model (SEM).

Variable	Coefficient (DMFT)	P value (DMFT)	Coefficient (GBN)	P value (GBN)	Significance (DMFT)	Significance (GBN)
Intercept	6.699596	0.000586	-13.396	0.00134	<0.05	<0.05
Oral health beliefs	-0.12526	<0.05	0.335492	<0.05	<0.05	<0.05

Continued.

Variable	Coefficient (DMFT)	P value (DMFT)	Coefficient (GBN)	P value (GBN)	Significance (DMFT)	Significance (GBN)
Age	-0.69317	<0.05	1.658044	<0.05	<0.05	<0.05
Sex	0.933712	0.093295	-7.07528	<0.05	Not significant	<0.05
Location	0.551252	0.041311	-2.36929	<0.05	<0.05	<0.05
OHB age	0.010214	<0.05	-0.02534	<0.05	<0.05	<0.05
Sex location	-0.19035	0.31305	2.213283	<0.05	Not significant	<0.05
D	-0.02273	0.768983	0.092805	0.575961	Not significant	Not significant
M	5.82E-17	<0.05	-3.92E-17	0.216516	<0.05	Not significant
DC	0.833567	<0.05	0.306454	0.004959	<0.05	<0.05
F	2.697579	<0.05	1.401305	0.013101	<0.05	<0.05
GB	-0.23754	<0.05	1.063568	<0.05	<0.05	<0.05
DT	-0.10225	0.025461	0.066936	0.494689	<0.05	Not significant

There was a significant negative association between oral health belief and the no. of decayed teeth. With every one-unit change in the oral health belief (from negative to positive belief), there was a -0.592 unit decrease in the no. of decayed teeth. Similar results were seen for two different age groups (Table 2).

There was a non-significant association between oral health belief and gingival bleeding (Table 3).

Interpretation

This structural equation model (SEM) examines how oral health beliefs, age, sex, and location influence dental caries (DMFT Score) and gingival bleeding (GBN), incorporating interaction effects (age×oral health beliefs, sex×location).

Pathway: Oral Health Beliefs → Dental Caries (DMFT Score)

Model fit

R^2= 37.5% The model explains 37.5% of the variation in DMFT Scores, showing a strong predictive ability.

Table 4: Key predictors and interpretation.

Variable	Coefficient	P value	Interpretation
Oral health beliefs	-0.125	<0.05	Higher oral health beliefs reduce dmft (fewer decayed teeth).
Age	-0.693	<0.05	Older children have fewer decayed teeth.
Sex	0.934	Not significant	No clear difference in dental caries between boys and girls.
Location	0.551	<0.05	Urban children have higher dmft scores (more decayed teeth).
Ohb × age interaction	0.010	<0.05	Younger children benefit the most from good oral health beliefs (greater reduction in caries).

Key insights

Oral health beliefs now have a protective effect → Stronger beliefs reduce DMFT.

Age has a strong protective effect → Older children have lower DMFT (likely better habits or exposure to care).

Urban children now have higher DMFT scores → Could be linked to diet (sugar consumption, junk food).

Oral health beliefs × Age interaction is significant → Younger children with better beliefs show greater improvement in dental health.

Pathway: Oral Health Beliefs → Gingival Bleeding (GBN)

Model fit

R^2=16.3% → The model explains 16.3% of the variation in Gingival Bleeding (GBN), showing moderate predictive power.

Oral health beliefs unexpectedly increase gingival bleeding (GBN). Children with strong oral health beliefs may be more self-aware, leading to higher self-reporting.

Older children have more bleeding → Could indicate cumulative gum issues (plaque, gingivitis).

Males have significantly worse gingival health than females.

Table 5: Key predictors & interpretation.

