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Research Article

Dental Health status and knowledge and behaviors of caretaker about dental health care practices among children 3-5 years in xaythany district, Vientiane Capital, Lao PDR

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Abstract

Background: The oral health of children aged 3–5 years is predominantly characterized by dental caries (tooth decay). This issue stems from inadequate oral care, as children in this age group are not yet capable of maintaining self-care and require consistent support and supervision from caregivers. Caregivers play a pivotal role in providing primary care and fostering proper oral hygiene habits in children.
Objective: To study the prevalence of dental caries among preschool children aged 3–5 years, and to assess the knowledge and behaviors of caregivers regarding oral health care in Xaythany District, Vientiane Capital.
Methodology: This study employed a cross-sectional design. Quantitative data were collected through structured interviews and clinical oral examinations. The total sample size consisted of 248 participants, divided into two groups: caregivers and preschool children aged 3–5 years. Caregivers were interviewed, while the children underwent clinical examinations for oral and dental health.
Result: The study revealed that the prevalence rate of dental caries among preschool children aged 3–5 years was 71.4%. The decayed, missing, and filled teeth (dmft) index was 4.99 (approximately 5 teeth per child). The highest prevalence of dental caries was observed in the 4-year-old age group. The age range of caregivers was between 22 and 54 years (Mean ±SD) (34.54 ±5.52).
Knowledge: The majority of caregivers (79%) demonstrated a high level of knowledge, with an average score of 6.15 out of a total of 7 points. Overall caregiver behavior was rated at a moderate level, with an average score of 15.23 out of a maximum of 26 points. There was a statistically significant correlation between the occurrence of dental caries and the caregivers' knowledge and oral care practices (P-value= 0.03, OR= 1.85, CI95% [1.03-3.34]).
Conclusion: This study indicates a high prevalence of dental caries in children. Despite caregivers possessing adequate knowledge and understanding of the causes of tooth decay, their practical implementation (behavior) remains suboptimal. It is recommended that relevant sectors focus on developing systematic and continuous oral health education programs for caregivers to reduce the incidence of dental caries and improve the overall oral health of young children.

1. Introduction

Dental caries in preschool children is a significant issue because it has a major impact on preschool children worldwide. The prevalence of dental caries has increased in developing countries, particularly with high rates of nursing bottle caries found in children in Africa and

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Southeast Asian countries [1]. Oral health care and disease prevention are generally essential health promotion activities for children. Oral disease prevention plays a crucial role for all children, especially those aged 3-5 years [2].

The World Health Organization (WHO) reports that dental caries is a significant global public health problem affecting preschool children. Due to dental caries, the Decayed, Missing, and Filled Teeth (DMFT) index was quite high during the years 2005-2015 in the Southeast Asian region [3].

The world has ranked dental caries (tooth decay) as the third most prevalent chronic non-communicable disease. Therefore, the World Health Organization (WHO) is paying close attention to its prevention and treatment. Consequently, dental caries is a danger to a child's growth, development, and can be a serious health hazard for children [4].

Preschool children are one of the primary target groups; under primary oral health care programs, prioritizing the oral health of preschool children is a top priority for determining the oral health status of future generations [5]. Dental caries remains a significant oral health problem in various countries in Southeast Asia [6].

Dental caries in children is a preventable chronic disease that affects children worldwide. Early detection of dental caries helps reduce pain and supports the overall growth and development of the child. Risk factors for dental caries include: bacteria, eating habits, child-rearing behaviors, environmental factors, systemic diseases, and certain types of medication [7]. A survey in Uganda found that the prevalence of dental caries (dt) was as high as 88.6%. The average number of decayed, missing, and filled teeth (dmft) was 1.79 for 3 years old children, 2.37 for 4-year-olds, and 1.91 for 5-year-olds [8]).

A survey in Myanmar in 2015 showed that the overall prevalence of dental caries was 82.9%. The average decayed (d), missing (m), and filled (f) teeth score (dmft) was 6.42 ± 4.901. For 3-year-olds children, the caries rate was 87.9% with a dmft of 5.69 ± 4.66. For 4-year-olds, the caries rate was 87.0% with a dmft of 5.69 ± 4.66, indicating a very high prevalence of dental caries in this age group [9].

