JUPD
Journal of Updates in Pediatric Dentistry

Assessment of knowledge and practice of preschool teachers towards digit sucking habit in children of Namakkal district: A questionnaire survey

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Funding: None

Acknowledgments: NIL

Data Availability Statement: The data supporting this study's findings are available from the corresponding authors upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

How to cite this Article: Garima B, Gawthaman M, Mathian VM, Vinodh S, Manoharan M, Kamatchi M.Assessment of knowledge and practice of preschool teachers towards digit sucking habit in children of Namakkal district: A questionnaire survey. J Updates Pediatric Dent. 2022: 2(1).60-70 http://doi.org/10.54276/JUPD.2021.1209

Aim: To assess the knowledge and practice of preschool teachers of Namakkal district towards digit-sucking habits in children

Material and Methods: The questionnaires distributed to 300 study participants included questions of knowledge of habit, their approach toward thumb-sucking habits in school children, and their willingness to refer children to dentists. A simple random sampling method was employed. A single examiner conducted the survey and evaluated the data, this was done to avoid inter-examiner bias. Descriptive statistics were obtained and presented in tables and graphs. Statistical analysis was performed to gain further insight into the practices of preschool teachers regarding digit-sucking habits in children, using SPSS software (Version 25).

Results: Out of 300 who participated in the study 80.3% were aware of thumb sucking habit. Out of the total respondent teachers, 69.7% observed the habit in children and 64.3% noted abnormal features in the oral cavity. Fifty-three-point-three percent of preschool teachers were aware of the dentist's role in managing the thumb-sucking habit and its associated malocclusion.

Conclusions: This study inferred that preschool teachers have brief knowledge and practice regarding digit-sucking habits, and further programs should be provided to enhance their knowledge

Keywords: Digit sucking, Oral habits, Preschool teachers, questionnaire

Introduction

An important part of general health and wellness is oral health. Educating school children on oral health is most important because healthy oral habits are developed early in life. The importance of imparting knowledge on oral hygiene and habits to children (infants, preschool, and schoolchildren) has been recognized as early as 1878.[1] The most significant period, (i.e., the age when habits are formed) of a child's life is spent in school. This is where the knowledge and skills required by the child to succeed in their life and future are acquired. Shaping a child's personality, habits, and health care during primary education is the key responsibility of school teachers and parents. Students tend to listen and follow what the teacher says and does.

Teachers are considered to be among the first role models in a child's life. Hence, school teachers by their knowledge and training can influence a large number of children. By this means, teachers play a major role in the planning and implementation of oral health preventive and informational programs. The lack of training in aspects of oral health, habits, and mal-habits becomes the main disadvantage for the use of teachers in health education.[2] To install proper and healthy preventive oral habits, the teacher must have a sound knowledge of oral health and habits, they should also know about the various mal-habits and their effect on the child's oral health.[1] Some oral habits are part of the behavior of small children. They may become harmful or damaging when occurring extensively or inappropriately.[3] Thumb sucking, digit sucking, pacifiers, bottle feeding, mouth breathing, and tongue thrusting are some of the oral habits which can lead to deleterious effects hence called parafunctional or non-physiologic habits.[4]

Oral health promotion should be integrated into the existing preventive programs which have been implemented by medical professionals.[5] Digit sucking or thumb sucking is considered to be normal for infants, but there is a conflicting opinion as to what age digit sucking becomes a symptom of an emotional disturbance that leads to deleterious effects on the growth and development of teeth and facial bones.[6] As children spend most of their awakening day at school, teachers can be considered as the day mother of the child. They have an objective set of eyes on the child and hence would be better equipped to notice any malpractice of habits done by the child. Also, many studies are being carried out to test the knowledge and practice of school teachers regarding oral hygiene, dental health education, and dental caries. But there are minimal studies in literature testing the knowledge and practice of school teachers towards oral habits such as digit sucking, and the methods they employ to prevent it. Hence the prime purpose of this study is to find the knowledge and practice of school teachers towards thumb sucking habits in children. A similar article was published by Birra et al [7] where they found that the teachers lack the knowledge required to notice the habit, hence we wanted to find if the same was true for this set of the population group. The primary objective is to assess the knowledge and practice of preschool teachers of the Namakkal district regarding digit-sucking habits in children using a questionnaire. The secondary objective is to make the teachers aware of the habit and its prevention and management methods. The null hypothesis for the study was kept as those teachers would have limited knowledge regarding the habit and would not attempt to stop the habit in children. And the alternative hypothesis is that the teachers would be well-versed in the knowledge and would perform proper procedures to aid in the cessation of the habit.

Material and Methods:

Study design:

A cross-sectional study design was done on school teachers.

Inclusion criteria:

School teachers with a minimum of 5 years of experience. The educational qualification was not asked of the teachers, Private schools were only included in the study.

