



EFFECTIVENESS BETWEEN MEDIA VIDEO AND EDUCATIONAL GAMES ABOUT THE BEHAVIOR OF BRUSHING YOUR TEETH

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ABSTRACT

Background: The causes of dental and oral health problems are behaviors, behaviors that often ignore dental and oral hygiene. In Indonesia, 94.7% of daily brushing behaviors were shown, but only 2.8% brushed their teeth at the correct time. One of the efforts in improving the degree of dental and oral health is by promoting or promoting health. Health promotion efforts to facilitate the delivery of messages or information is usually used by the media. Many media can be used, one of which is video media and educational games to help the delivery of information. Media is also included in socialization agents that can play a role in developing and influencing one's behavior. **Method:** This type of research is literature review research. The data used in literature review research is secondary data that can be obtained from various forms of literature. The secondary data source uses 3 databases: PubMed, Google Scholar and Ebsco. Literature is searched by keyword and Boolean operator (AND, OR, and NOT). Criteria for inclusion and exclusion of literature using PICOS strategy. **Result:** The author screened based on titles tailored to predetermined topics (n = 25). Re-screening was carried out in accordance with PICOS criteria obtained (n = 10) articles used in literature review. **Conclusion:** Educational game media is more effective in improving knowledge, attitudes and actions of dental and oral hygiene. The advice for health workers is expected to provide dental health counseling using video or educational games in improving knowledge, attitudes and actions of brushing teeth.

Keyword: video; educational games; behavior

Introduction

Problems that occur in Indonesia are dental and oral health. The number of dental and oral problems reached 57.6%. South Kalimantan is a province that has quite high dental and oral problems at 59.6%. The age group of 5-9 years who are very vulnerable to

dental and oral problems was ranked first in the 2018 Riskesdas report at 67.3%.¹

One of the factors that cause dental and oral health problems is behavior, that often ignores dental and oral hygiene. One of the ways to keep your teeth and mouth clean is by brushing your teeth properly and correctly.² In

fact, most Indonesians are still indifferent to this recommend, so socialization efforts are needed from an early age.

Indonesia showed that brushing their teeth every day was 94.7%, but only 2.8% brushed their teeth at the right time. In the province of South Kalimantan, the proportion of daily tooth brushing behavior and the correct time to brush your teeth is 96% of brushing your teeth every day and 5% of brushing your teeth at the right time.¹

Efforts to improve the highest level of health, initially in the form of healing diseases, then developing into health efforts are any activities or series of activities carried out in an integrated, integrated and sustainable manner to maintain and improve health. The series of activities include efforts to improve health (*promotive*), disease (*preventive*), healing (*curative*), and health restoration (*rehabilitative*).³

One of the efforts to improve health status is by means of promotive or health promotion. Promotive activities or health promotion are one of the efforts to increase knowledge, attitudes, and actions for healthy living behavior by means of health education.⁴ Knowledge, attitudes, and actions are factors that influence a person's awareness in maintaining dental and oral health.⁵

In an effort to promote health to facilitate the delivery of messages or information, media is usually used. According to Arsyad, the use of media has practical benefits, namely: learning media can facilitate the delivery of messages and information so as to obtain improvements in learning processes and outcomes, learning media are able to foster interest in learning, create direct relationships between students and the environment, and allow students to learn directly. Independently according to their abilities and interests, and learning media can be a solution to the limitations of the senses, space, and time.⁶

Thus, the target can learn the message of health messages and be able to decide adopt behaviors according to the message.

What is meant by media or educational aids are tools used by educators in delivering educational or teaching materials. These tools are more often referred to as teaching aids or media because they function to help and demonstrate something in the educational or teaching process.⁷ The media is included in the socialization agent that can play a role in developing and influencing one's behavior.

Educational media or educational aids used to facilitate the acceptance of health messages for students are silent projection media, one of which is video and games.⁸

In writing *literature* review, the authors follow the guidelines *Preferred Reporting Items for Systematic Reviews and Meta-Analyzes* (PRISMA) *statement* which is useful as a means of documentation of literature searches and there is a flow diagram to illustrate: the identification process search results, the selection, the amount of literature that meet eligibility to be reviewed thoroughly so that it can be included in the *review*.