A survey of children in Thailand, including both urban and rural areas, found that the prevalence of dental caries and the average dmft/DMFT scores decreased across all age groups in 2012. It was found that 3 year-old children had an average dmft of 2.7, with a caries prevalence of 51.7%. For children aged 5-6 years, the average dmft was 4.4, and the caries prevalence was 78.5% [10] .

The Lao People's Democratic Republic is a landlocked country bordering China, Myanmar, Vietnam, Cambodia, and Thailand. It is classified as one of the low-income countries in Southeast Asia. Oral health problems in Laos, particularly dental caries, significantly impact daily activities such as eating and sleeping, as well as causing pain, which is a major factor contributing to school absenteeism. Dental caries is one of the target diseases that should be addressed in the national health policy of the Lao PDR, reflecting the promotion of appropriate oral health behavior, which is vital in preventing dental caries [11]. Dental caries remains a significant oral health problem in the Lao PDR, as evidenced by various surveys from the past to the present, which show an increasing trend in the prevalence of the disease, especially among children. For instance, the first national oral health survey in 1991 found that 6-year-old children had a dental caries rate in primary teeth of 67.3%, which is generally high across all socio-economic groups. In planning oral health prevention services for dental caries in pre-school children, basic information for this age group is essential. Up to the present, there is still a lack of foundational data for this demographic. The prevalence of dental caries in pre-school children aged 3–5 years in the Lao PDR in 2010 was 82%, with an average dmft score of 5.5 teeth per person [12].

2. Methods

2.1. Population and Sample

Population: This study employed a purposive sampling method, targeting children aged 3–5 years attending kindergarten school at Xaythany districts in Vientiane Capital.The initial calculated sample size was 226 participants. To account for potential data collection errors or participant attrition, the sample was increased by 10% (22 participants), resulting in a final sample size of 248.

The population parameters were informed by the findings of [12], who reported a 82% prevalence of dental caries in children. To determine the required sample size for an unknown population, Cochran's (1953) formula was applied using the following variables:

$$n = \frac{p(1-p)z^2}{e^2}$$

n: The required sample size.
Z: The standard normal distribution value at a 95% confidence level (alpha = 0.05), which is 1.96.
p: The estimated proportion of children with dental caries (0.82).
e: The margin of error (precision level) of 0.05.

Sample Group: This study involves a sample of children aged 3 to 5 years enrolled in public and private kindergartens. The participants were selected from nine schools in Xaythany districts within the Vientiane municipality. The total population comprises 1.254 children.

A multi-stage sampling method was employed as follows:
Stage 1: Tree schools were randomly selected from each of the tree areas as: north, middle, and south around Districts were represented.
Stage 2: The required sample size of students from each selected school was determined using the following formula:

$$n_n = \frac{n_p N_n}{N}$$

n_n = The representative sample size of students for each school.
N_n = The total number of students in each specific kindergarten.
n_p = Total sample size calculated according to the sample size calculation formula.
N = Total number of students from 9 schools.

Therefore, the number of students was determined for nine schools, also both public and private were selected in district is a total of 248 people, as detailed in the table below:

Table 1: Representative sample size for each school

School	Population	Sample size
Chitthisack school	81	16
Sompanya school	177	35
Sathit school	347	69
Phoukham school	98	19
ThaNgon school	147	29
Viengkeo school	144	28
Houaxieng school	89	18
Don Noun school	129	26
DaoDaunoy school	42	8
Total	1.254	248

2.2. Research Instruments

Quantitative Data: The primary instrument for quantitative data collection was a structured questionnaire, divided into two key sections: 1) Socio-demographic profiles of both guardians and children; and 2) Childcare behavioral assessments, specifically focusing on oral hygiene practices (e.g., gingival and dental cleaning) and patterns of dental service utilization.