Sample size:

The sample size was calculated by OpenEpi software, the formula used is n=pqxz/d2 (where p is kept as 13%) a confidence level of 95% was kept and the minimum sample size calculated of 282 was achieved which was rounded off to 300. The sample size is calculated from the article by Birra et al [7], A pre-validated questionnaire was taken to determine the knowledge and practice of preschool teachers about thumb-sucking habits in children. According to Cronbach's alpha overall questionnaire validity was 83% and each question validity was 77%–90%, which is acceptable for the study.

Ethical approval:

The institutional ethical board approved the study on August 25, 2021 (VDCW/IEC/244/2021. All procedures performed in the study were conducted according to the ethical standards given in the 1964 Declaration of Helsinki, as revised in 2013. The reliability of the questions was checked for the current population and was found to be approximately 0.5%. This study was carried out in Namakkal district, Tamil Nadu, from September 2021 to December 2021

Recruitment:

Schools were selected randomly by using a simple random sampling method. The survey was performed using a pre-validated questionnaire. The questionnaire that was distributed had questions regarding their knowledge of habit, their approach towards the habit in schoolchildren, the etiology of habit, and their willingness to refer the affected children to dentists. It consists of two sections, namely the knowledge section and the practice section. The knowledge section had about six main questions; some of the questions had follow-up questions if the main (primary) question was a yes. The practice section consists of six questions, most of which have follow-up questions (Annexure 1).

Consent was obtained from the teachers and the school authorities. The questionnaire was circulated to the preschool teachers who were present in the schools. The questionnaire was in English, and when any teacher failed to comprehend the meaning of any questions due to linguistic barriers, sufficient explanation was provided by the author so that participants were able to respond suitably. The filled-out questionnaires were collected after the teacher had filled them out. Incompletely filled-out questionnaires were discarded.

Statistical Analysis:

The data obtained were entered in Microsoft Excel Software, which was then exported to Statistical Package for Social Sciences (SPSS) Version 25, IBM Statistics, USA. Descriptive Statistics were obtained and presented in tables and graphs. Statistical analysis was done using the Analysis of Variance (ANOVA) test to gain insights into the knowledge and practice of preschool teachers toward digit-sucking habits in children.

Results:

The total number of teachers surveyed was 320. But 20 of the survey sheets were discarded due to incompletely filled-out questions. So, a total of 300 teachers' surveys were finalized. Among the 300 participants, 144 (48%) of the participants were female, and 156 (48%) were male staff. The teachers ranged in age from 26 to 46 years, and most were aged between 29 and 32 years. The results were tabulated in the form of tables and graphs; each question had a separate pie chart or bar graph, depending on the data set.

Of the 300 study participants, 229 (76.3%) were aware of oral habits, and the remaining 71 (23.7%) respondents were unaware of oral habits (Figure 1). 80.3% of the teachers were aware of the thumb/digit sucking habit, while 19.7% weren't (Figure 2). Many teachers were aware of the habit, and about 48% of teachers knew the ill effects of thumb sucking, while about 19.7% were unsure and 25.3% did not know (Figure 3). Among those who knew about the ill effects of thumb or digit sucking, 31.4% indicated that mal-positioning of teeth was what they knew about, 18.9% expressed unsightly appearance as the ill effect, 14.7% responded that it had a psychological effect on the child, and 20.9% of the participants pointed out that all the effects were seen (Figure 4). When asked about the cause of the thumb/digit sucking habit, 54 (16%) said that it was due to psychological effects, 69 (20.4%) thought that it was due to inadequate parental care, and 99 (29.3%) expressed that it was habitual for the child (Figure 5). Concerning the treatment methods, the majority (32.5%) said that application of a bitter substance limits or stops the thumb or digit-sucking habit; 152 (29.4%) said that application of a bandage limits the thumb or digit-sucking habit; 58 (11.2%) said that counseling of the child will help in stopping the habit; and 24 (4.6%) said that counseling of the parents will help reduce the habit (Figure 6).

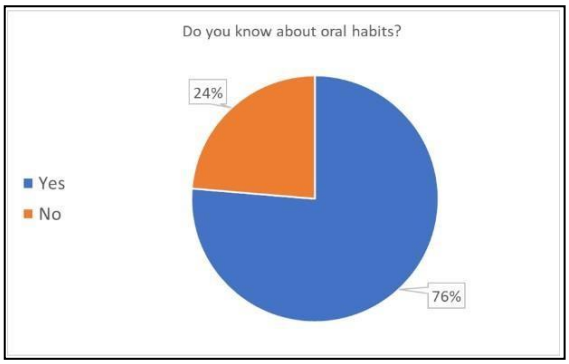


Fig 1: Do you know about oral habits?

