Journal Center of Excellent : Health Assistive Technology
Volume 4, Number 1, Tahun 2026, pp. 51-55
ISSN (Online): 2987-2200 DOI: 10.36082/jchat.v4i1.3078
Open Access: https://ejournal.poltekkesjakarta1.ac.id/index.php/jchat

Trivial pursuit media as an effort to increase knowledge of dental health maintenance in elementary school children

Arfiani Puspita Lovely[1*], Tedi Purnama[2], Pudentiana Rr RE[3], Ngatemi[4], Ni Nyoman Kasihani[5]

[1,2,3,4,5] Department of Dental Health, Polytechnic Health of Jakarta I, Indonesia

ARTICLE INFO

Article history:
Received: March 4, 2026
Revised: March 25, 2026
Accepted: March 30, 2026
Available online: March 31, 2026

Keywords:
Knowledge, dental and oral health, trivial pursuit

This is an open access article under the CC BY-SA license.

Copyright © 2026 by Author. Published by Center of Excellent (PUI) Poltekkes Kemenkes Jakarta I, Indonesia

ABSTRACT

Background: Data from the 2023 Indonesian Health Survey shows that over the past year, half of the Indonesian population aged over 3 years old has had oral and dental health issues. Knowledge about good oral health can prevent oral and dental issues. That is why oral and dental health education is very important, especially at the elementary school age. The application of suitable media for learning and methods of counseling might improve students' knowledge. This study uses the trivial pursuit game as a learning instrument to improve knowledge about how to maintain the oral and dental health. Objective: to analyze the effectiveness of trivial pursuit media as an effort to increase knowledge of dental health maintenance in elementary school children. Method: This study uses a pre-experimental method with a one group pre-test post-test design. Data analysis used a paired sample t-test. Results: This study shows an average of the knowledge score about how to maintain oral and dental health before playing with the trivial pursuit game of 70.53 and after playing of 93.77, with a p-value of 0.001 ($p < 0.05$) Conclusion: Trivial Pursuit media effectively increases knowledge of dental health maintenance in elementary school children.

INTRODUCTION

Health is defined as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. One important implication of this definition is that mental health is more than simply the absence of mental disorders or disabilities. At present, oral and dental diseases represent a major global public health challenge because of their significant socioeconomic impact. According to the World Dental Federation, dental caries is the most common chronic disease experienced worldwide. The World Health Organization (WHO) report on the global status of oral health in 2022 stated that approximately 3.5 billion people, or nearly half of the world's population, suffer from oral and dental diseases. The Oral Health Country Profile published by WHO indicates that Indonesia ranks second in Southeast Asia in terms of dental healthcare expenditure after Singapore (World Health Organization, 2022). Indonesian Health Survey in 2023 reported that half of the Indonesian population aged ≥3 years experienced oral and dental problems within the past year, with West Sulawesi having the highest prevalence and Bali the lowest. However, only 11.2% of individuals with oral health problems sought professional dental care (Kemenkes, 2023).

Adequate knowledge of oral and dental health can help individuals maintain optimal oral hygiene and should be practiced regularly (Purnama & Sofian, 2023). Preventive measures include reducing the consumption of sugary foods and foods that are difficult to clean, rinsing or brushing after eating, removing plaque and food debris by brushing, removing calculus, restoring carious teeth, extracting teeth that are severely damaged and cannot be preserved, and visiting a dentist at least every six months regardless of the presence of complaints (Ambarkova, 2025).

Individuals who possess good knowledge, attitudes, and behaviors toward oral and dental health tend to have lower caries experience (Noviani et al., 2023). Research by (Ngatemi, 2021) demonstrated that proper tooth-brushing habits and techniques can reduce the risk of dental caries. To prevent the high prevalence of oral and dental diseases, it is essential to raise awareness of healthy lifestyles and improve public understanding of oral health (Octavianita et al., 2024).

Oral health education and promotion programs can be implemented to enhance oral health knowledge (Tsakila & Purnama, 2025). School age is a critical period for developing high-quality

*Corresponding author
E-mail addresses: arfianipl@gmail.com

individuals, as children's knowledge can be improved through educational interventions. Promotive actions such as oral health education can increase public knowledge and awareness of the importance of maintaining health and improving overall health status (Reca & Restuning, 2022).

Oral and dental health plays an important role in supporting optimal general health (Lestari et al., 2022). Good oral health contributes to improved quality of life and human resource productivity. Since oral diseases are among the ten most common and widespread diseases worldwide, efforts to maintain oral health should begin during elementary school age (Putri et al., 2024).