Qualitative Data: Clinical dental examinations were conducted to assess oral health status, specifically focusing on dental caries, missing teeth, filled teeth (DMF index), and the prevalence of dental plaque. These assessments were performed via direct intraoral examination. To ensure the rigor of the study, the initial draft of the questionnaire underwent a content validity assessment by a panel of three experts. The evaluation yielded an Item-Objective Congruence (IOC) index ranging from 0.67 to 1.00. Following the experts' feedback, the instrument was refined and finalized for large-scale data collection.

2.3. Data Collection

This study employed a mixed-methods approach for data collection.

Quantitative Phase: Questionnaires were administered to the parents of kindergarten students within the Vientiane Capital municipality. Participants were provided with comprehensive instructions to ensure data accuracy. The completion time per respondent was approximately 10–15 minutes, after which the surveys were systematically collected.

Qualitative Phase: The researcher conducted clinical oral examinations for each child. Observed clinical conditions and diagnostic findings were systematically recorded on individual dental charts to ensure detailed and precise data management. All information collected from questionnaires and results from physical oral examinations of children was analyzed using Statistical software SPSS version 22.0 was used to analyze percentages (%).

3. Result

Demographic Profile of Caregivers

The general data analysis of 248 caregivers revealed that the majority were male (51.2%), while 48.8 were female. The average age was 34.57 years, with a range spanning from a minimum of 22 years to a maximum of 51 years. Notably, the largest age group fell within the 33–34year range, accounting for 56% of the total.

Regarding educational attainment, 63.3% of caregivers had completed college or university, followed by 26.2% with a high school, and a minority of 2.4% who had no formal education.

In terms of occupation: 49.6% were government employees. 27.8% were private sector employees.2.8% were farmers. monthly income showed that 58.1% earned between 5,000,000 and 10,000,000 LAK, while 36.7% earned between 100,000 and 1,000,000 LAK. The most relationship concerning to the child were parents (98%). Further details are provided in Table 2.

3.1. Knowledge

The results of the study on the knowledge of caregivers regarding tooth decay found that the majority were able to answer the questions correctly. The highest percentage of correct answers reached 98%, while the lowest was 71%. When considering individual items, it was found that the questions caregivers answered correctly the most were: Sweet foods cause tooth decay in children: 234 people (98%). Brushing teeth is a primary way to prevent tooth decay: 243 people (94.4%). Children should have their teeth brushed in the morning or before bed: 240 people (96.8%). The items that caregivers answered incorrectly the most were: Risk of tooth decay from bottle-feeding: Only 71 people (28.6%) answered correctly. Untreated tooth decay affects a child's health: Only 33 people (13.3%) answered correctly. Children should see a dentist every 6 months: Only 33 people (13.3%) answered correctly. Regarding general awareness, 234 people (98%) stated they knew about tooth decay, 3 people (1.2%) were unsure, and 2 people (0.8%) did not know about the disease. Details are shown in Tables 3 and 4.

Table 2: Demographic Profile of Caregivers. (n= 248)

	(n)	(%)
Gender		
Females	121	48.8
Males	127	51.2
Age		
22-32	90	36.3
33-43	139	56
44-54	19	7.7
Mean= 34.57, Sd=5.52		
Education		
none	6	2.4
Primary school	11	4.4
Secondary school	9	3.6
Upper secondary school	65	26.2
College /University	157	63.3
Occupation		
Public staff	123	49.6
Private staff	69	27.8
Farmer	7	2.8
Worker	27	10.9
House wife	22	8.9
Monthly income (kip)		
100.000-1.000.000	91	36.7
> 1.000.000-5.000.000	144	58.1
> 5.000.000-10.000.000	12	4.8
> 10.000.000	1	4
Relationship with children		
Parents	243	98
Grand mother/father	2	0.8
Uncle/aunt	3	1.2

