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## **Dental caries among the children of labor workers: A Review Literature**

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### **Abstract**

**Background:** The prevalence, distribution, oral health status, and treatment needs of dental caries in children are all valuable tools for assessing oral health. In 366 children from five schools in Kathmandu's Jorpati Village Development Committee (VDC), The condition of dental caries and treatment needs were recorded using the World Health Organization (WHO) index (1997). Dental caries was found in 156 (42.6%) of the children, with 122 (78.21%) having caries in their permanent teeth, 26 (16.67%) having caries in their primary teeth, and 8 (5.13%) having caries in both dentitions. The highest prevalence of dental caries (23.8%) was found among 12-year-old pupils, while the lowest was seen among 15-year-old students. (23.8%) and the lowest among 15-year-olds (3.8%) [1]

Dental caries was found in 43.5 percent of female pupils (177), but only 41.8 percent of male students (179). 273 (81.25 percent) of the 336 teeth impacted by dental carries were permanent teeth, whereas 63 (18.75 percent) were primary teeth. The distribution of dental caries in the permanent and primary dentition was statistically significant (P 0.05). [2]

**Objective:** the objects were to Assess dental caries among children of labor workers and to Assess the effectiveness of tooth brushing demonstration in the reduction of dental caries and find out the association between tooth brushing demonstrations of dental caries with selected



socio demographic variables. **Material and Method:** Pub med, research gate, Google scholar database were used to search the literature, Studies were included only if the data on dental caries.

**Result:** twelve full text articles met the inclusion criteria are involved in the literature reviews.

**Key Words:** Dental caries, Demonstration, Tooth brushing technique, labor workers

**Introduction:** Due to its great incidence and severe societal impact, dental caries is considered a major public health problem around the world. Caries affects 60-90 percent of kids globally, according to the World Health Organization, with Asian children being the most affected. Childhood is a crucial time in one's life because it is at this time that most of one's behaviors, good habits, and positive attitudes are formed. Learning takes place in a variety of settings, including the home, school, and community. Children are naturally curious and receptive, and they can quickly learn, adapt, and practice new skills. School plays a vital role in the development of healthy behaviors and practices. School is not just a place where curricula are taught, but it is also a place where students can cultivate healthy habits and put them into practice. It's critical to catch them when they're young in order to create a lasting effect on their thoughts. Because they are in an accepting adulthood, the age groups of 8-12years are the most ideal, impressionable brains.<sup>[3]</sup>

Despite decreases in the prevalence of dental caries, it continues to be a significant public health issue. Individual risk assessment and targeting of high-risk patients and populations in need of caries prevention and treatment should be the goal of dental caries management.<sup>[4]</sup>

#### **Method: Literature Search**

A literature study was conducted in the following electronic bibliographic databanks: MEDLINE/PubMed and Google SCHOLAR, with all papers up to September 2020 being included. Dental caries was discovered using a word search. Restriction is based on the publishing year of 2002 JAN to September 2021.

**Inclusion Criteria and Exclusion Criteria:** Studies were included only if the data on dental caries is available. The students which having problems with dental and affected with the



other disorder in between January 2005 to November 2020 were considered, the studies which were revealing the prevalence and other data are being excluded

The conferences articles, abstract, case report was excluded.

**Results:**

**Study Selection Process:** Initial search- 52 (excluded based on criteria- 17, based on location of study)

Retrieved Articles- 35 (Duplicate Articles- 06 Review Article-12)

Final Retrieved-15(Full Article) (Excluded After Full Review- 03)

Selected Final Article- 12

**Reviews:** In 2014 a comparative study to assess the effectiveness of supervised tooth brushing and oral health education in improving oral hygiene status and practices of urban and rural school children conducted by Satyawan G. Damle, Anil Patil,<sup>1</sup> Saru Jain,<sup>2</sup> Dhanashree Damle,<sup>3</sup> et al. The main objective of the study was to evaluate and compare the oral health status and the impact of supervised tooth brushing and oral health education. A total of 200 school children in the age group 12-15 years were selected by stratified random sampling technique from two schools and were further divided into two groups. Cronbach's alpha, Chi-square test, paired t-test, and unpaired t-test were utilized for data analysis. Increase in the mean of Decayed, missing, filled teeth (DMFT) and decayed, missing, filled teeth and surfaces (DMFS) scores throughout the study period was seen in children who participated in study.<sup>[6]</sup>