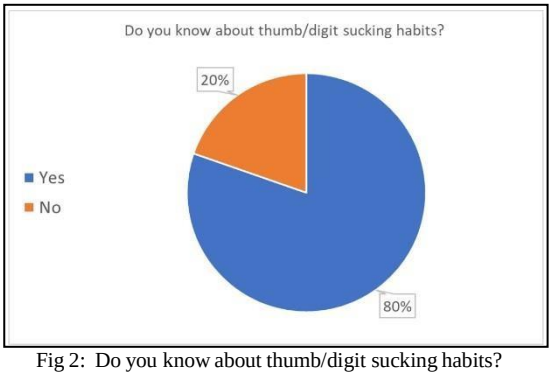


Fig 2: Do you know about thumb/digit sucking habits?

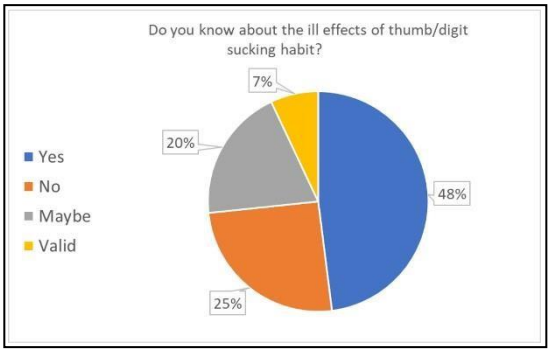


Fig 3: Do you know about the ill effects of thumb/digit sucking habit?

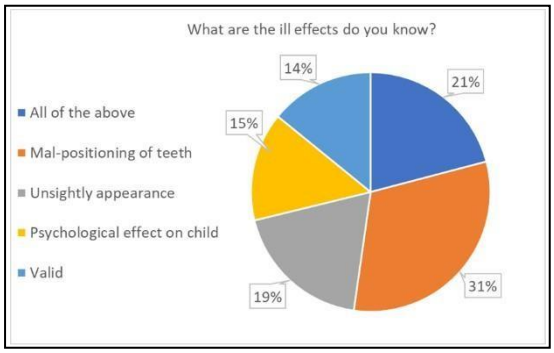


Fig 4: What are the ill effects do you know?

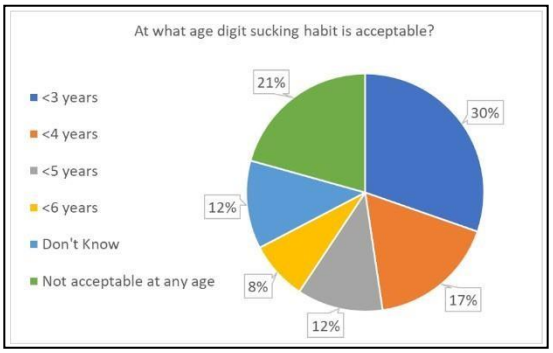


Fig 8: At what age digit sucking habit is acceptable?

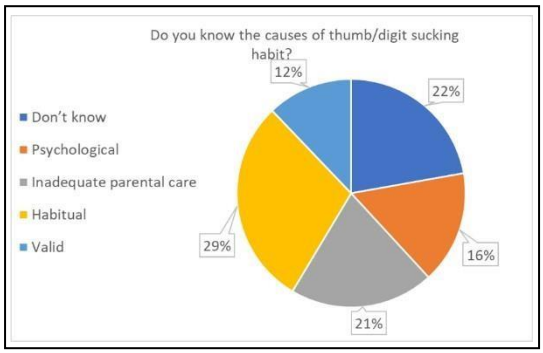


Fig 5: Do you know the causes of thumb/digit sucking habit?

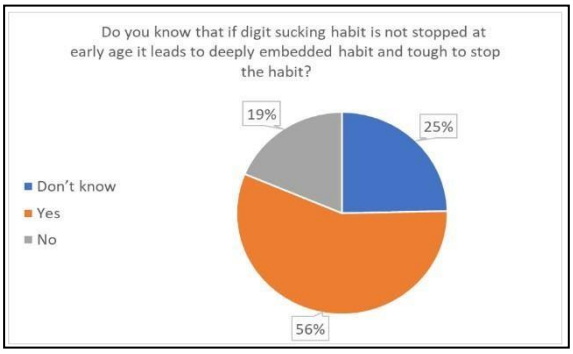


Fig 9: Do you know that if digit sucking habit is not stopped at early age it leads to deeply embedded habit and tough to stop the habit?