Table 3: Knowledge

Variable/Questions	**Correct Answer**		**Incorrect answer**	
	n	**(%)**	**n**	**(%)**
1. Does sweet food cause tooth decay in children?	243	98	5	2
2. Do you know what tooth decay (cavities) is?	200	80.6	48	19.4
3. Does drinking milk from a bottle increase the risk of tooth decay?	177	71.4	71	28
4. Is brushing teeth a primary way to prevent tooth decay?	234	94.4	14	5.2
5. Should children's teeth be brushed in the morning or before bed?	240	96.8	8	2.4
6. If tooth decay is left untreated, will it affect the child's health?	215	86.7	33	13.3
7. Should children be taken to see a dentist every 6 months?	215	86.7	33	13.3

Table 4: Percentage of caregivers with knowledge regarding dental caries

Valuable	**(n)**	**(%)**
Know	243	98
Don't know	2	0.8
Not sure	3	1.2
Total	248	100

The study results regarding the level of knowledge about dental caries among the sample population found that, after ranking the scores, the majority of caregivers had a high level of knowledge, totaling 196 people (79%). This was followed by a moderate level with 32 people (12.9%), and a low level with 20 people (8.1%).

Table 5: Percentage of sample groups by knowledge level (248)

Knowledge level	**Score**	**N**	**(%)**
High level	6-7	196	79
Middle level	4-5	32	12.9
Low level	1-3	20	8.1
Mean= 6.15, SD=1.136, Min= 1, Max= 7			
Practices of Child Caregivers			

The average knowledge score was 6.51, with a standard deviation of 1.13. The minimum score was 1 and the maximum score was 7. These details are shown in Table 5.

The research results regarding the practices of child caregivers in oral health care overall found that the caregivers' level of attention in caring for children was at a moderate level, with an average score of 15.23 (Mean = 15.23, SD = 2.64). When considering each item individually, it was found that: For practices performed "Always": The highest frequency was caregivers changing the toothbrush for the child every 3 months, totaling 164 people (66.1%). This was followed by recommending the child to brush their teeth after meals, totaling 117 people (47.2%). For practices performed "Sometimes": The highest frequency was allowing the child to buy sweets as they pleased, totaling 172 people (69.4%), followed by brushing the child's teeth after every meal at 165 people (66.5%). For behaviors "Never" practiced: The highest frequency was training the child to drink milk from a cup, totaling 86 people (34.7%), followed by preparing a toothbrush and toothpaste for the child to take to school, totaling 84 people (33.9%). Details are shown in Table 6.

Table 6: Percentage of sample groups by parental behavior (248)

	Parental behavior					
Valuable/Questions	**Every times**	**Sometimes**	**none**			
	N (%)	**N (%)**	**N (%)**	**Mean**	**SD**	**Behavior level**
1. Advised the child to brush their teeth after meals	117(47.2)	120(48.4)	11(4.4)	1.57	0.57	Middle
2. Checked the child's teeth after brushing them	55(22.2)	160(64.5)	33(13.3)	1.91	0.57	Middle
3.Trained the child to drink milk from a cup	55(22.2)	107(43.1)	86(34.7)	2.12	0.74	Middle
4. Prepared a toothbrush and toothpaste for the child	105(42.3)	59(23.8)	84(33.9)	1.92	0.87	Middle
5. Allowed the child to buy sweets as much as he wanted	36(14.5)	172(69.4)	40(16.1)	2.02	0.55	Middle
6. Brushed the child's teeth after every meal	47(19)	165(66.5)	36(14.5)	1.96	0.57	Middle
7. Changed the child's toothbrush every 3 months every 3 month	164(66.1)	62(25)	22(8.9)	1.43	0.65	Middle
8. Took the child to have a dental check- up or treatment with a dentist	37(14.9)	98(39.5)	113(45.6)	2.31	0.72	Middle
Mean=15.23 SD=2.64						

The study results on the overall behavioral levels of caregivers in the sample group, after ranking the scores, found that the majority of caregivers' childcare behaviors were at a moderate level, accounting for 197 people (79.4%). This was followed by a low level at 49 people (19.8%), and a high level of practice for only 2 people (0.8%). Detailed information is shown in Table 7.