According to (Purwono et al., 2014), instructional media play an important role in improving the quality of the learning process by making it more interesting and enjoyable. Appropriate learning methods can enhance the effectiveness of teaching, increase students' interest in learning, and facilitate understanding, which ultimately leads to better learning outcomes (Yuwanita et al., 2020).

Game-based media can serve as an alternative method of health education to attract students' interest (Xu et al., 2023). Interactive educational games are capable of creating active and enjoyable learning activities and increasing students' learning motivation (Zeng et al., 2020). (Selviyanti et al., 2019) reported that game-based media significantly improved students' knowledge, with mean knowledge scores increasing from 51.30 before education to 80.21 after the intervention. Another game medium that can be used is Trivial Pursuit, a board game that contains question-and-answer content across various (Nasella, 2019). Therefore, this game can also be applied as an educational medium for teaching oral health to school-aged children.

METHOD

This study a pre-experimental method using a one-group pre-test–post-test design. This approach allows for a more accurate assessment by comparing participants' conditions before and after the intervention. The design was applied to analyze the effectiveness of trivial pursuit media as an effort to increase knowledge of dental health maintenance in elementary school children. The sampling technique used in this study was total sampling, involving all 30 students as research participants.

The instruments used in this study included the Trivial Pursuit game media, an educational counseling unit, and a questionnaire consisting of 15 items designed to measure the level of knowledge regarding oral and dental health through the Trivial Pursuit game method. The study was conducted through two intervention sessions, with a five-day interval between the pre-test and post-test. The research procedures were as follows:

a. The researcher introduced herself and explained the study procedures to the respondents. Informed consent forms were distributed prior to data collection.
b. During the first visit, the researcher administered a pre-test questionnaire on oral and dental health maintenance to assess the respondents' baseline knowledge. This was followed by oral health education using the *Dental Trivial Pursuit* game, which was played in groups for 60 minutes. The students were divided into five groups, each consisting of six participants.
c. During the second visit, the researcher administered the post-test questionnaire to assess the respondents' knowledge after the intervention.

Data analysis is the process of transforming data into a more comprehensible format. This study applied bivariate analysis using SPSS software. The first step was to conduct a normality test. If the data were normally distributed, a paired sample t-test was performed. The results of the data analysis were then presented in tabular form.

RESULT

Table 1. Frequency Distribution of Respondents' Characteristics

Age	Frequency	Percentage (%)
10	5	16.7
11	21	70
12	4	13.3
Total	**30**	**100**
Gender		
Male	14	46.7
Female	16	53.3
Total	**30**	**100**

Table 1 It shows that the total number of respondents was 30. Based on the table, most respondents were 11 years old, totaling 21 students (70%), followed by 10-year-old respondents with 5 students (16.7%) and 12-year-old respondents with 4 students (13.3%).

Table 2. Frequency Distribution of Knowledge Before Playing the Trivial Pursuit Game Media

Knowledge	Frequency	Percent (%)
Good	9	30
Moderate	19	63.3
Poor	2	6.7
Total	**30**	**100**

Table 2 It shows that before receiving education using the Trivial Pursuit media, 9 students (30%) had good knowledge, 19 students (63.3%) had moderate knowledge, and 2 students (6.7%) had poor knowledge.

Table 3. Frequency Distribution of Knowledge After Playing the Trivial Pursuit Game Media

Knowledge	Frequency	Percent (%)
Good	30	100
Moderate	0	0
Poor	0	0
Total	**30**	**100**

Table 3 It shows that after the implementation of the educational intervention using the Trivial Pursuit media among fifth-grade students of SDN Kandang Panjang 01 Bogor, all students demonstrated an improvement in knowledge to the good category (100%).

Table 3. Normality Test of the Data

Knowledge	p-value
Pre-test	0.433
Post-test	0.989

*Shapiro-wilk

Table 3 It shows that the students' knowledge data yielded a p-value of 0.433 for the pre-test and 0.989 for the post-test, indicating that the data were normally distributed because the p-values were greater than 0.05.

Table 4. Effectiveness Test of Knowledge Levels Before and After the Educational Intervention Using the Trivial Pursuit Media

Knowledge	Mean	SD	p-value
Pre-test	70.53	10.72	0.001
Post-test	93.77	6.306	

***Paired Sample T-Test**

Table 4 It shows that the mean pre-test score of 70.53 increased to 93.77 in the post-test, with a p-value of 0.001 ($p < 0.05$). These results indicate that the use of the Trivial Pursuit media was effective in improving knowledge on how to maintain oral and dental health.