2. In 2019 an educational interventional study to impact of tooth brushing rhyme on oral hygiene status of 6-7 year old children was conducted by Putta Sai Sahiti, Anomalepidid Venkata Saikiran. the main objective of the study was To determine the impact of a newly composed tooth brushing rhyme on oral hygiene status of 6 to 7-year-old children. A total of 60 children in the age range of 6 to 7 years were randomly assigned to either group 1 (experimental) or group 2 (control). Baseline oral hygiene status of all the children was assessed using the oral hygiene index simplified (OHI-S) and its modification for primary dentition. Oral prophylaxis was performed, and OHI was further recorded at intervals of seven, 14 and 28 days for all the children. The data was tabulated, compared, and analyzed



statistically. There was no significant difference in the baseline OHI-S scores between the two groups ( $P \geq 0.05$ ). However, there was a significant difference in OHI-S scores in all the considered time intervals after the intervention. Based on the two components of OHI-S, a statistically significant difference was noted only in debris scores (7 days:  $P = 0.04$ , 14 days:  $P \leq 0.001$ , 28 days:  $P \leq 0.001$ ).<sup>[7]</sup>

3. In 2008 a quasi-experimental study to assess the impact of a tooth brushing education programme on oral health of preschool children was conducted by Kang BH, Park SN, Sohng KY et al. Objectives of the study was to examine the effect of tooth-brushing education on the oral health of preschoolers. A total 78 sample where a quasi-experimental design with a non-equivalent control group was used. Two kindergartens were selected and 39 preschoolers from one kindergarten were assigned to the experimental group with tooth-brushing education and 39 from the other kindergarten to the control group. Fisher's exact test, t-test and paired t-test with the Window SAS 9.1 program were used to analyses the data. A significant increase in the use of toothpaste, tooth-brushing time and the practice of correct tooth-brushing and a decrease in plaque and development of dental caries were observed in the experimental group.<sup>[8]</sup>

4. In 2013 a study to assess influence of tooth brushing supervision on the dental plaque index and toothbrush wear in preschool children was conducted by Curso de Odontology, UEPG - Universidad Estadual de Ponta Grossa, Ponta Grossa, et al. The objective of the study was to evaluate the effectiveness of tooth brushing supervision in one or more sessions on dental plaque removal and toothbrush wear. 3- to 5-year-old children received new toothbrushes and attended a puppet theatre about oral health. Forty-nine children were randomly selected and divided into 3 groups (GI=20; GII=14; GIII=14). The Kruskal-Wallis test and the Friedman test (IPL), as well as the one-way ANOVA and the paired Student's t-test (ID) ( $p < 0.05$ ) were employed to analyse the data. The result was GI showed a significant difference from the other groups in T1 and T2 ( $p < 0.01$ ). The index of toothbrush wear increased ( $p < 0.0001$ ) from 24 days ( $0.52 \pm 0.35$ mm) to 46 days ( $0.90 \pm 0.48$ mm), but there was no significant association between toothbrush wear and plaque index for T1 ( $r = 0.230$ - $p = 0.116$ ) as well as for T2 ( $r = 0.226$ - $p = 0.121$ ).<sup>[9]</sup>

5. In 2016 a cross sectional study to assess the Prevalence of dental caries, patterns of oral hygiene behaviours, and daily habits in rural central India was conducted by Payal



Kahar<sup>1</sup>, Idethia Shevon Harvey<sup>2</sup>, Christine A Tisone et al. The objective of the study was to determine the prevalence and severity of caries across gender, age, and educational levels and to study the association between oral hygiene behaviours, daily habits, and caries. The scrutinizing samples > 18 years from Ramgarth Chinaware district in Madhya Pradesh India data was collected on oral hygiene behaviours, demographic and daily habits overall caries experience was quantified using decayed, missing, filled tooth index through intraoral examinations. The result of use toothbrushes ( $P < 0.001$ ) toothpastes ( $P < 0.001$ ), and fluoridated toothpastes ( $P = 0.01$ ) was significantly higher in younger participants aged 18–34 years than in older adults. Brushing twice daily ( $P = 0.05$ ), use of toothbrushes ( $P < 0.001$ ), toothpaste ( $P < 0.001$ ), and fluoridated toothpaste ( $P < 0.001$ ) was significantly higher among participants with  $\geq 8$  years education than participants with no formal education or  $\leq 8$  years of education. Use of tobacco was significantly more common among people with no education, people with  $\leq 8$  years of education ( $P = 0.02$ ), and males ( $P < 0.001$ ). Participants  $\geq 45$  years had 3.2 times higher odds of having decayed, missing, filled teeth scores  $\geq 1$  than the younger age groups.<sup>[10]</sup>

