



# INTERNASIONAL CONFERENCE ON MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE

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## Primary School Students' Level Of Knowledge About Brushing Their Teeth: An Evaluative Study

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### ABSTRACT

**Background:** Knowledge is the result of sensory processes, especially observation through the eyes and ears towards specific objects. Observing the level of knowledge is the initial step in assessing the understanding of basic concepts in a practice. If a student does not grasp these fundamental concepts, difficulties in comprehending higher levels are almost unavoidable. This principle also applies in the context of dental health. Disruptions in dental and oral health can impact a person's overall health and, therefore, affect the quality of human resources. This research aims to evaluate the knowledge levels of fourth and fifth-grade elementary school students regarding maintaining dental health, particularly in proper tooth brushing techniques. **Methods:** This research employed a descriptive analysis method that presented the distribution of knowledge levels based on gender and analyzed whether there was a significant difference in knowledge scores using the Mann-Whitney statistical test. **Results:** The research results indicated that male students exhibited a better level of knowledge in tooth brushing practices, with 7 out of 31 children achieving a good criteria compared to 5 out of 20 for female students. However, statistically, there was no significant difference in knowledge scores regarding tooth brushing between the two gender groups. **Conclusions:** In conclusion, although there is no statistically significant difference between genders in terms of knowledge levels, there is an indication that, at one level of knowledge, male students have a better understanding, which may help them adopt better and correct tooth brushing practices in the future.

**Keywords:** Knowledge, Dental health, Primary school children



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## INTRODUCTION

Dental and oral health is one part of the body that cannot or should not be separated from each other. Based on Septiani et al. (2022), Impaired dental and oral health can affect the health of a person's body so that it can affect the quality of human resources. Based on World Health Organization (WHO) & IHME (2018), dental and oral health problems, especially dental caries, are diseases experienced by almost half of the world's population of 3.58 billion people. The gum diseases or periodontal become the 11th most common disease in the world. While in Asia Pacific, oral cancer is the third most common type of cancer.

Depending on Petersen et al. (2014), research conducted is a meta-analysis of more than eleven million students start from grades 3 to 11 in America which shows that those who have advantages regarding intelligence are female in terms of verbal ability in general, while male are still less good than female because overall educational achievement seen from female has a value of 70% better than male. This proves that gender can affect a person's education in receiving a science.

According to Pontonuwu et al. (2013), contained in his research, explaining that the right knowledge can affect a person's behavior in improving dental and oral health. When the higher a person's knowledge, then the person will have good and correct behavior about dental and oral health.

One way to maintain healthy teeth is to brush your teeth. By brushing your teeth, plaque and food debris on the teeth can be removed, so as to maintain dental hygiene. In addition, brushing your teeth, can keep from bad breath. Dental plaque consists of a thin layer of clear and

sticky bacteria, food debris and saliva components. Plaque builds up on the teeth and is associated with both dental caries and gum disease.

Mechanical removal removes plaque by brushing teeth is the most effective method of cleaning teeth and preventing gum disease (Ajaegbu et al., 2020; Laurent Citradi et al., 2022; Makuch et al., 2011; Prasanth, 2011; Tashiro et al., 2019).

Research conducted by Hidayat et al. (2020), related to the success of the level of knowledge about dental health according to age, states that children aged 10-12 years have a good level of knowledge, in a percentage of 93%. The level of knowledge of dental and oral health in children is also observed based on the level of knowledge of dental health in their parents (Hidayah & Hendriani Praptiwi, 2021).

The results of the research analysis stated that 68% of respondents had a good level of knowledge. Thus, it can be concluded that the level of knowledge of children about dental health can depend on parents. If parents have a good level of knowledge, parents can be teachers of children to maintain dental health, so that children are well informed about dental health.

The purpose of this study was to determine the level of knowledge about how to brush teeth in grade IV and V elementary school children based on gender.

