

## RESEARCH ARTICLE

# Knowledge and attitude about the importance of maintaining primary dentition in parents of the Cercado de Lima District

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## ABSTRACT

To determine the influence of parents on the development of healthy oral hygiene habits in children. A basic, descriptive, prospective, and cross-sectional research was carried out using a 15-question questionnaire instrument, with which information on the educational level, age, and sex of the parents was collected. In order to determine the adjustment of the probability distributions to each other, the non-parametric Kolmogorov-Smirnov test was applied. Subsequently, the statistical tests of Kendall's Tau and Spearman's Correlation were used at a significance level of  $p < 0.05$ . Most parents demonstrated a medium level of knowledge and attitude toward the importance of maintaining primary dentition, regardless of their educational level, gender, or age. However, the study did not find significant relationships between these factors and knowledge or attitude on the topic. Similarly, attitude showed average levels in general, with no critical relationship with education, gender, or age. Parents generally had a medium level of knowledge and attitude, regardless of their educational status, gender, or age. There are no significant relationships found between these factors (education, sex, and age) and the level of knowledge and attitude about the importance of preserving primary dentition.

**Keywords:** parents; oral hygiene; healthy habits; oral health; influence; children

## 1. Introduction

Human beings have two types of dentitions: deciduous and permanent. It is crucial to differentiate them to understand that the permanent dentition consists of thirty-two teeth, considering both arches. In contrast, the temporary teeth have twenty teeth in both arches<sup>[1]</sup>. Those expired pieces will be replaced with a permanent one. During this replacement, the temporary molars are not replaced by new molars but by premolars, marking the numerical difference between both dentitions. This process occurs in the four quadrants of the maxilla and mandible.

Childhood presents challenges, especially in terms of dental trauma, which is more common at this stage. Parents or guardians often do not know how to address these situations. Infants and their guardians can seek

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care in various places, including emergency departments, general dentists, community and specialty dental services, or pharmacies<sup>[2]</sup>. Each of these settings must have the knowledge and training necessary to provide appropriate care to children who suffer traumatic injuries to their primary dentition. Treatment of dental injuries during primary dentition should be immediate to prevent damage to the germs of developing permanent teeth, relieve pain, and minimize possible complications<sup>[3]</sup>. Given the importance of this dentition stage, the natural exfoliation of primary teeth and its impact on occlusion also influence treatment. In many cases, a conservative approach based on observation is the most recommended option.

It is essential to know the state of knowledge and attitudes to educate parents and young patients about proper care of injured teeth at home so that they can react quickly and optimally. In some cases, the early loss of a lower central incisor or other tooth is a crucial issue, as it significantly impacts the child's aesthetics<sup>[4]</sup>. Children are often emotionally affected by these problems. Additionally, tooth loss can impair chewing function, speech, and normal occlusion<sup>[5]</sup>. In such situations, the use of specific removable appliances is recommended to correct these empty spaces and prevent possible speech or tongue interposition disorders. For these reasons, it is necessary to determine the state of knowledge and attitudes of the parents since they are the best image and, above all, the first model to follow in terms of oral health care. Consequently, if parents are the first to have positive oral hygiene habits, likely, their children will too<sup>[6]</sup>. In this sense, if these customs are fixed in children's behavior, it is more likely that parents will be able to take their children to the dentist for periodic exams and cleanings in the most natural way possible<sup>[7]</sup>. This positive attitude of parents towards their children constitutes dental health education because it develops healthy dental habits<sup>[8]</sup>. Furthermore, with the knowledge acquired by parents in oral health, accidents that cause dental trauma can be prevented<sup>[9]</sup>.

To consolidate those habits, parents need to dedicate a few minutes a day to teaching their children to brush their teeth at least twice a day or learn to floss<sup>[10]</sup>. These attitudes are reinforced by a diet that limits the consumption of sweets and sugary drinks at home<sup>[11]</sup>. Parents who know how to combine the knowledge of maintaining dental health with the attitude of teaching will create a solid family dental care environment<sup>[12]</sup>. Incorporating an anticariogenic diet that provides healthy foods for good dental health is a complex task<sup>[13]</sup>. In this sense, parents must be patient and understanding with their children. Another example is that everyone has to join the consumption of this type of non-cariogenic food. Therefore, rewarding children for brushing and flossing their teeth could be a great alternative<sup>[14]</sup>.

