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Exploring The Relationship Between Oral Health Literacy and Oral Hygiene Practices Among Adolescents Visiting a Dental College in Lucknow City, UP- A Cross-Sectional Study

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ABSTRACT

Introduction: Oral Health Literacy is a crucial determinant of oral health outcomes. The relationship between literacy and hygiene practices highlights the need for focused educational interventions and public health strategies that address individual and systemic factors.

Aims & Objectives: The study explores the relationship between oral health literacy and oral hygiene practices among adolescents visiting a dental college in Lucknow, UP.

Materials & Methods: A cross-sectional study was designed to explore the relationship between Oral Health Literacy and oral hygiene practices. The primary outcome parameters included Oral Health Literacy &Oral Hygiene Practices. The Health Literacy in Dentistry scale (A-HeLD-14) is a tool designed to assess Oral Health Literacy, which refers to an individual's ability to understand and use information related to oral health. The A-HeLD-14 consists of 14 items that assess different aspects of Oral Health Literacy.

Results: The A-HeLD-14 questionnaire, consisting of 14 items, assessed various aspects of Oral Health Literacy among the participants. The mean A-HeLD-14 score across all participants was 12.4 ± 3.6, indicating a moderate level of Oral Health Literacy. The analysis revealed that Oral Health Literacy was a significant predictor of good oral hygiene practices (OR = 2.35, 95% CI = 1.68–3.29, $p < 0.001$).

Conclusion: The current study revealed that adolescents with higher OHL had significantly better oral hygiene, reflected in higher adherence to ideal practices such as brushing twice daily, regular flossing, and consistently using fluoride toothpaste. These adolescents also exhibited lower rates of dental issues, such as plaque accumulation, gingival inflammation, and dental caries.

Keywords: *Literacy, Oral, Health, socio-economic status, oral hygiene practices.*

1. INTRODUCTION

Oral Health Literacy (OHL)is a critical component of overall health literacy, which is defined as the capacity of individuals to obtain, process, and understand basic health information and services needed to make appropriate health decisions.[1]Despite its importance, Oral Health Literacy remains an underexplored area, particularly among Adolescents, who are at significant

risk of developing oral diseases such as dental caries, periodontal disease, and oral cancer .[2]

The relationship between Oral Health Literacy and Oral Hygiene Practices is pivotal for preventing and managing oral diseases. Low Oral Health Literacy 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]Conversely, higher levels of Oral Health Literacy are associated with better oral hygiene practices and, consequently, improved oral health status . [4]

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 Centers 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] These statistics underscore the urgent need for targeted strategies to enhance Oral Health Literacy and encourage better oral hygiene practices among Adolescents.

The impact of poor oral health extends beyond the mouth, influencing overall health and quality of life. Oral diseases have been linked to various systemic conditions, including cardiovascular disease, diabetes, respiratory infections, and adverse pregnancy outcomes.[7]Addressing the determinants of oral health, such as Oral Health Literacy, is therefore critical for improving both oral and general health outcomes.[8]Therefore, the current study aims to explore the relationship between Oral Health Literacy and oral hygiene practices among Adolescents in Lucknow city.

2. MATERIALS & METHODS

This cross-sectional study explored the relationship between Oral Health Literacy and oral hygiene practices among adolescents visiting a dental college in Lucknow city, UP. The study population consisted of adolescents aged 12 to 18 visiting the Hospital of Lucknow, and the population was divided into groups based on their Oral Health Literacy levels and oral hygiene practices. After explaining the study's purpose, procedures involved, potential risks, and benefits, informed consent was obtained from all participants' parents or guardians. Confidentiality of all subjects was strictly maintained throughout the study.

The calculated sample size was approximately 385 participants. To account for potential non-response and incomplete data, the sample size was increased by 20%, resulting in approximately 462 participants. Adolescents aged 12 to 18 years visiting the Hospital and participants who gave Consent for their participation were included in the study. Adolescents with systemic diseases affecting oral health, cognitive impairments, and those undergoing orthodontic treatment were excluded from the study.

Data were collected using a structured questionnaire. The questionnaire assessed Oral Health Literacy, hygiene practices, and demographic information. This study classified participants' socioeconomic status (SES) into high, middle, and low categories based on several key indicators. Income level is a primary indicator of SES. The Health Literacy in Dentistry scale (A-HeLD-14) is used in a study designed to assess Oral Health Literacy, which refers to an individual's ability to understand and use information about oral health—reflecting the financial resources available to an individual or household.

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, as well as frequencies and percentages for categorical variables.

3. RESULTS

The study included 462 adolescents aged 12 to 18 who resided in Lucknow City. 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 status.