DISCUSSION

Knowledge is the continuation of a person's "knowing" that results from sensory perception of an object. Knowledge is obtained through the human senses, including sight, hearing, taste, smell, and touch. The level of knowledge possessed by each individual varies because the way people perceive objects also differs (Notoatmodjo, 2014). In line with the study by (Octavianita et al., 2024), game-based learning media are suitable for school-aged children because they can enhance students' activity and creativity.

The results of this study showed that before the educational intervention using the Trivial Pursuit game, the majority of fifth-grade students had a moderate level of knowledge, with 19 students (63.3%) categorized as having sufficient knowledge. This finding is consistent with the study by (Nasella, 2019),

which involved 18 children and reported a vocabulary mastery score of 60%. The relatively low level of knowledge in the present study may be attributed to the students' limited understanding of the correct timing and techniques of tooth brushing as well as the recommended schedule for routine dental check-ups. Another factor potentially contributing to the low level of knowledge is the participants' age, which ranged from 10 to 12 years. According to (Notoatmodjo, 2014), younger age is associated with lower levels of knowledge and a reduced ability to process new information. This is further supported by the study of (Ali, 2016), which demonstrated a significant effect of age on students' knowledge levels.

To improve students' knowledge regarding oral and dental health maintenance, the researcher conducted two educational intervention sessions using the Trivial Pursuit game. This game was designed to increase awareness and understanding of the importance of oral health through questions covering various topics related to dental and oral care. During the first visit, respondents completed the pre-test questionnaire and then played the Trivial Pursuit game. The researcher explained the game procedures and allowed the students to form groups. At the beginning of the game, the researcher facilitated each group. The students appeared enthusiastic and were able to discuss and collaborate effectively to find the correct answers.

The results indicate an increase in students' knowledge levels. After the educational intervention using the Trivial Pursuit media, all students achieved a good level of knowledge regarding oral and dental health maintenance. The mean knowledge score increased from 70.53 before the intervention to 93.77 after the intervention, with a mean difference of 23.24. Based on the paired sample t-test results in Table 7, a p-value of 0.001 ($p < 0.05$) was obtained, indicating that the Trivial Pursuit game was effective in improving students' knowledge of oral and dental health. The study by (Anggraeni & Christijanti, 2015), reported that the Trivial Pursuit game encouraged 99% of students to be more active and improved learning quality, with 98.6% of students achieving scores above 80. This supports the conclusion that the Trivial Pursuit game is effective in increasing students' knowledge, as game-based learning methods are able to enhance students' interest in learning.

The use of game-based media creates a more enjoyable learning atmosphere, trains children to socialize, solve problems, and develop their intellectual abilities. Games also introduce discipline through the rules that must be followed. This is in accordance with the study by (Sitanaya et al., 2021), which reported that the success of such interventions is supported by easily understandable material and group-based delivery that enables interaction among students. Enjoyable educational media also help children to better understand and retain the information presented.

Another advantage of the Trivial Pursuit game is that it provides immediate feedback to the respondents by reviewing the questionnaire answers as part of the evaluation process, allowing students to easily comprehend and internalize the information. The game was played in groups of six students, which allowed for effective group control and facilitated productive discussion. Therefore, playing Trivial Pursuit is expected to help students better understand how to maintain oral and dental health.

CONCLUSION

Based on the results of this study Trivial Pursuit media effectively increases knowledge of dental health maintenance in elementary school children.

ACKNOWLEDGE

The authors would like to express their sincere gratitude to the principal, teachers, and fifth-grade students of SDN Kandang Panjang 01 Bogor for their cooperation and participation in this study.

REFERENCES`

Ali, R. A. (2016). Efektivitas dental health education disertai demonstrasi cara menyikat gigi terhadap tingkat kebersihan gigi dan mulut anak sekolah dasar. *Pharmacon*, *5*(1). https://doi.org/10.35799/pha.5.2016.11237

Ambarkova, V. (2025). Dental Caries Prevention. *Oral Health-Systemic and Public Health Approaches: Systemic and Public Health Approaches*, 207.

Anggraeni, R., & Christijanti, W. (2015). Pendekatan Saintifik Berbantuan Biotrivial Pursuit Game Berbasis Bioedutainment Pada Materi Sistem Organisasi Kehidupan. *Journal of Biology Education*, *4*(3).

Kemenkes. (2023). Survei Kesehatan Indonesia 2023 (SKI). *Kemenkes*, 235.

Lestari, F., Djamil, M., & Wiyatini, T. (2022). Development of the Traditional Engklek Game Model to Improve

Dental and Oral Disease Prevention Behavior in Elementary School Children. *Journal of Drug Delivery & Therapeutics*, *12*(5).