Table 7: Percentage of sample group classified according to the performance of caregivers

Behavior level	**Score**	**(n)**	**(%)**
Low level	2.34-3.00	49	19.8
Middle level	1.67-2.33	197	79.4
High level	1.00-0.66	2	0.8
Mean= 15.23	SD=2.64	Min=8	Max=23

3.2. General Information of the Children

According to the study of the gender and age of the children, it was found that there were more males than females, with 137 males (55.2%) and 111 females (44.8%). Regarding the age of the children, the average age was 3.92 years.

Within that group, the majority were: 3 years old: 90 children (36.3%), 4 years old: 87 children (35.1%), 5 years old: 71 children (28.6%). Further details are presented in Table 8.

Table 8: General Information of the Children

Gender	**n**	**(%)**
Females	111	44.8
Males	137	52.2
Age		
3 years	90	36.3
4 years	87	35.1
5 years	71	28.6
Mean=3.92, SD=0.8		

3.3. Dental Health Check

From the results of the dental health check for children, it was found that 177 children (71.4%) have tooth decay and 71 children (28.6 do not have tooth decay. This is shown in Table 9.

Table 9: Percentage of dental caries from the oral examination results of the sample group (n=248)

Valuable/caries	(n)	(%)
None	71	28.6
Caries	177	71.4

3.4. Average of Decayed, Missing, and Filled Teeth (dmft)

The results of the study on the average dmft found that the total number of decayed teeth (d) was 1,223, with an average of 4.93 teeth, a maximum of 2 teeth, and a minimum of 1 tooth. Missing teeth (m) due to decay accounted for 1 tooth. Filled teeth (f) accounted for 14 teeth, with a maximum of 4 teeth, while teeth extracted for other reasons totaled 7. The dmft index (decayed, missing, and filled teeth) was 4.99 teeth per person. Details are shown in Table 10.

Table 10: Mean, standard deviation of the number of teeth from the sample group

Dental status	Total Decayed/teeth	Mean	Minimum	Maximum	Standard deviation
Dental caries	1223	4.93	1	20	5.021
Missing teeth	1	.00	1	1	0.064
Filling teeth	14	.06	1	4	.367
Missing teeth from other causes(e)	7	.03	1	4	.03
dmft =4,99=5 teeth /person SD=4,66					

3.5. Dental Caries by Age Group

The study found that the 4-year-old age group had the highest prevalence of dental caries at 67 people (37.9%), followed by 3 year-olds at 57 people (32.2%) and 5-year-olds at 53 people (29.9%) shown in Figure 11.

Table 11: Dental Caries by Age Group

Ages	Dental caries	
	None (n)(%)	Caries (n)(%)
3 years	33(46.4)	57(32.2)
4 years	20(28.2)	67(37.9)
5 years	18(25.4)	53(29.9)
Total	71(100)	177(100)

3.6. Dental Caries by Gender

Based on the results of the study regarding children's gender and the prevalence of dental caries (cavities), it was found that 100 children (56.6%) were male and 77 children (43.5%) were female. Details are provided in Table 12.

Table 12: Dental Caries by Gender

Gender	Dental caries	
	None (n)(%)	Caries (n)(%)
- Females	34(47.9)	77(43.5)
- Males	37(52.1)	100(56.6)
Total	71(100)	177(100)

3.7. Relationship between knowledge factors, child caregiver behavior, and tooth decay

The study of the relationship between the knowledge factors of child caregivers, broken down by item, and the incidence of tooth decay in children found that knowledge about the risk of tooth decay from children drinking milk from artificial breasts is significantly related to the incidence of tooth decay in children (P-value < 0.05) and OR= 1.85. CI 95%(1.03-3.34). Other knowledge was not found to be related to tooth decay in children. Details are shown in Table 13.