6. In 2012 comparative study to assess the effectiveness of a musical toothbrush for dental plaque was conducted by M Ganesh, s shah, D Parikh ET all. The main objective of the study was to clinically evaluate and compare the efficacy of "Brush Buddies" musical toothbrush and Colgate Smile tooth brush in the reduction of established plaque and gingivitis. Total 120 healthy kids (73 boys and 47 Girls) were selected. The subjects were randomly assigned into two groups by a second examiner; one group used Colgate Smile brush and the other group used "Brush Buddies" musical toothbrush. Plaque index (Quigley and Hein), On 30th day, 60th day, and 90th day. The result of the study was all the baseline indices appeared to be well balanced. At the end of the study, reduction in plaque index, modified gingival index and gingival bleeding index were statistically highly significant during each interval for both the toothbrushes. For "Brush Buddies" musical toothbrush, the reduction in all clinical parameters were statistically significant for 30 days and 60 days interval, while non-significant at 90 days interval.<sup>[11]</sup>

7. In 2017 A cross sectional study to assess on the prevalence of dental caries among the school-going children in Tamil Nadu was conducted by Gomathy Parasuraman, Y. Gowtham Krishna, M. Kaviya, Nischal A. Jain et al. The main objective of the study was to estimate



the prevalence of dental caries among the school going children aged between 5–10 years and to determine the risk factors associated with dental caries. Employed and 357 children were identified for the study through simple random sampling technique. The overall prevalence of dental caries was found to be 63.9%. Higher prevalence of dental caries was found among the girls (54%), among the lower socioeconomic class (41.7%), among those who consumed mixed diet (74.8%), among those who consumed junk foods (62.6%) at least once every day and among those who consumed dairy products (58.9%) at least once every day. Dental caries was found to be low in prevalence among those who consumed fruits several times a week (6.1%), among those who brushed their teeth twice/more than twice a day (20.2%) and among those who washed their mouth after each meal (38.7%).<sup>[12]</sup>

8. In 2014, a study to assess the Effectiveness of different tooth brushing techniques on the removal of dental plaque in 6–8 year old children of Gulbarga was conducted by Smita P. Patil, Prashant B. Patil,<sup>1</sup> and Meena V. Kashetty et al. The main objective of the study was to evaluate the respective effectiveness of the horizontal scrub, Fones, and modified Bass methods demonstrated on the cast to individual child. A total of 180 healthy children studying in 1st and 2nd grades in the age range of 6-8 years were randomly selected from various schools of Gulbarga district, Karnataka, India. They were equally divided into three groups. Children in each group were demonstrated only one of the three brushing techniques, viz. horizontal scrub technique to group A, Fone's technique to group B, and modified Bass technique to group C, using a cast model. All the children were re-examined and reviewed after 24 h and plaque index was re-assessed to obtain the follow-up data. The results were compared with the baseline data, and statistical analysis was carried out using paired t-test and intergroup comparison was made using analysis of variance (ANOVA) test. Result of the study was statistically significant ( $P < 0.001$ ) reduction in plaque score was seen in modified Bass technique followed by horizontal scrub technique and the least efficacy was seen in Fones technique.<sup>[13]</sup>

9. In 2002 a study to assess the Effectiveness of teaching methods for tooth brushing in preschool children was conducted by **Soraya Coelho Leal**; **Ana Cristina Barreto Bezerra** et al. Three different methods of instruction and motivation were used to assess the learning process and ability of preschool children in performing tooth brushing. Forty children from a private nursery of Brasília, DF, Brazil, were divided into 2 groups according to age (3-4



years old and 5-6 years old). The following methods of instruction and reinforcement were applied- audio-visual - child as a model; III - individual instruction. The results showed that the children of both groups reduced plaque index and that the individual instruction method was superior ( $p < 0.05$ ) to the others at all ages. Children older than 5 years of age were able to learn and accomplish tooth brushing better than younger children. <sup>[14]</sup>