## METHOD

This research is a descriptive research. Descriptive analysis methods are used to analyze data by describing data by looking at population characteristics. This research has been carried out at SDN 1 Sangkaragung located in Jembrana



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District, Bali Province with a population of 51 grade IV and V students of SD N 1 Sangkaragung, Bali Province. Research data collection is carried out by taking primary and secondary data. Primary data were obtained from the results of measuring the level of knowledge of grade IV and V elementary school children about how to brush their teeth based on how to measure the results of the questionnaire, with an ordinal measuring scale. Secondary data is data obtained through attendance data for grade IV and V children, gender of grade IV and V children, and an overview of SDN 1 Sangkaragung Jembrana District. Data related to the level of knowledge were obtained by distributing questionnaires to respondents with a total of 20 questions. The criteria for the level of knowledge are divided into 3 categories, namely good with a score of 76 -100, enough with a score of 56 - 75, and less with a score of less than 56 (Lestari & Solikah, 2022).

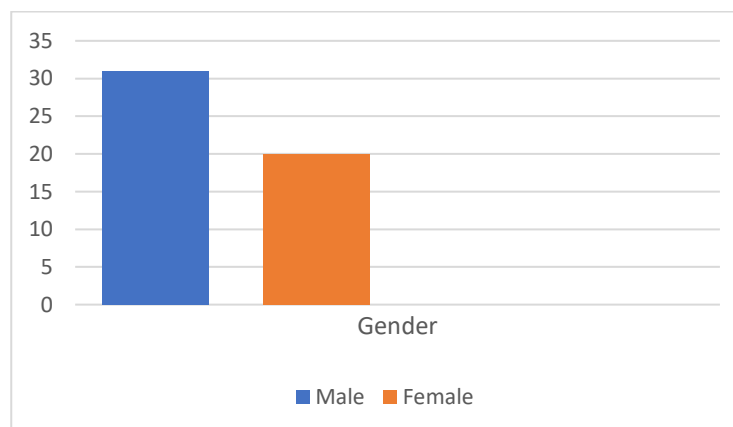
## Data Processing and Analysis

Data analysis is carried out statistically with univariate analysis by describing data sets in

the form of frequency, values with the most frequency, minimum values and maximum values of research variables. The next analysis carried out was bivariate analysis which was used to analyze the presence or absence of significant differences in the results of knowledge levels based on gender. This analysis was performed using SPSS 25 software. Normality testing is performed first to test the normality of data, then the Mann Whitney test if the data is not normally distributed or the independent t-test if the data is normally distributed. The test results are determined because the sample is not homogeneous (Quraysh & Madya, 2021).

## RESULT

SDN1 Sangkaragung located in Jembrana District, Bali Province has a total of 8 teachers, 80 boys, and 79 girls start from class I, grade II, grade III, class IV, class V, and class VI. Based on gender, the characteristics of the number of grade IV and V children of respondents to this study are shown in Table 1 below.





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Based on research conducted on student of SDN 1 Sangkaragung, located in Jembrana District, Bali Province with a target of classes IV

and V as many as 51 people, knowledge data was obtained as shown in Table 1.

Table 1. Frequency distribution of respondents based on level of knowledge according to female gender.

Criteria	<i>f</i>	Percentage (%)
Good	5	25
Enough	12	60
Less	3	15
Total	20	100

Table 1 shows univariate analysis data on the level of knowledge based on female gender with the highest score being sufficient

criteria (60%) totaling 12 people, and the lowest criteria being less than 15% or 3 people and good criteria with 5 students.

Table 2. Frequency distribution of respondents based on level of knowledge according to male gender.

Criteria	<i>f</i>	Percentage (%)
Good	7	22
Enough	23	75
Less	1	3
Total	31	100

Table 1 indicates that the level of knowledge based on male gender with the highest score is sufficient criteria (75%) with a total of 23 people, and the lowest criteria are less than 3% or 1 person and good criteria are 7 people.