Table 13: Number and percentage of knowledge factors related to tooth decay from the sample group

Valuable	Dental caries				
	None (%)	Caries (%)	OR	95%CI	P-value
Sweet food cause tooth decay in children					
Know	2(2.8)	3(1.7)	1.68	0.257-10.28	0.626
Don't know	69(97.2)	174(98.3)			
You know what tooth decay					
Don't know	12(16.9)	36(20.3)	0.79	0.38-1.63	0.536
Know	59(83.1)	141(79.7)			
Drinking milk from a bottle increase the risk of tooth decay					
Don't know	27(38)	44(24.9)	1.85	1.03-3.34	0.038
Know	44(62)	133(75.1)			
Brushing teeth is a primary way to prevent tooth decay					
Don't know	3(4.2)	11(6.2)	0.66	180-2.46	0.53
Know	68(95.8)	166(93.8)			
Children' teeth should be brushed in the morning or before bed					
Don't know	3(4.2)	5(2.8)	1.51	0.35-6.52	0.57
Know	68(95.8)	172(97.2)			
If tooth decay is left untreated, will it affect the child's health					
Don't know	11(15.5)	5(2.8)			
Know	68(95.8)	172(97.2)	1.29	0.59-2.82	0.52
Children should be taken to see a dentist every 6 months?					
Don't know	13(18.3)	20(11.3)	1.57	0.82-3.76	0.14
Know	58(81.7)	157(88.7)			

From the analysis of the relationship between the caregiver's knowledge level and the child's dental caries, no correlation was found (P-value >0.05). Details are shown in Table 14.

Table 14: Relationship between the caregiver's knowledge level and the child's dental caries

Knowledge level	Dental caries		
	None n (%)	Caries n(%)	P-value
High (6-7 score)	52(73.2)	144(81.4)	0.35
Middle (4-5 score)	12(16.9)	20(11.3)	
Low (1-3 score)	7(9.9)	13(7.3)	
Chi-square= 2.052, Df= 2			

3.8. Relationship between caregiver behavioral factors and dental caries

The results of the study on the relationship between caregiver behavioral factors according to the practice items and dental caries in children found that the behavior of caregivers who prepared toothbrushes and toothpaste for children to go to school was statistically significantly associated with dental caries in children (P-value<0.05) OR=2.14, CI95%(1.21-3.78). In addition, it was found that the behavior of taking children to check or treat teeth at home was statistically significantly associated with dental caries (P-value<0.05) OR= 2.16, CI95%(1.23-3.78), (P-value>0.05). Details are shown in Table 15.

Table 15: Relationship between caregiver behavioral factors and dental caries

Valuable	Dental caries				
	None n(%)	Caries n(%)	OR	95%CI	P-value
Advised the child to brush their teeth after meals					
None	5(7)	6(3.4)	2.15	0.63-7.31	0.207
Done	66(93)	171(96.6)			
Checked the child's teeth after brushing					
None	11(15.5)	22(12.4)	1.29	0.59-2.82	0.52
Done	60(84.5)	155(87.6)			
Trained the child to drink milk from a cup					
None	22(31)	64(36.2)	0.79	0.44-1.42	0.43
Done	49(69)	113(63.8)			
Prepared a toothbrush and toothpaste for the child go to school					
None	33(46.5)	51(28.8)	2.14	1.21-3.78	0.008
Done	38(53.5)	126(71.2			
Allowed the child to buy sweets as much as he wanted					
None	10(14.1)	30(16.9)	0.8	0.37-1.74	0.57
Done	61(85.9)	147(83.1)			
Brushed the child's teeth after every meal					
None	13(18.3)	23(13)	1.50	0.71-3.15	0.28
Done	58(81.7)	154(87)			
Changed the child's toothbrush every 3 months					
None	7(9.9)	15(8.5)	1.18	0.46-3.03	0.7
Done	64(90.1)	162(91.5)			
Took the child to have a dental check- up or treatment with a dentist					
None	42(59.2)	71(40.1)	2.16	1.23-3.78	0.006*
Done	29(40.8)	106(59.9)			

The results of the study on the level of caregivers' performance and dental caries in children found that the level of behavior was not statistically significantly associated with dental caries in children. (P-value>0.05). Details are shown in Table 16.