Variable	Coefficient	P value	Interpretation
Oral health beliefs	0.336	P<0.05	Higher beliefs lead to more self-reported gingival bleeding.
Age	1.658	P<0.05	Older children have more gingival bleeding.
Sex	-7.075	P<0.05	Males have significantly more gingival bleeding than females.
Location	-2.369	P<0.05	Urban children have less gingival bleeding than rural children.
Ohb × age interaction	-0.025	P<0.05	Older children with better beliefs report less gingival bleeding.
Sex×location interaction	2.213	P<0.05	Gender differences are stronger in rural areas (rural boys have the worst gingival health).

Rural children have more gingival bleeding, → likely due to a lack of dental care or hygiene products.

Gender effects are strongest in rural areas → Rural boys show the worst gingival health.

Oral Health Beliefs help reduce dental caries but lead to more self-reported gingival bleeding (awareness effect).

Older children benefit from better oral health, but have more gum issues.

Males (especially rural boys) have worse oral health than females.

Urban children now show higher DMFT scores (diet-related), while rural children have worse gingival health.

Younger children benefit the most from better oral health beliefs (strong OHB × Age interaction).

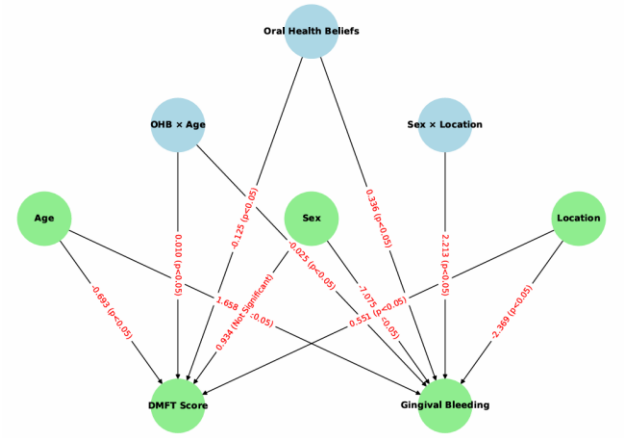

Figure 1: Structural equation pathway linking oral health beliefs, demographic predictors, and oral health status indicators.

Blue (latent variables) → Oral health beliefs, OHB × age, sex × location

Green (observed variables) → age, sex, location, DMFT score, gingival bleeding

Pathways labeled with regression coefficient (Effect size)

P value (Significance level, e.g., p<0.05)

Directional arrows → Showing the causal relationships in SEM.

DISCUSSION

Oral health is a vital part of overall health. Childhood is the stage when children develop habits and attitudes toward hygiene and health. Parents, teachers, and the children themselves must understand the importance of oral hygiene. Educating and motivating children about oral health is essential, and integrating oral health education into the school curriculum can significantly contribute to raising awareness and promoting proper oral health practices.

The study revealed significant differences in oral hygiene practices and demographic details between 12-year-olds and 15-year-olds. The gender distribution shifted from predominantly male at age 12 (56%) to predominantly female at age 15 (52%). Deleterious habits, absent in 12-year-olds, were reported by 20% of 15-year-olds, suggesting an increase in negative health behaviors as children age. These findings align with previous research conducted by Chaddha et al which demonstrated varying prevalence rates of smoking status among students in both school and college students in Delhi, with higher rates observed among males compared to females.[11]

Specifically, the prevalence of smoking among male students ranged from 6.9% to 22.5%, while among female students, the prevalence was notably lower, ranging from 0% to 2.3%. Both age groups showed high rates of teeth cleaning and toothpaste use, with nearly all participants cleaning their teeth and using toothpaste. However, there was a notable increase in the use of toothbrushes from 84% at age 12 to 96% at age 15. This indicates a positive trend in adopting better oral hygiene practices as children grow older. These results were similar to the study conducted by Hamasha et al, which explored oral health beliefs among males and females within the age groups of 18-34 and over 34 years old in Riyadh, 94.8% of males and 97.8% of females believed in the importance of brushing their teeth daily.[12]

