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Prevalence and knowledge regarding dental problems among school children, Hoshiarpur, Punjab, India

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Abstract

Oral health is an essential component of general health. Good oral health is considered to play role in chewing, aesthetics, and phonetics as well as in personality development. **Aim:** To assess the prevalence of dental problems and its related knowledge among school children and to find out the association between the knowledge regarding dental problems and the selected demographic variables of school children. **Methods:** A cross-sectional study was conducted among 150 children aged between 11-13 years studying in the marigold school of district Hoshiarpur, Punjab. The samples were selected through simple random sampling technique. The prevalence of dental problems was assessed by performing clinical examination by using WHO oral health survey method and the knowledge regarding dental problems was assessed through a structured questionnaire. The collected data were analyzed by using descriptive and inferential statistics. **Results:** The study results regarding the prevalence of dental problems revealed that 82(54.66%) children had dental caries, 53(35.33%) children had dental fluorosis, and 52(34.6%) children had malocclusion problem. The study results regarding knowledge about dental problems show that 52(34.7%) children had poor knowledge, 82(54.6%) children had the average knowledge, 16(10.7%) children had good knowledge and no child had excellent knowledge. The parental education, family income and source of information had an impact on knowledge score of children regarding dental problems. **Conclusion:** The study findings demonstrate that there is a high prevalence of dental problems and the majority of children had average knowledge regarding dental problems so oral health in schools needs to be intensified and parents should also be educated on oral health so their children will be able to maintain a good oral hygiene.

Keywords: Dental problems, Prevalence, Knowledge, School children.

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1. Introduction

"While the eyes may be the window to the soul, our mouth is a window to our body's health". The state of oral health can offer lots of clues about overall health. Kids are known for having a sweet tooth and they usually love to relish sweet snacks, chocolates, and most fast food items but they tend to become lax about oral hygiene which put them at the risk of various dental diseases [1].

Dental caries is a multi-factorial infectious disease of teeth that results in localized dissolution and destruction of the calcified tissue [2]. A very extensive and comprehensive National health survey conducted in 2004 throughout India has shown dental caries 51.9%, 53.8% and 63.1% in 5 years, 10 year and 15-year-old teenagers respectively [3]. Fluoride is an essential element for human health, plays a critical role in the calcification of bones and teeth and is often called a double-edged sword because deficiency of fluoride intake leads to dental caries while excess consumption leads to dental fluorosis. [4]. It is not surprising; therefore, that fluorosis is endemic in 15 states of India. The highest rates of endemicity have been reported from Andhra Pradesh, Haryana, Karnataka, Punjab, Rajasthan and Tamil Nadu. Well-aligned teeth not only contribute to the health of the oral cavity and stomatognathic system but also influence the personality of the individual [5].

Voluminous literature exists on the status of dental problems among school children throughout the globe. Most of these studies show the high prevalence of various dental problems [6]. In many countries, a large number of children and parents have limited knowledge of the causes and prevention of the most common oral disease similarly; the school teacher's oral health

knowledge has also not been satisfactory [7]. So this study was undertaken to determine the prevalence of dental problems (dental caries, dental fluorosis, and malocclusion) and its related knowledge among school children of Hoshiarpur, Punjab.

2. Methods and materials

This was a quantitative nonexperimental study with descriptive survey design conducted in the month of November 2016 among school children of Marigold school, Hoshiarpur, Punjab. The sample size was determined based on the results of a pilot study and was computed by power analysis. The total sample for the study comprised of 150 children of 6^{th}, 7^{th} and 8^{th} class in the age group of 11 to 13 years. The sample was selected through simple random sampling technique by using lottery method from the 6^{th}, 7th and 8^{th} class. The children in the age group of 11-13 years and willing to participate were included in the study. The challenged children were excluded from the study. Institutional review board and an institutional ethical committee of Shri Guru Ram Dass College of Nursing, Hoshiarpur, Punjab, India approved the study protocol.

