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A Cross-Sectional Study Describing The Impact Of Oral Health Knowledge On Dental Health Status Among 12-18 Year Old Children Of Lucknow City.

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Abstract

Introduction: *Higher levels of Oral Health Knowledge are associated with better oral hygiene practices and, consequently, improved oral health status. Understanding the relationship is essential for designing effective public health interventions aimed at improving Oral Health knowledge and promoting healthier behaviour.*

Aims & Objectives: *The aim of this study is to assess the level of Oral Health knowledge among Adolescents and to evaluate the oral hygiene practices of Adolescents.*

Materials & Methods: *The study included 462 adolescents from various socioeconomic backgrounds in Lucknow City. Data were collected using a structured questionnaire. The questionnaire was designed to assess Oral Health Literacy, oral hygiene practices, and demographic information.*

Results: *A positive correlation was found between oral health knowledge and oral hygiene practices, indicating that higher knowledge levels contribute to better oral health behaviour. The collected data were analysed using SPSS (Statistical Package for the Social Sciences) software version 25.0. Descriptive statistics were used to summarize the basic characteristics of the study population, including mean, median, standard deviation, and range for continuous variables, and frequencies and percentages for categorical variables.*

Conclusion: *The findings emphasize the need for targeted public health interventions and educational programs that focus on enhancing Oral Health Knowledge, particularly in underserved communities.*

Key-words: *Knowledge, Oral Health, Oral Hygiene Practices, Adolescents, socio-economic status.*

INTRODUCTION

Oral Health knowledge encompasses the skills required to comprehend oral health information, communicate effectively with dental professionals, and engage in appropriate oral hygiene practices. Oral Health knowledge is a crucial determinant of oral health outcomes. The relationship between knowledge and hygiene practices highlights the need for focused educational interventions and public health strategies that address both individual and systemic factors.[2]

Low Oral Health knowledge has been linked to poor oral hygiene practices, such as infrequent tooth brushing, inadequate flossing, and irregular dental visits, which can lead to adverse oral health outcomes.[3] Therefore, higher levels of Oral Health knowledge are associated with better oral hygiene practices and, consequently, improved oral health status.[4] Understanding this relationship is essential for designing effective public health interventions aimed at improving Oral Health Literacy and promoting healthier behaviour.

Oral health problems are prevalent and represent a major public health concern worldwide. According to the World Health Organization (WHO), oral diseases affect nearly 3.5 billion people globally, with dental caries being the most common condition.[5] In the United States, the Centres for Disease Control and Prevention report that nearly half of Adolescents aged 30 years and older show signs of gum disease, and about one in four Adolescents have untreated tooth decay.[6]

Oral diseases have been linked to various systemic conditions, including cardiovascular disease, diabetes, respiratory infections, and adverse pregnancy outcomes.[7] Moreover, the pain and discomfort associated with oral diseases can significantly impair daily activities, such as eating, speaking, and social interactions, thereby diminishing an individual's quality of life.[8] These statistics underscore the urgent need for

targeted strategies to enhance Oral Health knowledge and encourage better oral hygiene practices among Adolescents. The relationship between knowledge and hygiene practices highlights the need for focused educational interventions and public health strategies that address both individual and systemic factors.

MATERIALS & METHODS

A cross-sectional study was conducted to establish the impact of Oral Health knowledge on oral hygiene practices among adolescents aged 12 to 18 years visiting to Hospital in Lucknow city. The study aimed to gather comprehensive data on the Oral Health knowledge levels and oral hygiene behaviour in a population of adolescents, with the objective of identifying associations and potential influencing factors. Data were collected using a structured questionnaire. The questionnaire was designed to assess Oral Health knowledge, oral hygiene practices, and demographic information. In this study, the socioeconomic status (SES) of participants was classified into high, middle, and low categories based on a combination of several key indicators. Income level is a primary indicator of SES, reflecting the financial resources available to an individual or household.

The calculated sample size was approximately 385 participants. Adolescents aged 12 to 18 years visiting to Hospital & Participants who gave Consent for their participation were included in the study. Adolescents with systemic diseases affecting oral health, cognitive impairments & Adolescents undergoing orthodontic treatment were excluded from the study.

Data collection involved administering the structured questionnaire. A single examiner conducted all the investigations. Participants completed the questionnaire under the supervision of the research team to ensure accuracy.

The Health knowledge in Dentistry Scale (A-HeLD-14) consists of 14 items that assess different aspects of Oral Health knowledge. These items are designed to evaluate an individual's proficiency in understanding oral health-related terms, interpreting dental health information, and making decisions regarding their oral health based on the information they receive from healthcare professionals.

Chi-square tests were used to compare categorical variables such as the presence or absence of adequate Oral Health Literacy and specific oral hygiene practices among different groups.

RESULTS

The study included a total of 462 adolescents aged 12 to 18 years residing in Lucknow City. The demographic characteristics of the study population are summarized in Table 1. The mean age of the participants was 15.2 ± 2.1 years, with a nearly equal distribution of males 229 (49.6%) and females 233(50.4%). Most participants were from middle socioeconomic backgrounds (64.3%), with the remaining from lower (21.8%) and higher (13.9%) socioeconomic statuses.