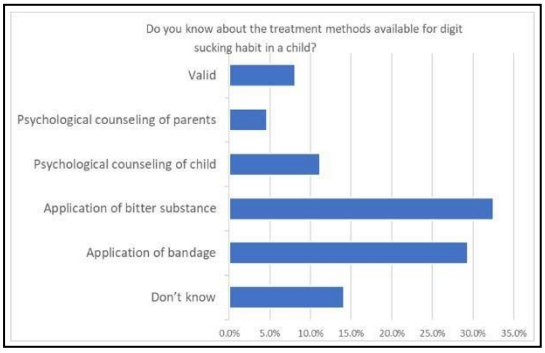


Fig 6: Do you know about the treatment methods available for digit sucking habit in a

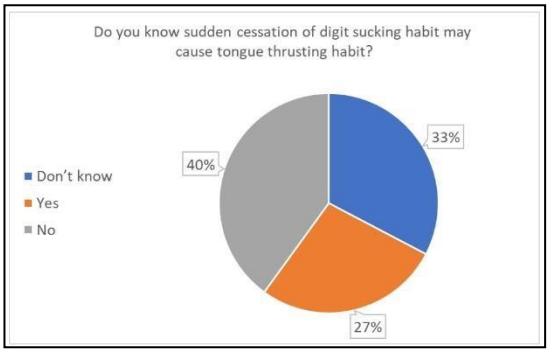


Fig 10: Do you know sudden cessation of digit sucking habit may cause tongue thrusting habit?

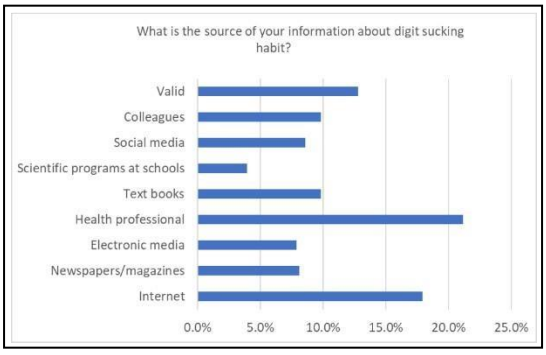


Fig 7: What is the source of your information about digit sucking habit?

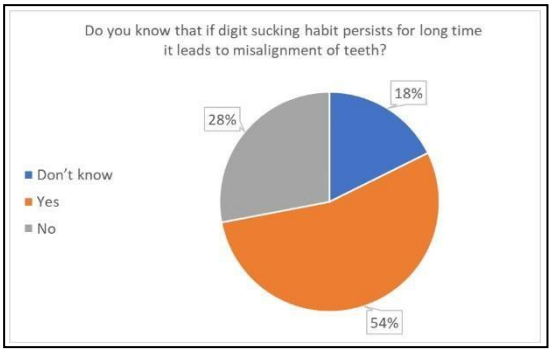


Fig 11: Do you know that if digit sucking habit persists for long time it leads to misalignment of teeth?

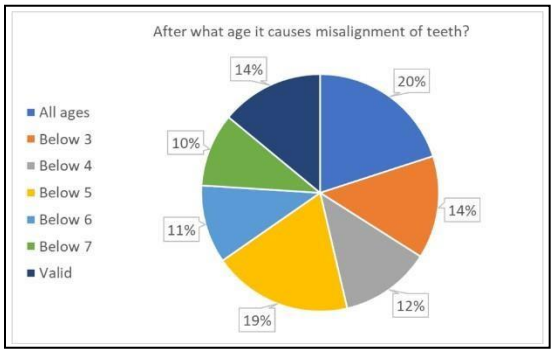


Fig 12: After what age it causes misalignment of teeth?

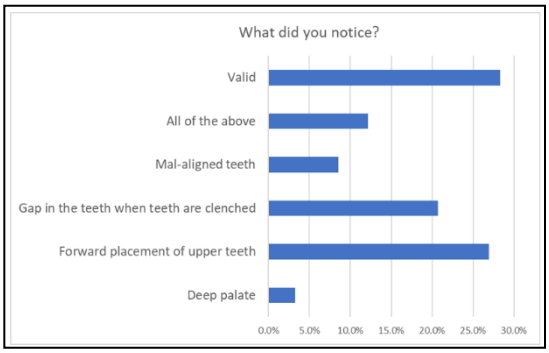


Fig 16: What did you notice?

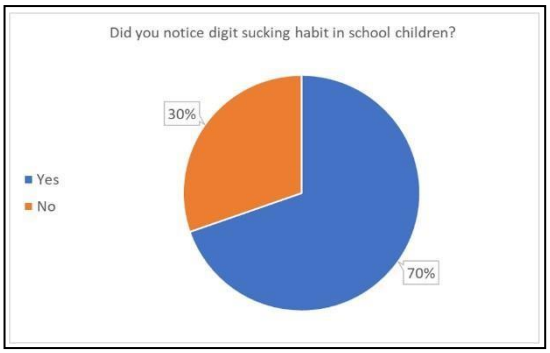


Fig 13: Did you notice digit sucking habit in school children?