The tool for data collection consisted of three parts: the first part contained a socio-demographic profile of school children; the second part contained the clinical examination by using WHO oral health survey method for assessing the prevalence of dental problems. The trained dental surgeon was involved in examining the children dental health status. Plain mouth mirror, dental explorer, and CPI probe were used for the clinical examination of children. The third part contained self-administered structured questionnaire to assess knowledge regarding meaning, general causes, features, and prevention of dental problems. It contained 30 questions. The total score was 30. The knowledge score was classified as: excellent (≥75% or ≥23), good (60-74% or 18-22), average (45-59% or 14-17) and poor (≤44% or ≤13). The content validity of tool was obtained from the six experts in the field of medicine, dentistry, and nursing. The content validity index was 0.94. The Reliability of WHO oral health survey method was checked by the inter-observer method and of the structured questionnaire by the test-retest method and it was found to be 0.96 and 0.88 respectively, hence tool was considered reliable for data collection.

To execute the study, the researcher obtained official written permission from Principal of the selected secondary school and written informed assent/consent from study sample and their parents after explaining the study purpose and assuring for confidentiality and anonymity. The collected data were tabulated and analyzed in accordance with objectives of the study by using descriptive and inferential statistics with the help of Statistical Package for the Social Sciences version 16 software (SPSS Inc., Chicago, IL, USA) and Instant. Frequency, mean and standard deviation were used to calculate the prevalence of dental problems and its related knowledge among school children. The unpaired t-test was used to find out the relationship between the knowledge of school children regarding dental problems and their selected demographic variables.

3. Result

The distribution of school children as per their demographic characteristics is shown in Table

Table No 1: Distribution of school children as per their demographic characteristics.

N=150

S. N.	Sample Characteristics	n	%
1	Age (in Years)		
	a) 11-12	30	20
	b) 12-13	120	80
2	Gender		
	a) Male	102	68
	b) Female	48	32
3	Class		
	a) 6^{th}	50	33.3
	b) 7^{th}	50	33.3
	c) 8^{th}	50	33.3
4	Father Education		
	a) Below Metric	18	12
	b) Metric	51	34
	c) Senior Secondary	45	30
	d) Graduation and above	36	24
5	Mother Education		
	a) Below Metric	24	16
	b) Metric	63	42
	c) Senior Secondary	42	28
	d) Graduation and above	21	14
6	Family Income Per Month		
	a) < 10,000	36	24
	b) 10,000-20,000	42	28
	c) > 20,000	72	48
7	Religion		
	a) Sikh	42	28
	b) Hindu	105	70
	c) Christian	03	02
	d) Others	00	00
8	Type of Family		
	a) Joint Family	78	52
	b) Nuclear Family	72	48
9	Source of information		
	a) Mass Media	15	10
	b) Text Book	03	02
	c) Teachers	105	70
	d) Parents	27	18

The study results regarding the prevalence of dental problems among school children showed that Out of 150 School children, 82(54.6%) children had dental caries; 53(35.3%) children had dental fluorosis and 52(34.6%) children had malocclusions. Many of these children were having two or more dental problems.

The distribution of school children as per their level of knowledge score as shown in Figure1.

The overall mean knowledge score was 15.92.

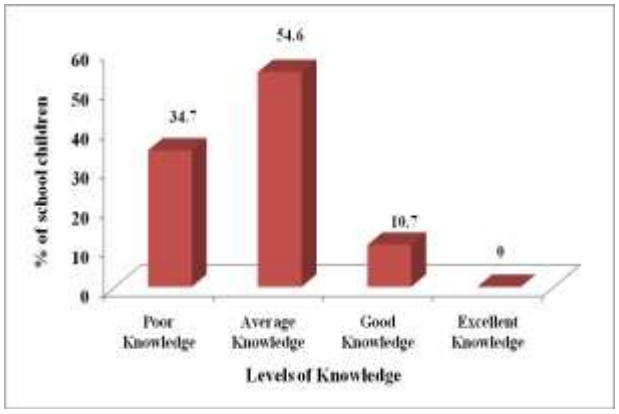

Figure No 1: Percentage distribution of school children as per their level of knowledge regarding dental problems

The study result of relationship between knowledge regarding dental problem and selected demographic variables of school children showed that father education (t=2.13 p=0.05), mother education(t=2.42 p=0.01), family income (t= 2.08 p=0.05), and source of information (t= 2.98 p=0.01) had a significant relationship with knowledge score of school children.