Healthy teeth are considered an investment in children's health and well-being<sup>[15]</sup>. Once these habits are established, they will remain for life. Good oral hygiene will help children have a healthy and radiant smile<sup>[16]</sup>. Therefore, it can be stated that parents are the primary support to help their children avoid serious dental problems in the future<sup>[17]</sup>. Likewise, it can be stated that parents who encourage their children to practice good oral hygiene are linked to the parents' level of education<sup>[18]</sup>. This fact materializes particularly in the case of young parents, with an age range between 20 and 40 years old and who have some secondary or higher education<sup>[19]</sup>. In this sense, young parents with higher levels of education have more significant potential to achieve the formation of healthy oral hygiene habits in their children<sup>[20]</sup>.

In Peru, dental diseases are a highly prevalent condition, so that 9 out of 10 children have dental cavities; For their part, 46.4% of children suffer from gingivitis and 52.4% of children between 10 and 15 years of age suffer from periodontitis. These diseases affect cognitive, physical and emotional development, in addition to contributing to 8 out of 10 Peruvians suffering from malocclusions. To reverse the situation, the Ministry of Health of Peru implemented the Comprehensive Life Course Care Model as the main health strategy, which through workshops, home visits and the use of audiovisual material seeks to raise awareness of healthy practices<sup>[21]</sup>. However, this strategy, being a measure related to the will of the parents and not forming an integral part of medical care, shows results in a short time that are not encouraging. In this context, Azañedo

et al.<sup>[22]</sup> recognize that knowledge for oral care of children is acquired sporadically.

Therefore, parents' attitudes toward their children's dental care will have a significant impact on oral health. This attitude depends on who is the person who interacts the most with children, age, or profession. A few minutes of dedication daily can mean healthy teeth for a lifetime. From the above arises the need to understand the influence of parents on the development of healthy oral hygiene habits in children, considering that if parents have good knowledge and positive attitudes towards the importance of taking care of their children's primary dentition, are more likely to encourage proper dental hygiene practices in children.

## **2. Research methodology**

The present research study was quantitative, fundamental, descriptive, and prospective, and according to the analysis of variables, it is univariable. The study intended to investigate in depth the knowledge and attitude of parents regarding the degree of awareness and concern for the maintenance of children's primary dentition<sup>[23]</sup>.

The study population comprised parents residing in the Cercado de Lima district in 2022. The population was made from 349 parents of this district living in said year. Inclusion criteria covered parents who have children between 2 and 14 years old. On the other hand, the exclusion criterion considered those parents who did not reside in the Cercado de Lima district.

The population was made up of 349 parents, selected through simple random probabilistic sampling by lot; these parents had children between 2 and 14 years of age. For collecting the information, a questionnaire containing 15 structured questions on the research topic was used as an instrument. The instrument had a confidence level of 95%, with a confidence interval of 8 and an expected margin of error of 8.5%, as demonstrated by Ramakrishnan et al.<sup>[13]</sup>. For data collection, guiding strategies were established to plan data collection, define methods and approaches adequately. Subsequently, training was provided to the personnel in charge of applying the collection instrument. A score of 1 was assigned to correct answers on knowledge questions, while a score of 0 was assigned to incorrect answers. Regarding the attitude questions, which included both negative and positive statements, they were evaluated using three options: (1) agree, (2) disagree, and (3) uncertain. In cases where participants provided unfavorable responses to demonstrably true statements, a score of 0 was assigned in the agree/disagree category. The scores obtained were distributed into three levels, equally divided into high, medium and low depending on the scores obtained. The relevant authorization was managed and obtained from the ethics committee of the César Vallejo University. Home visits were then made to collect the necessary information. The research objectives were detailed to the parents, guaranteeing their understanding and consent by signing the informed consent to collect data on-site. The results obtained through the questionnaire were carefully recorded in a spreadsheet form to facilitate subsequent statistical analysis.