The mean A-HeLD-14 score across all participants was 12.4 ± 3.6, indicating a moderate level of Oral Health Literacy. The results for each item are detailed in Table 1.

Table 1: A-HeLD-14 Item Scores

A-HeLD-14 Item	Mean Score (± SD)
1. Ability to read and understand oral health-related terms	3.2 ± 1.1
2. Understanding instructions from dental professionals	3.5 ± 1.0

3. Ability to locate oral health information online	2.9 ± 1.2
4. Understanding the use of fluoride toothpaste	3.6 ± 0.9
5. Knowledge about the impact of sugary snacks on oral health	3.3 ± 1.1
6. Understanding the purpose of dental check-ups	3.7 ± 0.8
7. Interpreting information on prescription labels for dental medication	3.0 ± 1.2
8. Ability to understand and use mouthwash correctly	3.4 ± 1.0
9. Knowledge of dental caries prevention	3.5 ± 0.9
10. Understanding the benefits of regular tooth brushing	3.8 ± 0.7
11. Knowledge about the impact of tobacco use on oral health	3.1 ± 1.1
12. Ability to follow instructions on dental care products	3.2 ± 1.0
13. Understanding the role of diet in maintaining oral health	3.4 ± 0.9
14. Interpreting health information from dental brochures and pamphlets	2.8 ± 1.2

Table 2 illustrates the distribution of A-HeLD-14 scores by socioeconomic status. 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.

Table 2: Distribution of A-HeLD-14 Scores by Socioeconomic Status

Socioeconomic Status	Mean A-HeLD-14 Score (± SD)	p-value
Low	10.7 ± 3.9	< 0.001
Middle	12.3 ± 3.4	< 0.001
High	14.5 ± 2.9	< 0.001

The overall mean Oral Hygiene Practices score was 6.8 ± 2.4, indicating fair hygiene practices among the participants. Similar to the A-HeLD-14 scores, the Oral Hygiene Practices scores were also significantly higher in participants from higher socioeconomic backgrounds. A statistically significant association was obtained between socioeconomic status. The distribution is detailed in Table 3.

Table 3: Distribution of Oral Hygiene Practices Scores by Socioeconomic Status

Socioeconomic Status	Mean Oral Hygiene Practices Score (± SD)	p-value
Low	5.9 ± 2.8	< 0.001
Middle	6.7 ± 2.3	< 0.001
High	7.8 ± 1.9	< 0.001

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

4. DISCUSSION

The findings of this study provide valuable insights into the relationship between Oral Health Literacy (OHL) and oral hygiene practices among adolescents in Lucknow City. The results highlight the significant role that OHL plays in determining oral health behaviour, pointing to socioeconomic factors influencing it.

The mean A-HeLD-14 score of 12.4 ± 3.6 indicates a moderate level of Oral Health Literacy among the adolescents in this study. Higher literacy 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.]

The mean Oral Hygiene Practices score of 6.8 ± 2.4 suggests that the adolescents in this study generally practiced fair oral hygiene. The highest adherence was observed in behaviours 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 behaviours 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 tiny percentage adhered to daily flossing or regular dental check-ups .[11]

The study found a significant association between socioeconomic status, OHL, and oral hygiene practices. Adolescents from higher SES backgrounds had significantly higher A-HeLD-14 and Oral Hygiene Practices scores than those from middle and lower SES groups. Numerous studies have documented the influence of SES on health literacy and behaviour. For example, Parker et al(2003) demonstrated that individuals from higher SES backgrounds typically have better access to health information and resources, contributing to higher health literacy levels.[2]

The study observed a moderate positive correlation ($r = 0.46$, $p < 0.001$) between Oral Health Literacy and oral hygiene practices, indicating that higher OHL is associated with better oral hygiene behaviour. This finding is consistent with existing literature that highlights the role of health literacy as a determinant of health behaviour. Macek et al. found that individuals with higher OHL are likelier to engage in preventive health behaviour, including good oral hygiene practices. .[12]

Higher OHL and better access to information were strongly associated with better hygiene practices. These findings align with studies emphasizing 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 literacy are critical for empowering individuals to make informed health decisions.[1,13]These findings contribute to the growing body of evidence that supports the integration of Oral Health Literacy into broader public health strategies aimed at improving oral health outcomes, particularly in vulnerable populations.

5. CONCLUSION

The current study revealed that adolescents with higher OHL had significantly better oral hygiene, reflected in higher adherence to ideal practices such as brushing twice daily, regular flossing, and consistently using fluoride toothpaste. These adolescents also exhibited lower rates of dental issues, such as plaque accumulation, gingival inflammation, and dental caries. The positive correlation between OHL and oral hygiene practices emphasizes the importance of educational initiatives to improve literacy in oral health and promote better dental care behaviour.

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