Table 1: Demographic Characteristics of Study Population

Characteristic	**N** (%)
Total Participants	462 (100)
Age (years, mean ± SD)	15.2 ± 2.1
Gender	
- Male	229 (49.6)
- Female	233 (50.4)
Socioeconomic Status	
- Low	101 (21.8)
- Middle	297 (64.3)
- High	64 (13.9)

The A-HeLD-14 questionnaire, consisting of 14 items, was used to assess various aspects of Oral Health knowledge among the participants. The mean A-HeLD-14 score across all participants was 12.4 ± 3.6, indicating a moderate level of Oral Health knowledge. The A-HeLD-14 scores varied significantly across different socioeconomic groups. Participants from higher socioeconomic backgrounds had significantly higher mean A-HeLD-14 scores (14.5+2.9) compared to those from middle (12.3±3.4) and lower (10.7±3.9) socioeconomic backgrounds.

The overall mean Oral Hygiene Practices score was 6.8 ± 2.4, indicating fair hygiene practices among the participants. The detailed results for each item are presented in Table 2.

Table 2: Oral Hygiene Practices Item Scores

Oral Hygiene Practices Question	Correct Choice	Mean Score (± SD)
1. How often do you brush your teeth?	Twice a day	0.85 ± 0.36
2. How often do you floss your teeth?	Daily	0.62 ± 0.49
3. How often do you use mouthwash?	Daily	0.78 ± 0.42
4. How often do you visit the dentist?	Every six months	0.59 ± 0.49
5. How long do you brush your teeth each time?	2-3 minutes	0.74 ± 0.44
6. Do you brush your tongue when you brush your teeth?	Yes	0.80 ± 0.40
7. Do you change your toothbrush regularly (every 3-4 months)?	Yes	0.71 ± 0.45
8. Do you avoid sugary snacks and drinks between meals?	Always	0.66 ± 0.47
9. Do you rinse your mouth after eating?	Always	0.82 ± 0.38
10. Do you use fluoride toothpaste?	Yes	0.75 ± 0.43

Similar to the A-HeLD-14 scores, the Oral Hygiene Practices scores were also significantly higher in participants from higher socioeconomic backgrounds. A statical significant association was obtained between socioeconomic status.

A moderate positive correlation was observed ($r = 0.46$, $p < 0.001$), indicating that higher Oral Health knowledge was associated with better oral hygiene practices (Table 3).

Table 3: Correlation Between A-HeLD-14 Scores and Oral Hygiene Practices

Variable	Correlation Coefficient (r)	p-value
A-HeLD-14 Score & Oral Hygiene Practices	0.46	< 0.001

DISCUSSION

Knowledge of oral health is a fundamental prerequisite for healthy behaviour, allowing individuals to take measures to protect their overall health Higher knowledge scores were associated with better oral hygiene practices, particularly in understanding the benefits of regular tooth brushing and the purpose of dental check-ups. This finding aligns with previous research that has consistently demonstrated the importance of OHL in promoting positive oral health behaviour [9,10]. Similar studies have found that higher OHL levels are correlated with better oral hygiene practices and outcomes. For example, a study by Jones et al(2015). found that Adolescents with higher OHL were more likely to engage in regular tooth brushing and dental visits [10].

The observed positive correlation between OHL and oral hygiene practices can be attributed to the fact that individuals with higher knowledge levels are better equipped to understand and apply health information. They are more likely to comprehend the importance of preventive measures, such as regular brushing and flossing, and are better at interpreting and following instructions provided by dental professionals. This understanding translates into more effective oral hygiene practices, which are crucial for maintaining good oral health .[11]

The highest adherence was observed in behaviour like brushing the teeth, tongue and rinsing the mouth after eating, while lower adherence was noted in regular dental visits and daily flossing. The findings are consistent with studies conducted in other populations, which often report that while basic oral hygiene practices like tooth brushing are widely adopted, more specific behaviour such as flossing and regular dental visits are less commonly practiced. For instance, a study by Ramseier et al(2012). found that while

most adolescents brushed their teeth regularly, only a small percentage adhered to daily flossing or regular dental check-ups .[12]

Higher oral health knowledge and better access to information were strongly associated with better hygiene practices. These findings align with studies that emphasize the importance of accessible health information in promoting healthy behaviour. Research by Nutbeam (2000) and Berkman et al(2011). supports the idea that both personal and organizational health knowledge are critical for empowering individuals to make informed health decisions.[1,13] The relationship between SES and OHL can be explained by the access to resources and educational opportunities that are typically more available to individuals from higher socio-economic status backgrounds. These individuals are more likely to receive comprehensive health education, have access to a wider range of health information, and be exposed to environments that support healthy behaviour. Additionally, families from higher socio-economic status backgrounds may have better access to dental care, allowing for more frequent dental visits and timely interventions .[14]

CONCLUSION

This cross-sectional study provided compelling evidence that higher levels of oral health knowledge are associated with better oral hygiene behaviour, including more frequent tooth brushing, flossing, and regular dental visits. There is a significant differences in oral health outcomes based on socioeconomic status, with adolescents from higher socioeconomic backgrounds demonstrating better oral health knowledge and, consequently, superior oral hygiene practices.

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