The research rigorously prioritized necessary ethical standards, beginning with obtaining authorization from the ethics committee of Cesar Vallejo University to carry out the study. To ensure transparency, all participants signed an informed consent detailing aspects of the research in detail. Likewise, the confidentiality of the data collected from each of the participating parents was assured. It is relevant to highlight that the researchers maintained an ethical position, avoiding any conflict of interest in relation to obtaining the research data.

The data collected was recorded in an exclusive file for statistical treatment in order to protect the data, as well as to maintain the transparency of the data analysis. The information collected was processed and analyzed with the SPSS 26.0 program (IBM, USA). The study variables were presented in tables and/or graphs with their corresponding frequencies and percentages or means and standard deviations depending on whether

they were qualitative or quantitative variables. To indicate the relationship between variables, I first apply the non-parametric Kolmogorov test Smirnov due to the need to determine the fit of the probability distribution<sup>[24]</sup>. Subsequently, the statistical tests of Kendall’s Tau and Spearman’s Correlation were used; both data were analyzed with a significance level of 5%<sup>[25]</sup>.

### 3. Results

The knowledge and attitude of parents in the Cercado de Lima district about the importance of preserving primary dentition in their children was evaluated with a quantitative investigation of an essential and descriptive nature, with a prospective and univariable approach to deepen awareness and concern. Of parents towards the deciduous dentition of their children in a study population of 349 parents with children from 2 to 14 years of age.

In the year 2022, in the Cercado de Lima district, it was observed that 76.3% of parents had average knowledge about the importance of maintaining primary dentition. When analyzing this figure according to educational level, the study found that 77.8%, 77.8%, and 71.9% of those with primary, secondary, and higher education, respectively, had average knowledge in this aspect. Likewise, when considering gender, it was noted that both 76.4% of male fathers and 76.2% of mothers had moderate knowledge about the importance of maintaining primary dentition in the district. Regarding age, 89.9% of parents under 29 years of age and 66.3% of parents over 29 years of age had average knowledge on this topic. However, it is essential to highlight that the study revealed that knowledge about the importance of maintaining primary dentition in the parents of Cercado de Lima in 2022 was not significantly related to either educational level ( $p = 0.72$ ) or gender ( $p = 0.58$ ), nor with age ( $p = 0.24$ ) (**Table 1**).

**Table 1.** Knowledge about the importance of maintaining the primary dentition in parents of Cercado de Lima in the year 2022, according to educational level, gender and age.

Variable	N	Low		Medium		High		P*	
		n	%	n	%	n	%		
Education	349	Primary	2	11.1	14	77.8	2	11.1	0.72
		Secondary	21	8.6	189	77.8	33	13.6	
		Superior	12	13.5	64	71.9	13	14.6	
Sex		Male	16	10.8	113	76.4	19	12.8	0.58
		Female	19	9.4	154	76.2	29	14.4	
Age		Under 29 years old	17	11.5	133	89.9	12	8.1	0.24
		Older 29 years old	18	8.9	134	66.3	36	17.8	
Total			35	10	267	76.3	48	13.7	

Source: Data collection. \*Kendall’s Tau test for the education and sex variable and Spearman Correlation for the age variable.

In the year 2022, in the Cercado de Lima district, it was evident that 84% of parents showed a medium level of attitude regarding the importance of preserving primary dentition. When analyzing this figure according to educational level, it was found that 88.9%, 82.7%, and 86.5% of those with primary, secondary, and higher education, respectively, also had a medium level of attitude on this issue. Likewise, when considering gender, it was noted that both 78.4% of male fathers and 88.1% of mothers had a medium level of attitude regarding the importance of maintaining primary dentition in the district. Regarding age, 91.9% of parents under 29 years old and 78.2% of parents over 29 years old exhibited a medium level of attitude about this aspect. However, it is essential to highlight that the study revealed that the attitude toward the importance of preserving primary dentition in the parents of Cercado de Lima in 2022 did not have a significant

relationship with either the educational level ( $p = 0.35$ ) or with gender ( $p = 0.12$ ), nor with age ( $p = 0.81$ ) (Table 2).