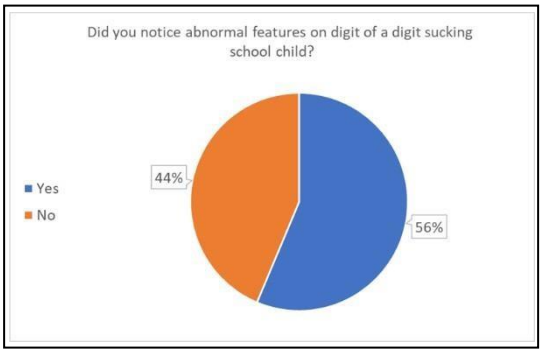


Fig 17: Did you notice abnormal features on digit of a digit sucking school child?

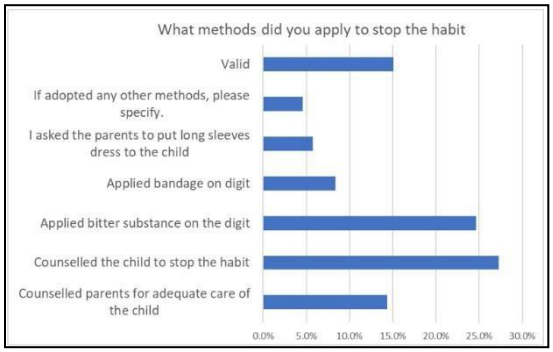


Fig 14: What methods did you apply to stop the habit?

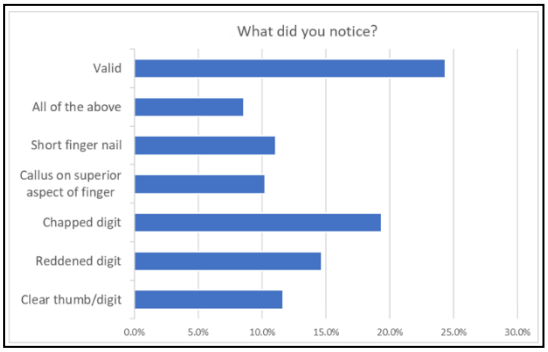


Fig 18: What did you notice?

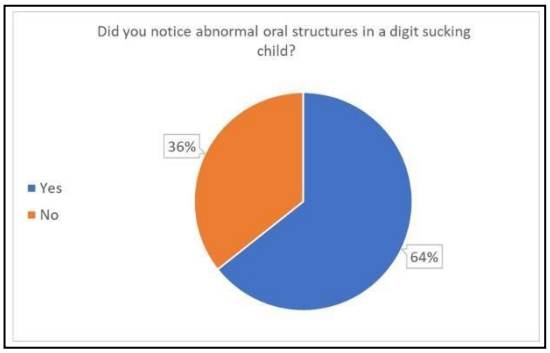


Fig 15: Did you notice abnormal oral structures in a digit sucking child?

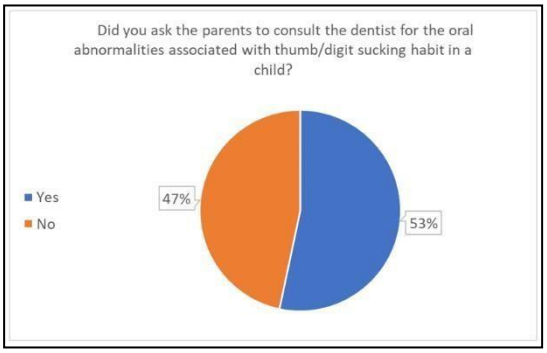


Fig 19: Did you ask the parents to consult the dentist for the oral abnormalities associated with thumb/digit sucking habit in a child?

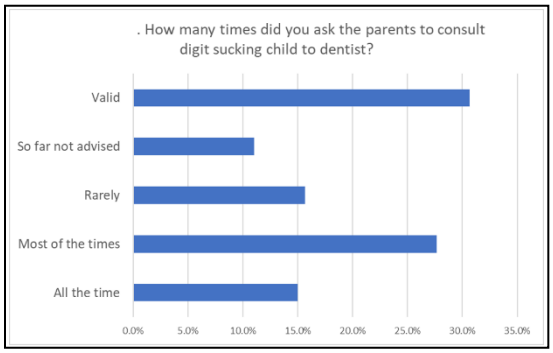


Fig 20: How many times did you ask the parents to consult digit sucking child to dentist?

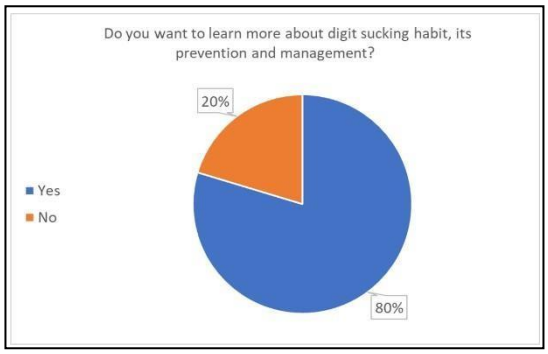
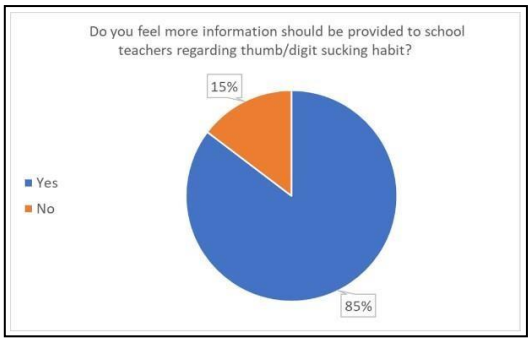


Fig 21: Do you want to learn more about digit sucking habit, its prevention and management?