4. Discussion

The present study was carried out among 11-13 years old school children. This age group of children was selected for the study because Nurelhuda reported that 12 years has been chosen as the global monitoring age for caries for international comparisons and monitoring of the disease trends [8]. India lies within a geographical fluoride belt which extends from Turkey up to China. Leaching of fluoride from geological formations accounts for most of the fluoride in drinking water [9]. Because of this reason the present study was conducted in Hoshiarpur district which also had high fluoride content in drinking water. In this study the children studied were of both the gender, different parental education group, all the socio-economic background, religion and type of family because Prakash H et.al in their study found that dental problem affects both the sexes, all races, all socioeconomic status and all age groups [10].

The prevalence of dental caries among 11-13 years old school children were found to be 54.6%. The findings of this study are inconsistency with the findings of a study conducted by Patel et al who has found the prevalence of dental caries 53.3% among 12 years old school children [11]. A study conducted by Shaziam Makhdoom et al have found the prevalence of dental caries among 6-12 years old children 45.6% [12]. The finding of the study is contradictory with the findings of Silviacrypriano et al has found the prevalence of dental caries among 12 years old children 76.9%. [13]. The prevalence of dental fluorosis among 11-13 years children were found to be 35.3% these findings are almost similar to the findings of Rajesh Yadav et al who found the prevalence of dental fluorosis in the age group 6-11 years and 12-17 years was 50% and 42.50% respectively. [14]. Saravanan S et al studied the prevalence of dental fluorosis among 5-12 years old children and found it to be 31.4% [15]. A study conducted by Jindal R et al on the prevalence of dental flurosis in two villages of Dera Bassi, found the prevalence 8.5% in Dhanoni and 21.2% in Gholumajra [16]. The prevalence of malocclusion among 11-13 years school children were found to be 34.6%. The findings of this study are inconsistency with the findings of a study conducted by Goel et al who has found the prevalence of malocclusion 36.95% among 12-13 years old children [17]. Phaphe S et al found the prevalence of malocclusion 59.5% among 12-14 years old children [18]. Mohandas U et al found the prevalence of malocclusion among 8-12 years children 71% [19].

The present study result regarding knowledge of school children about dental problems reveals that majority of children (54.6%) had the average knowledge and no one had excellent knowledge. These study findings are consistent with findings of Abu-Saeed Kamaldeen et al who found in their study on knowledge and practices on oral health among children that most of the children had below average knowledge regarding various aspects of oral health problems [20]. Mathew Dolly found in her study on knowledge of 10-12-year-old children regarding prevention of dental caries that 2.5% had poor, 27.5% had an average, and 65% had good knowledge. These results are contradictory with the present study results [21]. B.O Ogundele reported that 68% of 10-16 years children had no adequate knowledge about treatment of dental problems [22]. EI-Qaderi SS et al also reported that school children had overall low knowledge regarding oral health problems [23]. A study conducted by Punitha VC on knowledge of oral health among rural children found that 50.61% children were aware of caries as one of the common problem associated with mouth and teeth but they were not aware of the major factors that cause dental problems and how it can be prevented [24].

In the present study researcher findings of an association between knowledge regarding the dental problem and selected demographic variables of school children reveals that father education, mother education, family income, and source of information had a significant impact (P<0.05) on knowledge score of school children regarding dental problems. Age, gender, religion, and type of family had no impact on knowledge of school children regarding dental problems. Mathew Dolly also found in her study that parental education and family income had a significant impact on knowledge score and age, gender, type of family, religion, and residence had no impact on knowledge score of children regarding prevention of dental caries [21].

The present study was conducted in only one school in the city and relatively on small sample, this may not be large enough to represent the population, hence further surveys on large scale should be implemented to get the details of oral health status of the school children

Conclusion

In light of the results obtained in the study, it could be concluded that implementation of oral health programme at an early age can help in improving dental behavior and attitudes, which is beneficial throughout the lifetime. This can be achieved by educating the parents, school teachers and school children about dental health through school dental programme.

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Contributions The author himself has prepared reviewed and revised the manuscript of this study.

Conflict of Interest None

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