**Table 2.** Attitude on the importance of maintaining the primary dentition in parents of Cercado de Lima in the year 2022, according to educational level, gender and age.

Variable		N	Low		Medium		High		p*
			n	%	n	%	n	%	
Education	Primary	349	2	11.1	16	88.9	0	0.0	0.35
	Secondary		31	12.8	201	82.7	11	4.5	
	Superior		12	13.5	77	86.5	0	0.0	
Sex	Male		26	17.6	116	78.4	6	4.1	0.12
	Female		19	9.4	178	88.1	5	2.5	
Age	Under 29 years old		21	14.2	136	91.9	5	3.4	0.81
	Older 29 years old		24	11.9	158	78.2	6	3.0	
Total			45	12.9	294	84.0	11	3.1	

Source: Data collection. \*Kendall's Tau test for the education and sex variable and Spearman Correlation for the age variable.

## 4. Discussion

The purpose of this study was to evaluate the knowledge and attitude of parents in the Cercado de Lima district in 2022 about the relevance of preserving primary dentition. The results indicate that both knowledge and attitude remained at a medium level, regardless of the educational level, gender, and age of the participants. These findings suggest no significant correlation between these factors and parents' knowledge and attitude regarding this issue.

Regarding knowledge about the importance of maintaining primary dentition, in a sample of 350 parents from the Cercado de Lima district in 2022, it was found that 76.3% have a medium level, while 13.7% show a high level, and the remaining 10% are at a low level. Concerning the attitude towards this issue, 84% of parents present a medium level, 12.9% a low level, and the remaining 3.1% are at a high level. These results contrast with the study carried out by Helal et al.<sup>[25]</sup> in Egypt, it was evident that the majority of the participants, 90%, had a good level of knowledge, while 100% showed a positive attitude. Similarly, the study conducted by Patil et al.<sup>[26]</sup> in India, which involved questionnaires administered to 504 parents, showed that the majority of them, 64.9%, exhibited knowledge, attitude, and practices in line with what was expected. In contrast, the study conducted by Alshammari et al.<sup>[27]</sup> in Saudi Arabia, which included questionnaires to 248 parents, revealed that 51% of participants had a medium level of knowledge (7.97). Variations in sample size and geographic and cultural diversities between the different study areas could explain these differences.

It is observed that 77.8% of parents who have a medium level of knowledge about the importance of maintaining primary dentition have completed primary or secondary education. In comparison, 86.5% of those with a medium attitude towards this issue have higher education. These results diverge from a study conducted by Yildirim and Tokuç<sup>[28]</sup> in Turkey, where it was noted that participants with lower educational levels provided a significantly higher number of incorrect answers and a lower number of correct answers. Another study was carried out by Gurunathan et al.<sup>[29]</sup> in India, involving 465 participants, 35% had only primary education, while 65% had higher education, and it was observed that both knowledge and attitude were better in mothers with higher education than those with primary schooling. These differences could be attributed to investment in education in various countries, as well as cultural variations, and could also be related to the sample size and demographic composition of the participants in each study.

It is evident that 76.4% of parents with a medium level of knowledge about the importance of maintaining primary dentition are men, while 86.5% of parents with a medium level of favorable attitude towards this issue are women. These findings contrast with a study conducted by Ansari et al.<sup>[30]</sup> in Saudi Arabia, which included 1773 participants, where it was observed that 28% were men and 72% were women. Furthermore, a notable 68% of participants had completed university studies. In that study, responses in relation to gender suggested a slightly more positive predisposition in women than in men towards the health of the primary dentition. These discrepancies could be explained by cultural differences, as both studies were conducted in different geographic regions with different cultural beliefs and practices.