Regarding the source of information, 21.1% of the study population got the information from health professionals, 73 (17.9%) said that the internet is the source of information, 40 participants (9.8%) received this information from both textbooks and colleagues, 35 (8.6%) received the information from social media, 33 (8.1%) study participants got this information from newspapers and magazines, and 32 (7.9%) responders said they got this information from electronic media (Figure 7). Regarding the acceptability of the habit at various ages (Figure 8), 30.3% said below 3 years, 20.7% expressed that it was not acceptable at any age, and 17.3% said that it was below 4 years. The majority (56.7%) of the study population was in agreement that if the thumb-sucking habit was not stopped, it would lead to a deeply embedded habit that would be difficult to stop (Figure 9). Maximum (54.3%) participants expressed that persistent thumb-sucking leads to malalignment of teeth (Figure 10). There were mixed opinions regarding at what age the malalignment occurs (Figures 11, 12).

Out of the 300 participants, 209 (69.7%) noticed thumb-sucking habits in children, whereas 91 (30.3%) hadn't noticed the habit (Figure 13). When further questioned regarding the methods applied to stop the habit, 27.3% of respondents said that they counselled the child to stop the habit, 24.6% said that they applied bitter substances on the digit, 14.4% counselled the parent regarding adequate care of the child, 8.4% applied bandages on the digit, and 5.7% asked the parents to put long sleeves on the child (Figure 14). The teachers were asked about cessation techniques, which included the application of bitter nail polish, removing the hand from the mouth, advising to scare or scold the child, and various other answers. The majority of the participants answered in the positive when asked regarding their noticing the abnormal oral structures (64.3%) (Figure 15) and in the digit (56.3%) (Figure 17) of the child.

The most common features noted were the forward placement of teeth (27%) (Figure 16), the gap between teeth (20.7%), and chapped digits (19.4%) (Figure 18). When asked if they asked the parent to consult a dentist, there was a divided response; only 53.3% of members answered yes," while 46.7% said "no" (Figure 19). When asked how often they asked parents to consult the dentist for the habit (Figure 20), A great number of 239 (79.7%) of the study participants wanted to learn more about the habit, its prevention, and management, despite the fact that 61 (20.3%) were not interested in further information (Figure 21). And a majority of participants, 256 (85.3%), felt that more information should be provided to school teachers regarding the habit, while 44 (14.7%) were happy with the amount of information they had (Figure 22).

Discussion:

After the parents, preschool teachers are the child's second-primary educational authority. As a result, assessing preschool teachers' knowledge and practice is critical since they have a huge influence on schoolchildren's dental health. Since the early 1980s, the importance of newborn and preschool health and hygiene instruction has been stressed. The most important years of a child's life are spent at school;

here is where they learn and develop life skills, beliefs, and routines. That is why school health education initiatives are supported and advocated for. The most effective way to help youngsters develop healthy habits is through the school health program. [2] Some habits are inherent in the conduct of young toddlers. They can, however, be hazardous if used excessively or incorrectly. In both the scientific and social realms, there is growing acknowledgment of the great influence that a school teacher has not just in encouraging good health practices but also in supporting overall development. Schools have implemented health programs over the years based on the health of their students. However, relatively few of them are concerned with oral health promotion. It is now proven that school teachers have an internationally acknowledged potential role in school-based dental instruction, and their dental knowledge has thus been given significant weight. [8] According to the literature on teachers' knowledge and attitudes, more research is needed to corroborate earlier findings and evaluate whether regional disparities exist in the acquisition of oral health ideas by these professionals. [2]

Thumb sucking, according to Byrd et al., [9] causes various dangers to physical health, the most common of which is malocclusion of the growing teeth. There have also been reports of atypical root resorption, mucosal damage, and aberrant face growth. Several studies have found that after children cease sucking, they usually stop playing. Thumb sucking can potentially result in digital hyperextension, which may necessitate surgical correction. Thumb sucking can also cause paronychia, which is a type of infection. According to Kravitz et al. [10] most infants will begin to suck their fingers and thumbs voluntarily in their early months of life, and many have been observed to do so in utero. Alopecia, which develops in thumb-sucking children who concurrently pull on, twist, and pull off their hair, is another physical risk related to thumb-sucking. [11]