Therefore, the authors are interested in making a *literature review* to find out about "Effectiveness Between Media Video and Educational Games About the Behavior of Brushing Your Teeth".

Method

This study aims to determine the effectiveness between video media and educational games about tooth brushing behavior. This type of research is a research *literature review*, which is a systematic and explicit research method in identifying, selecting, critically assessing, and synthesizing the results of the relevant literature according to the topic.⁹ The synthesis carried out is in the form of *contrast/compare* (compare) the data obtained through literature selection to reach

certain conclusions.¹⁰

The data used in the research *literature review* is secondary data that can be obtained from various forms of *literature*. The secondary data sources use 3 *databases*, namely: *PubMed*, *Google Scholar* and *Ebsco*. Literature is searched based on *keywords* (keywords) and *Boolean operators* (*AND*, *OR*, and *NOT*). The literature inclusion and exclusion criteria used the PICOS strategy.

479 literatures were obtained from search results using *keywords* in the three *databases* mentioned above. Then the search results were checked for duplication and found 9 identical literatures. So that was removed and the remaining 470 literature.

The author then conducted a screening based on the title that was adjusted to the predetermined topic (n = 25). Screened again through the abstract according to the specified PICOS criteria (n = 14). Furthermore, a carried out *assessment assessment is* or feasibility on the literature obtained in accordance with the specified PICOS inclusion and exclusion criteria. Obtained as much as (n = 10) literature used in the *literature review*.

Results and Discussion

A. Results

Tabel 1 Research article data

No	Author, Year of publication, Title of Article
1	Randasuli L. et al (2019) Audiovisual extension and simulation methods effectively improve brushing skills
2	Riris risca M. et al (2016) Effectiveness of health education with audiovisual media by peer group against knowledge of brushing teeth 4th and 5th grade at SDN Kalicari 01 Semarang
3	Ketut Harapan et al (2020) Effectiveness of innovative video application methods with the method of brushing teeth against

	dental and oral hygiene of elementary school students inpres buntong mandolang district minahasa
4	Tibertius A.W Dali et al (2020) Increase in Knowledge of Dental Health Using Animated Video
5	Jusuf kristianti et al (2018) Effectiveness of dental and oral health with video media through whatsapp in improving the degree of dental and oral health in orphanage yos sudarso jakarta
6	Bedjo santoso et al (2019) Monopoly game as android-based dental health education media
7	Dov jacobson et al (2019) Evaluating child toothbrushing behavior changes associated with a mobile game app: A single arm pre/post pilot study
8	Ahmad aljafari et al (2015) An oral health education video game for high caries risk children: study protocol for a randomized controlled trial
9	Edvin Batuwael et al (2016) Analysis and Designer of Oral Hygiene Education Games in Children Aged 5-10 Years Based on Android
10	Pradhethi sara et al (2016) Effectiveness of Health Education Methods With Simulation of Snake Ladder Game Against Changing Attitudes About Dental And Oral Health of School-Aged Children In SDN 03 Singkawang Tengah

From the findings of the journal Latuconsina, R. et al, 2019; Hope, I. K. et al, 2020; Tibertius, A. W. et al, 2020; Kristianto, J. et al, 2018; Sari, N. N. R. P. et al. 2019 show video can improve knowledge, dental and oral health attitudes, and brushing skills. From the findings of the journal Santoso, B. et al 2019; Jacobson, D. et al, 2019; Aljafari, A. et al, 2015; Batuwael, E., Et al, 2016; Sara,

P. 2016 on educational games can also increase knowledge, attitude and even decrease ohi-S, the time of brushing and frequency of brushing the teeth so better.

B. Discussion

From 10 journal findings, it shows that educational videos and games can improve knowledge, oral health attitudes, and teeth brushing skills. Audiovisual or video media can increase knowledge about brushing teeth. This increase is because school-age children find it easier to learn new things from their peers, especially if the information is given repeatedly.¹¹

By providing information through video media repeatedly, it will increase children's awareness of dental health problems, so that it will be a signal to improve the child's dental and oral health.