10. In 2018 a study to Evaluation of brushing techniques and toothbrush grips among rural and urban children was conducted by Vijay Lakshmi, Nikhil Marwah, Dr. Yogita Chaturvedi et al. The main objective of the study of this study is to determine brushing techniques, grip and frequency of tooth brushing in children of rural and urban areas. The study consisted of 200 children. The children were observed while brushing to determine the brushing technique and grip used by them during brushing. Results of the study was Distal oblique is the most preferred grip by the children and horizontal scrub method is commonly used brushing technique by the children. <sup>[15]</sup>

11. In 2017 the Assessment of Efficacy of Different Teaching Methods of Tooth Brushing on Oral Hygiene Status in Adults was conducted by Mohammed Asif, Shobha KS, Anirban Chatterjee et al. assess the effect of different teaching methods of tooth brushing on oral hygiene status in adults. Eighty subjects were divided into four groups, each with 20 and assigned to different training methods. Twenty subjects were in control group and the rest in the experimental group. Each experimental groups subdivided into two groups, namely reinforces and non-reinforces, with 10 subjects in each group. The plaque scores of these subjects were measured before and 1 week after the training sessions. The data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) 20.0 and two-way analysis of variance (ANOVA). There was significant reduction in the plaque scores due to different training methods ( $f = 12.218$ ,  $p < 0.05$ ) Maximum reduction was seen in the instruction on cast method. There was significant difference in the plaque scores in the reinforcers and no reinforcers ( $f = 4.897$ ,  $p < 0.05$ ) A small survey conducted among participants revealed that individual as a model was an easy method to learn brushing. <sup>[15]</sup>

12. In 2020 , a randomized controlled trial study to teaching preschool children corrected tooth brushing playful learning interventional was conducted by **Deniz done Akkaya, Emel sezici** et al. The aim of the study was to investigate the effect of playful learning interventions (with toys, visual and auditory sources) on appropriate tooth brushing



behaviours and the amount of accumulated plaque in preschool children. The study was carried out as a parallel-group, randomized and controlled study during the period October–December 2018, with 100 preschool children. The preschool students were randomly assigned to an intervention and a control group. The playful learning interventions that were carried out consisted of three rounds of meetings designed to educate the children about adopting appropriate tooth brushing behaviours. The study groups were well matched at baseline ( $p = .537$ ) and the intervention group showed statistically significant improvements in tooth brushing ( $p = .001$ ) and plaque control ( $p = .001$ ) following the intervention in comparison to the controls. Additionally, while the amount of plaque decreased in the children in the intervention group ( $p = .001$ ), plaque increased in the control group after the intervention ( $p = .001$ )<sup>[16]</sup>

**DISCUSSION:** According to the review, the current research demonstrates that the current research has produced data on the prevalence and associated factors of dental caries. A total of 49 youngsters were chosen at random and divided into three groups (GI=20; GII=14; GIII=14). Only the debris scores (7 days:  $P=0.04$ , 14 days:  $P0.001$ , 28 days:  $P0.001$ ) showed a statistically significant difference based on the two OHI-S components. According to the article, children are more likely to have dental problems.

**Conclusion:** When compared to WHO objectives, industrialized countries, some developing countries, and national mean rates, the prevalence of dental caries in mixed state among primary kids found in this study was high. Caries presence was linked to the children's age in both primary and permanent teeth, while in permanent teeth, the father's sex, domicile, and work were linked to the occurrence of caries among the children. Caries of primary teeth was more common in younger children, whereas caries of permanent teeth was more common in older children, female children, children living in rural regions, and children whose fathers were not employed. Local health policymakers must therefore provide and implement preventive, therapeutic, and educational programmes for managing dental caries at the individual, family, and school levels.

**Implication To Nursing Practice:** Preventive, promotive, curative, and rehabilitative nursing services are all available. Many new initiatives will be done in the prevention of dental caries infections, which will aid in improving the health of individuals and children,



as well as identifying cases and assisting in the cure and prevention of further infection among youngsters.

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