The thumb-and-digit-sucking behavior has a number of detrimental consequences. The development of malocclusion, increased overjet, crossbite, and the anterior open bite is the most common worry associated with prolonged thumb-sucking practices. If thumb sucking continues after the age of four, these issues may not resolve on their own. As a result, thumb sucking is widely accepted as a typical behavior during the first two years of life [12] and has been proposed to perform adaptive purposes for newborns and toddlers by providing stimulation or self-soothing.[13] Thumb sucking, on the other hand, may become the subject of clinical attention when the duration or severity of the habit surpasses typical functions. The majority of young children who suck their thumbs spontaneously stop doing so by the age of four, [11] when they gain a more developmentally complex repertoire of self-management skills. When the shift to more advanced topographic abilities fails and thumb sucking persists through early childhood and/or becomes problematic for either parent or child, as indicated by self-report, the behavior may become the focus of clinical care. [9]

In their study, Birra et al. [7] examined the knowledge and attitudes of primary school teachers. He discovered that 69.94% of their study populations were unaware of oral habits, in contrast to our study, where more teachers were aware of the practice. Although most teachers agreed that finger or thumb sucking is allowed below the age of three, 53.2% of participants were unaware of the age at which it was acceptable. The study found that the majority of school teachers did not accept the thumb-sucking habit; these findings are consistent with the findings of Alfayeezet al.[14] who observed that thumb sucking was an unacceptable habit in approximately 70% of participants, and in our study, approximately 12% of teachers agreed that digit sucking was not acceptable at any age. According to Birra et al. [7] 53% of school teachers recognize the negative effect of thumbsucking on oral structures. This investigation supports the findings of Al Hussyeen, [15] Al Jobair and Al Emran.[16] and Vadiakas et al[17]. In the current study, 209 teachers (69.7%) observed children sucking their thumbs.

Reddy et al. [2] performed a study on the oral health knowledge and attitudes of school teachers concerning dental caries and its prevention. All of the professors were aware of the need of maintaining a healthy mouth. If there was an issue, over 58% of instructors went to the dentist. [2] In this study, when teachers were asked if they would ask their parents to consult a dentist for oral anomalies, nearly half of the parents said they would. Maganur et al. [1] conducted a study to analyze the oral health, knowledge, and attitudes of school teachers concerning oral practice in Davangere schools, whereas we tested preschool teachers' knowledge and behaviors regarding thumb-sucking habits in our study. All of the professors were aware of the need of maintaining a healthy mouth. In contrast to our study, while there is an even rate of distribution in the teachers' practice of asking parents to consult a dentist, the majority of the instructors attended the dentist if there was a problem. When compared to other similar studies, teachers in this study showed a greater understanding of the impacts of irregular brushing. [1, 19, 20]

Birra et al.[7] discovered that primary school instructors lacked understanding about children's thumb-sucking behaviors, and their attitude was also found to be inadequate; this was not the case in our study. However, in their survey, approximately 206 (44%) agreed that long-term thumb or digit-sucking practices caused tooth misalignment; this is similar to the findings of our investigation. Furthermore, 66.23% of members were unaware of children's digit-sucking practices. [7] Prasanna et al. [21] examined parents' knowledge and awareness of habits and habit-breaking appliances. According to the study's findings, 92% of parents were aware of the thumb-sucking practice; however, only 80.3% of teachers were aware of the habit in our survey. In our survey, 73% of parents were aware that oral bad habits can contribute to malocclusion, however just 48% of teachers were aware. The difference between this study and the current investigation is that Vishnu et al. asked parents about all oral habits and habit-breaking appliances used to correct or stop the practice, whereas we asked preschool teachers about the habit. [21]

Deolia et al.[22] did a study in Wardha district, Maharashtra, to assess mothers' attitudes toward their children's digit-sucking behavior. Only 56.2% of moms identified the habit between the ages of 4 and 7 years. 64.5% of moms attempted to intervene in their child's habit in some way (intervening, stopping, or giving guidance), which is a positive indicator.[22] Similarly, in our research, we approached teachers to inquire about their understanding of thumb-sucking practices. Many researchers believe that finger-sucking and nail-biting are the most common during childhood. Young toddlers are more likely to suck their thumbs, whilst older children are more likely to bite their nails. Finger sucking has been found to have a prevalence of 5% to 17% in different populations between the ages of 4 and 7 years, and to be absent in children 11 years and older.[23] Chitra et al.[24] sought to evaluate the prevalence of non-nutritive sucking practices in preschool children in selected Ernakulam schools by a questionnaire survey. In contrast to our work, they used the convenience sampling method, whereas we used plain random sampling. Hakami et al. [25] did a web search to investigate the utility of YouTube films in determining thumb-sucking tendencies. They rigorously evaluated all relevant videos on thumb-sucking habits, paying special attention to their usefulness, number of likes and dislikes, number of views, duration, and mention of a treatment modality. They ended by suggesting that the material on YouTube about thumb-sucking practices was inadequate and that oral healthcare experts and organizations should improve it. [19, 25] As in our survey, when asked where they got their information, the majority of instructors claimed it came from health experts. The current study found that while many teachers were aware of the behaviors and the negative consequences connected with them, their knowledge of the cause, treatment process, and features to look for to identify the habit was lacking.