In line with the research of Dali, et al (2020) stated that with the use of animated videos there was a change in terms of increasing dental health knowledge. The increasing knowledge about dental and oral health will affect the behavior to maintain dental and oral hygiene.¹² so with the selection of creative and innovative media, the material presented is not monotonous and not boring so that the provision of information about dental and oral health becomes better.

Video media is said to be able to increase knowledge because videos can make sounds, bring up moving and colorful images, so that they can attract children's attention in learning.¹³

The video method mixed with color will have a very strong influence so that there will be differences in cognitive development before and after the intervention.¹⁴

The provision of videos will have a

positive impact in the form of improving dental hygiene which can be seen from the decrease in the OHI-S number.¹⁵ Children learn through their observation of an activity carried out by people around and also children learn from what they hear, so that they gain experience about an event and children will be easier to imitate.

In terms of dental and oral health, it is influenced by health behavior factors, which include knowledge, attitudes, and actions.¹⁶ Knowledge about children's oral health is very important in shaping behavior that supports children's oral hygiene. With low knowledge about dental and oral health is a predisposing factor of behavior that does not support dental and oral health.¹⁷

Similarly, other research shows that videos are more effective at increasing knowledge and improving dental and oral hygiene. Through the videos displayed, it is possible to be influenced by the nature of the cartoon film media which is preferred by children because it is more interesting than demonstration media.¹⁸ By providing counseling through the video method, it is possible to influence children's motivation and children prefer it than other methods.

Meanwhile, using audiovisual or video methods and simulations can improve teeth brushing skills. The provision of audiovisual or video media is a learning activity that involves hearing and vision at the same time in one process or activity.¹⁹ So the learning process will be more active and more fun. Children will be more interested in following the video media process, so that the expected behavior changes can occur.²⁰ With changes in children's behavior for the better, their skills in brushing teeth will also increase. Brushing teeth is an

important routine activity in maintaining and maintaining dental health every day.

Brushing teeth is a plaque control and the first step to prevent caries. Currently, plaque control has been equipped with an understanding of active ingredients that contain large natural or synthetic ingredients as antibacterial ingredients that are available in the form of mouthwash and toothpaste.²¹

There is an influence of dental health education media, namely the Android-based dental health monopoly game application on increasing dental health knowledge and attitudes in the intervention group and leaflets in the control group both could increase dental health knowledge and attitudes. However, the improvement in the intervention group given the Android-based dental health monopoly game was greater than in the control group given the leaflet. The difference is shown through the mean value of the difference in the intervention group, which is 74.55 and 74.33 while in the control group it is only 46.45 and 46.57.²²

Similarly, other studies say knowledge and attitudes can improve with educational games or games.²³

Educational games can increase knowledge and improve oral and dental hygiene.²⁴ So with educational games children can be motivated so as to change the bad habits of children in oral hygiene. It is proven that the higher the child's knowledge about oral and dental health, the better the dental care behavior.²⁵

Meanwhile, after seven days by playing brush up games about brushing teeth can improve the quality of brushing children's teeth. So the distribution time of children's toothbrushes is increasing, with

a significant increase in the buccal lingual, maxillary occlusal, and posterior buccal surfaces, so that educational games are effective in improving the quality of brushing teeth.²⁶

In line with the other research also said that the educational game in the child's behavior is getting better brushing teeth.²⁷

Posters, leaflets, flipcharts are media that are often used in dental health education in elementary schools. The media is starting to be considered less attractive because of the times so it is necessary to develop interesting dental health education media and utilize technology. This is in accordance with the opinion of Pratiwi (2016) which states that the provision of health education will look attractive if it is delivered with interesting media.²⁸

One of the interesting media is educational games or games, educational games are a form of game that can be useful to support the teaching and learning process in a more fun and creative way to develop students' abilities, and are used to provide teaching or increase students' knowledge through an interesting medium.²⁹

Media games have the advantage of being able to stimulate the effects of motion so that it looks more attractive and easier to stimulate students' understanding cognitively, affectively, psychometrically, and competitively which can foster a sense of wanting to win.³⁰

Knowledge is a result of curiosity through sensory processes, especially in the eyes and ears of certain objects. Knowledge is an important domain in the formation of open behavior or *open behavior*.³¹ knowledge or *knowledge* is the

result of human senses or results to know a person against an object through its senses. The five human senses are useful for sensing objects, namely sight, hearing, smell, taste and touch.