Based on the data obtained, it shows that the average knowledge of male is higher (43.53) than the average knowledge of female

(27.16) with the overall score obtained by male of 2,220 from 31 children and female of 1,385 from 20 children and with a total average total of 70.69.

With regard to bivariate analysis, normality test results were carried out on the test data. The normality test is carried out as a step to determine the distribution of normal data.



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Table 3. Data normality test results

Gender	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Male	.175	31	.017	.888	31	.004
Female	.202	20	.032	.906	20	.053

a. Lilliefors Significance Correction

With a sample size of more than 50, the normality test results taken are the Kolmogorov-Smirnov results. Based on the results in Table 3, the Kolmogorov-Smirnov normality test value shows 0.032. This result shows that the data is

not normally distributed because it is less than 0.05. So, the results of the analysis were carried out to see the differences using the Wilcoxon test. The results of the Mann Whitney test in this study are shown in Table 4.

Table 4. Mann-Whitney test results

Test Statistics <sup>a</sup>	
	Scores
Mann-Whitney U	285.500
Wilcoxon W	495.500
Z	-.484
Asymp. Sig. (2-tailed)	.629

a. Grouping Variable: Gender

The results in Table 4 show the p-value for the Mann-Whitney test results at 0.629, where this value is more than the critical limit of 0.05. So it can be concluded that there is no significant difference between the two groups of male and female in terms of knowledge level results.

**DISCUSSION**

Dental and oral health promotion has an important role in dental maintenance in adults (Hugo et al., 2021), but dental health education must be started early, in order to monitor

children's growth and development and prevent pathology. Schools are responsible for children's overall education and provide guidance to parents, but can also be involved in dental and oral health promotion, supported and counseled by pediatricians and dentists (Saccomanno et al., 2023).

Good oral hygiene should start at an early age, and more importantly it is about cultivating good oral and dental health habits from childhood. This is because dental and oral health from childhood will affect until adulthood (Harsono, 2018). Teaching children about proper



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oral and dental care at a young age is an investment in their health. By taking good care of own teeth, they can send the message that maintaining oral health is actually a very valuable good thing (Mohan, 2018; Tashiro et al., 2019).

The results of the knowledge frequency data based on female gender of grade IV and V children of SDN 1 Sangkaragung received the highest score (60%) as many as 12 children with sufficient criteria, then (25%) as many as five children with good criteria, and (15%) as many as three children with less criteria. Grade IV and V boys obtained the highest score (75%) as many as 23 children with sufficient criteria, then (22%) as many as seven children with good criteria, and (3%) as many as one child with less criteria. This is because each gender has different characteristics and behaviors. Such results are reinforced by statistical test results which show that the p-value is 0.629, more than the critical limit of 0.05 which means that there is no significant difference. This is in line with the results of research (N.P. Mery, 2017), which shows that gender does not significantly affect dental and oral health behavior.

Male understand more about the knowledge of how to brush their teeth, as can be seen from the results obtained from answering the questionnaire with the total score achieved by male being 2.220, while for female it was 1.385. This is not in line with research. According to Petersen et al. (2014) female are superior in general verbal abilities, while male are still less good. Another factor that causes male to earn on average is higher than female because female have a higher number of 31 people, while female number as many as 20 children. The same thing was also revealed by (Ningsih, 2015) that female are more able to maintain dental health

compared to male as evidenced by the results of testing where the level of dental hygiene of female is better than male with a p value of < 0.05. So this study shows that there are differences in results where male are superior in terms of knowledge level or at the theory level. Even so, male students still have the potential to be able to follow a higher level, namely the practice or improvement of good and correct brushing behavior.