Regular brushing improved with age, with a higher percentage of 15-year-olds brushing their teeth twice a

day or more often (40%) compared to 12-year-olds (28%). Most participants at age 15 spent 2-5 minutes brushing their teeth, compared to 36% at age 12, demonstrating an increase in the thoroughness of brushing with age. In the present study, when asked about their brushing frequency, the results were by the study conducted by Azodo et al, Ganesh et al in which among 12-and 15-years school children, it was found that 59.4% of children brushed twice daily.[13,14] This underscores the substantial variation in oral hygiene awareness and practices across different age groups. The technique of brushing also showed a preference for the horizontal method in both age groups, although a significant proportion used the roll technique. The study emphasizes the importance of educating children on effective brushing techniques to prevent dental issues. the study conducted by, Indrapriyadarshini et al conducted among government school children aged 10-15 years in Chengalpattu district, India observed that about 26.9% of children brushed their teeth for 2 minutes.[15] However, it is essential to note the discrepancies between recommended brushing durations and the actual brushing habits reported by participants, emphasizing the importance of promoting and reinforcing proper oral hygiene practices, particularly in younger age groups. Further research and interventions may be necessary to address these disparities and improve overall oral health outcomes among adolescents. There was a decrease in the frequency of gingival bleeding with age. The percentage of participants who always saw blood while brushing dropped from 12% at age 12 to 4% at age 15.

This could be attributed to improved brushing techniques and oral hygiene practices. Interestingly, younger children changed their toothbrushes more frequently, with 92% of 12-year-olds changing their brushes every 0-3 months, compared to 76% of 15-year-olds. This may reflect greater parental control over younger children's hygiene practices. The study's regression analysis demonstrated a significant negative association between oral health beliefs and the number of decayed teeth. Specifically, a shift from negative to positive oral health beliefs resulted in a -0.592 unit decrease in the number of decayed teeth overall. This trend was consistent across both age groups, highlighting the critical role of positive oral health beliefs in maintaining dental health. Binary logistic regression analysis revealed a non-significant association between oral health beliefs and gingival bleeding. For both 12-year-olds and 15-year-olds, the p-values were greater than 0.05, indicating that oral health beliefs did not significantly impact the occurrence of gingival bleeding in the studied population.

These findings underscore the necessity of incorporating oral health education into school curriculums. Educating children from a young age about proper oral hygiene practices and the importance of maintaining good oral health can lead to significant improvements in their overall dental health. Schools, parents, and health professionals should collaborate to create comprehensive oral health programs that encourage positive health behaviors and prevent dental issues from developing later in life. The Structural Equation Model (SEM) analysis revealed significant insights into how oral health beliefs, age, sex, and location influence dental caries (measured by DMFT scores) and gingival bleeding (GBN) among children. The model demonstrated a strong predictive power for dental caries, explaining 37.5% of the variance in DMFT scores. One of the most critical findings was the protective role of oral health beliefs; children with stronger beliefs had significantly lower DMFT scores, indicating fewer decayed, missing, and filled teeth. Age also played a protective role, with older children showing reduced dental caries, likely due to improved oral hygiene habits or increased access to dental care over time. Interestingly, children in urban areas had higher DMFT scores, potentially due to greater consumption of sugary foods despite better access to dental services. The interaction between oral health beliefs and age further emphasized that younger children benefited the most from strong oral health beliefs, reinforcing the value of early educational interventions.

In contrast, the model explained 16.3% of the variance in gingival bleeding, indicating moderate predictive power. Here, the pattern differed-higher oral health beliefs were associated with increased reports of gingival bleeding. This counterintuitive finding likely reflects increased self-awareness among children with better oral health knowledge, making them more likely to recognize and report symptoms like bleeding gums. Unlike dental caries, age was positively associated with gingival bleeding, suggesting that older children may experience more gum problems due to cumulative exposure to plaque or inconsistent oral hygiene practices such as flossing. Sex differences were also pronounced, with boys—particularly in rural areas—showing significantly worse gingival health. This was supported by a significant interaction between sex and location, indicating that rural boys are at the highest risk. Additionally, rural children had more gingival bleeding than their urban counterparts, pointing to disparities in access to dental care and hygiene resources.