It is highlighted that 89.9% of parents with a medium level of knowledge about the importance of maintaining primary dentition are under 29 years old. In comparison, 91.9% of parents with a medium level of favorable attitude towards this issue also agree. They are in the group of less than 29 years. These findings coincide with a study carried out by Ali et al.<sup>[31]</sup> in Saudi Arabia, which involved 600 participants. In this study, it was observed that the highest knowledge was present in the age group of 30 to 40 years ( $p = 0.0197$ ). However, the level of global understanding of the participants needed to be considered adequate, reaching 49.8%. These results contrast with the findings of a study conducted by Ramakrishnan et al.<sup>[13]</sup> in India, where participants indicated that they took their children to a dental office when they experienced discomfort or pain. Additionally, some mentioned that they did not consider it necessary to treat primary teeth, as they believed they would eventually fall out. The differences in the results can be attributed to the different geographical areas in which the studies were carried out and the more significant number of participants included in the latter.

The analysis of knowledge and attitude in relation to the importance of maintaining primary dentition in parents in the Cercado de Lima district in 2022 reveals that there is no significant correlation with education, gender, or age. These findings contrast with results from previous research. For example, in the study conducted by Yildirim and Tokuç<sup>[28]</sup>, it was observed that participants with a lower educational level provided a significantly greater number of incorrect answers ( $p < 0.001$ ), while those with a higher academic level provided fewer correct answers ( $p = 0.002$ ). Furthermore, in the study by Ansari et al.<sup>[30]</sup>, which included a majority of university graduates and in which women predominated, slightly more favorable responses were found in women in relation to the health of the primary dentition, compared to the men. These results differ from those obtained in the study by Alshammari et al.<sup>[27]</sup> in Saudi Arabia, where the majority of participants had higher education, mainly male parents, and a statistically significant relationship was identified between the type of father and educational level. In turn, the study by Gurunathan et al.<sup>[29]</sup> revealed that those with higher education showed better knowledge and attitude, in contrast to those with school education. Finally, the study by Ali et al.<sup>[31]</sup> in Saudi Arabia showed that the highest knowledge was present in the age group of 30 to 40 years ( $p = 0.0197$ ), although the general understanding of the participants was considered inadequate, reaching 49.8%. These discrepancies could be due to geographical and cultural differences between the populations studied in each investigation.

The results of this study suggest that it is possible to improve parents' knowledge and attitude regarding the maintenance of primary dentition. Providing more information and support could lead to positive change, increasing parents' interest in their children's oral health, which is essential for preventing speech and developmental problems in children. However, it is important to highlight that conducting a study with a larger population would allow us to obtain a more precise image of the parents' situation regarding their knowledge and attitude regarding the importance of maintaining primary dentition. This is evidenced in other previous studies that included larger samples than the one used in this study, which brings us closer to the reality of this issue.

The study's limitation is that its scope does not establish the effectiveness of parents' influence on their children's oral health. Furthermore, it is necessary to carry out studies with multivariate analysis that takes into account different factors at the same time and thus be able to identify more complex relationships between the variables, which also allows the generalization of the findings to a broader population.

## 5. Conclusions

In 2022, in the Cercado de Lima district, it was observed that parents, in general, regardless of their educational level, gender, or age, had a medium-level knowledge and attitude towards the importance of preserving primary dentition. Furthermore, it was found that there were no significant relationships between these factors (education, sex, and age) and the level of knowledge and attitude about the importance of maintaining primary dentition. This is encouraging, as it demonstrates awareness about the importance of dental health in the population. Furthermore, it is interesting to note that education, sex, and age do not significantly influence this knowledge and attitude, suggesting that information about oral health may reach different segments of the population equitably. However, it would be relevant to continue promoting oral health education to maintain and even improve these levels of knowledge and attitude in the future.

## Author contributions

Conceptualization, HIAV and CJEA; methodology, HIAV; software, CAFG; validation, HIAV, FTCZ and CAFG; formal analysis, HIAV; investigation, CJEA and HIAV; resources, CJEA and HIAV; data curation, FTCZ; writing—original draft preparation, CJEA and HIAV; writing—review and editing, FTCZ and CAFG; visualization, FTCZ and CAFG; supervision, HIAV; project administration, HIAV and CAFG. All authors have read and agreed to the published version of the manuscript.

## Conflict of interest

The authors declare no conflict of interest.

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