Table 16: Relationship between caregivers' performance and dental caries in children

Knowledge level	Dental caries		
	None n (%)	Caries n(%)	P-value
- Low	16(22.5)	33(18.6)	0.53
- Middle	55(77.5)	142(80.2	
- High	0(.00)	2(1.1)	
Chi-square= 1.239. Df= 2			

From the results of the relationship analysis between gender, age of the child and the occurrence of dental caries, it was found that gender and age group of the child were not associated with the occurrence of dental caries (P-value>0.05). Details are in Table 17.

Table 17: Relationship between gender, age of the child and the occurrence of dental caries in children

Valuable	Dental caries		
	None n (%)	Caries n(%)	P-value
Gander			
- Females	34(47.9)	77(43.5)	0.53
- Males	37(52.1)	100(56.5)	
Age			
- 3 years	24(33.8)	66(37.3)	0.87
- 4 years	26(36.6)	61(34.5)	
- 5 years	21(29.6)	50(28.2)	

4. Discussion

The results of this study indicate that dental health and influencing factors in preschool children aged 3 to 5 years are significantly impacted by dental caries, with a dmft >4. The prevalence of dental caries was found to be 71.4%, which is relatively lower compared to previous literature. For instance, a 2010 study by Senesombath reported a higher caries prevalence of 82% with an average dmft of 5.5 [12]. Furthermore, this figure is lower than the prevalence reported in Saudi Arabia at 85% [13], Vietnam at 89.1% [14], and Cambodia at 84.9% [15].

Additionally, the age group of the children was a significant factor in the variation of caries prevalence. In this study, the prevalence was 37.9% among 4-year-olds and 29.9% among 5-year-olds. These rates are considerably lower than those found in a 2021 study in Jordan,

which reported prevalence rates of 72.5% and 77.2% for 4 and 5-year-olds, respectively [16]. Such discrepancies may be attributed to differences in sample sizes across the studies.

Regarding the knowledge levels of caregivers and the occurrence of dental caries, the majority of caregivers possessed high-level knowledge (university level). However, a small minority had no formal education and earned a moderate income. In this group, the prevalence of dental caries in children was 71.4% with a mean dmft of 4.99 ± 4.66 (Mean ± SD). These findings align with the study by Kemthong et al. (2017) involving children aged 3–5 years in Thailand, which reported a mean dmft of 5.27 ± 4.78 (Mean ± SD) [17]

5. Conclusion

The study reveals that the prevalence of dental caries among preschool children is 71.4%. The dmft index (decayed, missing, and filled teeth) was found to be 4.99 ±4.66 (Mean ± SD), indicating a high severity of dental caries in this demographic.

The age group of the children serves as a significant factor in the variation of caries prevalence. Similarly, emphasis should be placed on levels of parental knowledge, childcare behaviors, and oral hygiene practices. Furthermore, health education regarding oral health must be actively supported.

This research highlights that the prevention of dental caries is not solely the responsibility of dentists, parents, or pediatric departments. It is also the duty of primary healthcare providers to monitor children during routine health check-ups to prevent the onset of dental caries.

Article Information

Disclaimer (Artificial Intelligence): The author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.), and text-to-image generators have been used during writing or editing of manuscripts.

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References

[1] S. M. Elidrissi and S. Naidoo. Prevalence of dental caries and toothbrushing habits among preschool children in Khartoum State, Sudan. *International Dental Journal*, 66(4):215–220, 2016. URL https://doi.org/10.1111/idj.12223.

[2] Y. Li, J. M. Navia, and J. Bian. Prevalence and distribution of developmental enamel defects in primary dentition of Chinese children 3–5 years old. *Community Dentistry and Oral Epidemiology*, 23(2):72–79, 1995. URL https://doi.org/10.1111/j.1600-0528.1995.tb00204.x.

[3] T. Trang, B. Bao, T. Nguyen, and M. Son. Effect of School Oral Health Promotion Programme on dental health and health behaviour in Vietnamese schoolchildren. *Pediatric Dental Journal*, pages 1–7, 2016. URL https://doi.org/10.1016/j.pdj.2016.09.001.