Nasella, R. (2019). Pemanfaatan Modifikasi Permainan Trivial Pursuit Sebagai Media Pembelajaran Guna Meningkatkan Kosakata Bahasa Inggris Anak. *EduBasic Journal: Jurnal Pendidikan Dasar*, *1*(2), 107–115. https://doi.org/10.17509/ebj.v1i2.26512

Ngatemi, T. P. (2021). Counseling with Tooth Brushing Demonstration Method as an Effort to Improve Tooth Brushing Skills and the Status of Dental and Oral Hygiene in Early Childhood at School. *Medico Legal Update*, *21*(1), 684–687.

Notoatmodjo, S. (2014). Ilmu Perilaku Kesehatan. Jakarta: Rineka Cipta. *Biomass Chem Eng*, *49*(23–6).

Noviani, N., Ngatemi, N., Fadjeri, I., Purnama, T., & Restuning, S. (2023). Stair poster media as an effort to improve the dental health behavior of elementary school children. *Asian J Dent Health Sci*, *3*(3), 14–18. https://doi.org/10.22270/ajdhs.v3i3.48

Octavianita, D., Purnama, T., Emini, E., & Nurilawaty, V. (2024). Bingo Game in Improving Dental Health Knowledge in Elementary School. *Journal Center of Excellent: Health Assistive Technology*, *2*(2), 75–80. https://doi.org/10.36082/jchat.v2i2.1784

Purnama, T., & Sofian, R. (2023). Dental Phantom Dolls: A Media Innovation in Teaching Brushing Teeth To Preschool Children. *JDHT Journal of Dental Hygiene and Therapy*, *4*(2), 160–165. https://doi.org/10.36082/jdht.v4i2.1296

Purwono, J., Yutmini, S., & Anitah, S. (2014). Penggunaan Media Audio-Visual Pada Mata Pelajaran Ilmu Pengetahuan Alam di SMP Negeri 1 Pacitan. *Jurnal Teknologi Pendidikan Dan Pembelajaran*, *2*(2), 127.

Putri, R. F. S., Setyawati, B. P., Wiranto, D., & Nurwanti, W. (2024). Snakes and Ladders Game Media on the Behavior of Brushing Teeth in Elementary School Children. *Journal Center of Excellent: Health Assistive Technology*, *2*(1), 10–15. https://doi.org/10.36082/jchat.v2i1.1526

Reca, R., & Restuning, S. (2022). Pengaruh Edukasi Kesehatan Gigi Terhadap Pengetahuan Anak Di Sdn 12 Kota Banda Aceh. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, *14*(1), 215–221. https://doi.org/10.34011/juriskesbdg.v14i1.2060

Selviyanti, S. S., Ichwanuddin, I., Judiono, J., Suparman, S., & Tiara, D. N. (2019). Penyuluhan gizi dengan media flashcard terhadap pengetahuan pesan umum gizi seimbang pada siswa sekolah. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, *11*(2), 82–91. https://doi.org/10.34011/juriskesbdg.v11i2.674

Sitanaya, R. I., Lesmana, H., Irayani, S., & Septa, B. (2021). Simulasi Permainan Ular Tangga Sebagai Media Peningkatan Pengetahuan Kesehatan Gigi dan Mulut Anak Usia Sekolah Dasar. *Media Kesehatan Gigi: Politeknik Kesehatan Makassar*, *20*(2), 28–33.

Tsakila, S. Q., & Purnama, T. (2025). *Uno Dental Card Game as an Effort to Improve Dental Health Knowledge in Elementary School Students*. *3*(1), 14–18. https://doi.org/10.36082/jchat.v3i1.2204

World Health Organization. (2022). Global oral health status report. In *Dental Abstracts* (Vol. 57, Issue 2).

Xu, M., Luo, Y., Zhang, Y., Xia, R., Qian, H., & Zou, X. (2023). Game-based learning in medical education. *Frontiers in Public Health*, *11*, 1113682. https://doi.org/10.3389/fpubh.2023.1113682

Yuwanita, I., Dewi, H. I., & Wicaksono, D. (2020). Pengaruh metode pembelajaran dan gaya belajar terhadap hasil belajar IPA. *Instruksional*, *1*(2), 152–158. https://doi.org/10.24853/instruksional.1.2.152-158

Zeng, J., Parks, S., & Shang, J. (2020). To learn scientifically, effectively, and enjoyably: A review of educational games. *Human Behavior and Emerging Technologies*, *2*(2), 186–195. https://doi.org/10.1002/hbe2.188