Limitations

The study's drawback could be that thumb or digit sucking is a habit that is mostly conducted during sleep or leisure time while watching TV, as noted by Byrd et al.[9]. The teachers are not present with the children at that time. A small level of recall bias is unavoidable in a questionnaire survey, but it can be mitigated by doing a prospective study. Acquiescence bias and interviewer bias are also possibilities. Another disadvantage of our study is that we did not collect the teachers' educational qualifications; such criteria would have a significant impact on the amount of information the teachers had. There was no blinding because only one examiner collected the data and conducted the survey.

Implications for the Future

This study has assisted us in evaluating the instructors' knowledge and practice of identifying and halting the habit in children, which will be useful in developing dental health education programs that are well suited to their knowledge level. If the teachers passed on the knowledge, this would help raise parental understanding of what to watch for.

Conclusion

The study found that Namakkal preschool instructors understood digit-sucking tendencies and used a number of methods to identify and break the problem. Thus, the fundamental and secondary objectives were partially satisfied, and the teacher's knowledge can be improved by teaching the habit and its prevention. 79.7% of instructors wanted to learn more about thumb-sucking, and 85.3% thought school teachers should be informed. The findings may improve knowledge and help design therapies or educational programs to reduce children's digit-sucking.

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Annexure 1: Questionnaire form

KNOWLEDGE QUESTIONS:

1. Do you know about oral habits?
a. Yes
b. No

2. Do you know about thumb/digit sucking habit?
a. Yes
b. No

If yes

2A. Do you know about the ill effects of thumb/digit sucking habit?
a. Yes
b. No

If yes

2B. What are the ill effects do you know?
a. Unsightly appearance
b. Mal positioning of teeth
c. Psychological effect on child
d. All of the above

If yes

2C. Do you know the causes of thumb/digit sucking habit?
a. Psychological
b. Inadequate parental care
c. Habitual
d. Don't Know

If yes

2D. Do you know about the treatment methods available for digit sucking habit in a child?
a. Don't know
b. Application of bandage
c. Application of bitter substance
d. Psychological counseling of child
e. Psychological counseling of parents

If yes

2E. what is the source of your information about digit sucking habit?
a. Internet
b. Newspapers/magazines
c. Electronic media
d. Health professional
e. Text books
f. Scientific programs at schools
g. Social media
h. Colleagues

3. At what age digit sucking habit is acceptable?
a. <3 years
b. <4 years
c. <5 years
d. <6 years
e. Not acceptable at any age
f. Don't know

4. Do you know that if digit sucking habit is not stopped at early age it leads to deeply embedded habit and tough to stop the habit?
a. Yes
b. No
c. Don't know

5. Do you know sudden cessation of digit sucking habit may cause tongue thrusting habit?
a. Yes
b. No
c. Don't know

6. Do you know that if digit sucking habit persists for long time it leads to misalignment of teeth?
a. Yes
b. No
c. Don't know

If yes

A After what age it causes misalignment of teeth?
a. <3 years
b. <4 years
c. <5 years
d. <6 years
e. <7 years
f. All ages

PRACTICE QUESTIONS:

7. Did you notice digit sucking habit in school children?
a. Yes
b. No

If yes

A methods did you apply to stop the habit?
a. Counselled parents for adequate care of the child
b. Counselled the child to stop the habit
c. Applied bitter substance on the digit
d. Applied bandage on digit
e. I asked the parents to put long sleeves dress to the child
f. If adopted any other methods, please specify.

8. Did you notice abnormal oral structures in a digit sucking child?
a. Yes
b. No

If yes

A. What did you notice?
a. Deep palate
b. Forward placement of upper teeth
c. Gap in the teeth when teeth are clenched
d. Mal aligned teeth
e. All of the above

9. Did you notice abnormal features on digit of a digit sucking school child?
a. Yes
b. No

If yes

A. What did you notice?
a. Clear thumb/digit
b. Reddened digit
c. Chapped digit
d. Callus on superior aspect of finger
e. Short finger nail
f. All of the above

10. Did you ask the parents to consult the dentist for the oral abnormalities associated with thumb/digit sucking habit in a child?

a. Yes
b. No

If yes

A. How many times did you ask the parents to consult digit sucking child to dentist?

a. All the time
b. Most of the times
c. Rarely
d. So far not advised

11. Do you want to learn more about digit sucking habit, its prevention and management?

a. Yes
b. No

12. Do you feel more information should be provided to school teachers regarding thumb/digit sucking habit?

a. Yes
b. No