[4] D. Gupta, R. K. Momin, A. Mathur, K. T. Srinivas, A. Jain, N. Dommaraju, D. R. Dalai, and R. K. Gupta. Dental caries and their treatment needs in 3-5 year old preschool children in a rural district of India. *North American Journal of Medical Sciences*, 7(4): 143–150, 2015.

[5] D. Bennadi, N. Kshetrimayum, S. Sibyl, and C. V. K. Reddy. Toothpaste utilization profiles among preschool children. *Journal of Clinical and Diagnostic Research*, 8(3):212–215, 2014. URL https://doi.org/10.7860/JCDR/2014/7309.4165.

[6] R. A. Bagramian, F. Garcia-Godoy, and A. R. Volpe. The global increase in dental caries. A pending public health crisis. *American Journal of Dentistry*, 22(1):3–8, 2009.

[7] S. Syed, N. Nisar, and N. Mubeen. Early Childhood Caries: A Preventable Disease. *Dentistry - Open Journal*, 2(2):55–61, 2015.

[8] N. Musinguzi, A. Kemoli, and I. Okullo. Prevalence and Treatment Needs for Early Childhood Caries Among 3 – 5-Year-Old Children From a Rural Community in Uganda. *Front Public Health*, pages 1–7, 2019. URL https://doi.org/10.3389/fpubh.2019.00259.

[9] K. M. Thwin, T. Zaitsu, M. Ueno, and Y. Kawaguchi. *Early Childhood Caries and Related Risk Factors among Myanmar Preschool Children*. January, 2017.

[10] P. Srisilapanan, A. Nirunsittirat, and J. Roseman. *Trends over Time in Dental Caries status in Urban and Rural Thai Children*. October, 2017. URL https://doi.org/10.4317/jced.54054.

[11] M. Motohashi, I. Nakajima, H. Aboshi, K. Honda, M. Yanagisawa, T. Miyata, M. Maeno, F. Kuwata, B. Sidaphone, S. Ngonephady, A. Sitthiphanh, S. O. Kingsada, and K. Otsuka. The oral health of children in a rural area of the Lao People's Democratic Republic. *Journal of Oral Science*, 51(1):131–135, 2009. URL https://doi.org/10.2334/josnusd.51.131.

[12] S. Senesombath, S. Nakornchai, P. Banditsing, and D. Lexomboon. Early childhood caries and related factors in vientiane, Lao PDR. *Southeast Asian Journal of Tropical Medicine and Public Health*, 41(3):717–725, 2010.

[13] S. Anil and P. S. Anand. Early childhood caries: Prevalence, risk factors, and prevention. *Frontiers in Pediatrics*, 5:1–7, July 2017. URL https://doi.org/10.3389/fped.2017.00157.

[14] Y. H. T. Nguyen, M. Ueno, T. Zaitsu, T. Nguyen, and Y. Kawaguchi. Early childhood caries and risk factors in Vietnam. *Journal of Clinical Pediatric Dentistry*, 42(3):173–181, 2018.

[15] B. Turton, T. Chher, W. Sabbah, C. Durward, S. Hak, and A. Lailou. Epidemiological survey of early childhood caries in Cambodia. *BMC Oral Health*, 19(1):1–7, 2019. URL https://doi.org/10.1186/s12903-019-0800-y.

[16] M. Pakkhesal, E. Riyahi, A. A. Naghavi Alhosseini, P. Amdjadi, and N. Behnampour. Impact of dental caries on oral health related quality of life among preschool children: perceptions of parents. *BMC Oral Health*, 21(1), 2021. URL https://doi.org/10.1186/s12903-021-01396-4.

[17] K. Mitrakul, M. Arunakul, Y. Asvanund, and T. Laisirireoungrai. DIET , BODY MASS INDEX AND DENTAL CARIES AMONG THAI CHILDREN AGED 3 TO 5 YEARS. *Southeast Asian J Trop Med Public Health*, 48(2), 2017.