These findings highlight a complex and nuanced relationship between behavioral, demographic, and environmental factors in oral health outcomes. While strong oral health beliefs help reduce dental caries, they may also lead to more accurate symptom reporting in gingival health. Urban living appears to be a double-edged sword-associated with more dental decay but less gum disease-possibly due to dietary influences and access differences. The importance of early intervention is underscored by the age-based interactions, emphasizing that promoting positive oral health beliefs at a younger age can yield significant long-term benefits. Moreover, the stark gender and location disparities in gingival health suggest a pressing need for targeted public health strategies, particularly in rural settings, to address the specific needs of boys. Overall, the SEM provides a

valuable framework for understanding and addressing the multifaceted nature of children's oral health.

Limitations

The study has several limitations that should be acknowledged. Firstly, its cross-sectional design restricts the ability to draw causal inferences between oral health beliefs and dental health outcomes. To better understand these relationships over time, longitudinal studies are necessary. Additionally, the reliance on self-reported data for oral hygiene practices and beliefs introduces the potential for bias, as participants may overreport positive behaviors or underreport negative ones, thereby affecting the accuracy of the findings. The representativeness of the sample is another concern, as the study was conducted exclusively in Ghaziabad city. This limits the generalizability of the results to other regions or populations with different demographic or cultural characteristics. Moreover, the scope of the study was somewhat narrow, focusing on a limited range of oral health behaviors and not considering other influential factors such as dietary habits, parental oral health practices, and socioeconomic status, all of which could play a significant role in shaping dental health outcomes. Lastly, although examiners were trained and calibrated, the possibility of examiner bias during clinical assessments cannot be entirely ruled out. Future research should aim to minimize this by involving multiple examiners to ensure greater objectivity and reliability in the findings.

By addressing these limitations and implementing the recommendations, future research and interventions can more effectively improve the oral health of children, leading to better overall health outcomes and quality of life.

CONCLUSION

This study highlights the crucial role of oral health beliefs and behaviors in the dental health of school-aged children in Ghaziabad city. The findings demonstrate that positive oral health beliefs are significantly associated with a reduced number of decayed teeth in both 12- and 15-year-old children. Despite an overall improvement in oral hygiene practices with age, certain areas, such as brushing techniques and the frequency of toothbrush changes, require further attention and education. The study underscores the importance of incorporating oral health education into school curricula to instill good oral hygiene habits from a young age. By fostering positive beliefs and practices, we can significantly improve the dental health outcomes of children, reducing the prevalence of dental caries and other oral health issues.

Recommendations

To improve oral health among children, several key recommendations should be considered. First, schools should integrate comprehensive oral health education into their curricula. This education should teach students effective brushing techniques, emphasize the importance of regular dental check-ups, and highlight the benefits of using fluoridated toothpaste. Parental involvement is also essential; parents should be actively engaged in their children's oral hygiene routines. Educational workshops and programs can equip parents with the knowledge needed to support and guide daily practices at home. Additionally, schools can collaborate with local dental clinics to offer regular dental check-ups for students, allowing for early detection and treatment of dental issues. Promoting healthy oral habits is equally important. Schools should implement initiatives to discourage harmful behaviors such as smoking and the excessive consumption of sugary foods through campaigns and educational materials that explain their negative effects on oral health. Furthermore, the use of fluoridated dental care products should be encouraged, with programs emphasizing fluoride's role in preventing dental caries. Lastly, targeted interventions are necessary for older children, who often show a decline in oral hygiene practices. Strategies such as regular reminders and incentive-based programs can motivate them to maintain good habits, like changing their toothbrush regularly and using proper brushing techniques.

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