## CONCLUSION

Health promotion efforts are intensively carried out to keep children from dental disease, because dental disease can affect dental health in adulthood. Physically, and the psychology of male has differences with female where studies prove that female are superior in verbal skills, and the ability to maintain dental health, but this study refutes this with the results of testing that shows male are superior in the context of the theory of the level of knowledge of maintaining dental health as evidenced by an advantage of 7 out of 31, compared to female 5 out of a total of 20 people. However, there was no significant difference in these results. Thus, gender does not affect the level of knowledge of brushing students' teeth.

## BIBLIOGRAPHY

- Ajaegbu, E. E., Ezeh, C. U., Dieke, A. J., Onuora, A. L., & Ugochukwu, J. I. (2020). Antimicrobial Efficacy of Toothpastes Containing Fluoride against



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- Clinically Isolated Streptococci mutans. *Advances in Research*, September, 19–24. <https://doi.org/10.9734/air/2020/v21i1030247>
- Harsono, R. A. (2018). The Effect of Dental Health Education on Dental and Oral Health Behavior in Elementary School Students in Kupang, East Nusa Tenggara. *Mid-International Conference on Public Health* 2018. <https://doi.org/10.26911/mid.icph.2018.02.17>
- Hidayah, N., & Hendriani Praptiwi, Y. (2021). Gambaran Tingkat Pengetahuan Kesehatan Gigi dan Mulut pada Orang Tua Anak Usia Prasekolah. *Jurnal Kesehatan Gigi Dan Mulut*, 3(3), 11–17.
- Hidayat, S., Mumpungtiasa, E. D., & Andriyani, P. S. (2020). Tingkat Pengetahuan tentang Kesehatan Gigi Berhubungan dengan Perilaku Perawatan Gigi pada Anak Usia 10-12 Tahun. *Stomatognatic*, 17(2), 3740.
- Hugo, F. N., Kassebaum, N. J., Marcenes, W., & Bernabé, E. (2021). Role of Dentistry in Global Health: Challenges and Research Priorities. *Journal of Dental Research*, 100(7), 681–685. <https://doi.org/10.1177/0022034521992011>
- Laurent Citradi, J., Hatta, I., & Azizah, A. (2022). The Effectiveness of the Roll Tooth-Brushing Technique Toward Gingival Health Status of Totally Blind People. *Dentino : Jurnal Kedokteran Gigi*, 7(1), 1. <https://doi.org/10.20527/dentino.v7i1.13094>
- Lestari, S., & Solikah, S. N. (2022). Description of Mother's Knowledge Level in Stunting Prevention in Toddler Age Children in Kedungtungkul Mojosoно Surakarta. *Intan Husada: Jurnal Ilmiah Keperawatan*, 10(2), 177–183.
- Makuch, A., Reschke, K., & Rupf, S. (2011). Effective Teaching of Tooth-brushing to Preschool Children. *Journal of Dentistry for Children*, 78(1), 9–12.
- Mohan, S. (2018). Importance of Tooth Brushing in Pediatrics-A Short Review. *Interventions in Pediatric Dentistry Open Access Journal*, 1(4). <https://doi.org/10.32474/ipdoaj.2018.01.000118>
- Ningsih, D. S. (2015). Hubungan Jenis Kelamin Terhadap Kebersihan Rongga Mulut Anak Panti Asuhan. *ODONTO Dental Journal*, 2(1), 14–19.
- N.P. Mery. (2017). Pengaruh Umur, Jenis Kelamin dan Pengetahuan Terhadap Perilaku Anak Dalam Pemeliharaan Kebersihan Gigi dan Mulut Di Pusat Pengembangan Anak (Ppa) IO-641 Agape Sikumana Kota Kupang, Nusa Tenggara Timur. *Jurnal Poltekkes Kupang*.
- Petersen, R. C., Caracciolo, B., Brayne, C., Gauthier, S., Jelic, V., & Fratiglioni, L. (2014). Mild cognitive impairment: A concept in evolution. *Journal of Internal Medicine*, 275(3), 214–228. <https://doi.org/10.1111/joim.12190>