Good knowledge about dental and oral health will have a positive effect on attitudes and actions to maintain dental and oral health. Knowing proper oral cleaning procedures is fundamental to maintaining good oral hygiene.³²

This knowledge's will raise their awareness, and eventually will cause people to behave in accordance with the knowledge they have. The behavioral changes achieved will be lasting because they are based on their own awareness.³³

It can be concluded that video media is said to be able to increase knowledge, attitudes and actions of brushing teeth because children will be interested in choosing creative and innovative media so that the material presented is not monotonous, so that children will be motivated and there will be changes in behavior in maintaining dental and oral hygiene. Educational game media utilize learning through learning patterns and playing by utilizing computer or smartphone devices. Educational game media is a combination that is very close to children's daily activities. This closeness will bring a feeling of pleasure, can stimulate children's thinking power, foster a competitive nature and increase children's motivation. This educational game can also provoke children's interest in learning the subject matter in a fun way, so that with this feeling of pleasure it is hoped that they can more easily understand the subject matter presented.

Conclusion

Based on the results of the Literature Review regarding the effectiveness of video media and educational games on tooth brushing behavior, it can be concluded that educational game media are more effective in increasing knowledge, attitudes and actions of brushing teeth. Educational staff and health workers are expected to be able to carry out promotive activities, namely dental health counseling using videos or educational games in increasing knowledge, attitudes, and actions of brushing teeth

References

1. Kemenkes Ri., (2018). Laporan Hasil Riset Kesehatan Dasar. Kementerian Kesehatan Republik Indonesia. Jakarta.
2. Ariyanto, A. (2018). Faktor-Faktor Yang Berhubungan Dengan Perilaku Pemeliharaan Kebersihan Gigi Dan Mulut di Kelurahan Wonoharjo Kabupaten Tanggamus. *Jurnal Analis Kesehatan*, 7(2), 744-748.
3. Depkes, 2009. Pedoman Penyelenggaraan Upaya Pelayanan Kesehatan Gigi di Puskesmas, Jakarta.
4. Notoatmodjo, (2005). Promosi Kesehatan Dan Ilmu Kesehatan. Rineka Cipta, Jakarta.
5. Santoso, B., Anwar, M. C., & Muliadi, M. (2019). Monopoly Game As Android-Based Dental Health Education Media. *Journal Of Applied Health Management And Technology*, 1(1), 7-15.
6. Syifa D. A., (2020). Penggunaan Media Permainan Uno Stacko Untuk Penguasaan Kosa Kata Dalam Pembelajaran Bahasa Jepang Level Dasar, *Jurnal Universitas Negeri Surabaya*, Surabaya.
7. Notoatmodjo, (2007). Promosi Kesehatan Dan Ilmu Perilaku. Rineka Cipta, Jakarta.
8. Sadiman Arief S., Dkk, (2007). Media Pendidikan: Pengertian, Pengembangan, Dan Pemanfaatannya. Pt Rajagrafindo Persada. Jakarta.
9. Okoli C., (2015). 'A Guide To Conducting A Standalone Systematic Literature Review'. *Communications Of The Association For Information Systems*.

- 37(1). Pp. 879–910. Doi: 10.17705/1cais.03743
10. Joanna T., (2015). Systematic Review Resource Package, Joanna Briggs Institute. Adelaide: Joanna Briggs Institute.
 11. Megawati, R. R., Hartati, E., & Supriyono, M. (2016). Efektivitas Pendidikan Kesehatan Dengan Media Audiovisual Oleh Peer Group Terhadap Pengetahuan Menggosok Gigi Kelas 4 Dan 5 Di Sdn Kalicari 01 Semarang. Karya Ilmiah.
 12. Tibertius, A. W. D., Limbu, R., & Boeky, D. L. (2020). Increase In Knowledge Of Dental Health Using Animated Video. Lontar: Journal Of Community Health, 2(1), 21-25.
 13. Arsyad, A., (2011). Media Pembelajaran. Rajawali Pers. Jakarta.
 14. 31. Megawati, R. R., Hartati, E., & Supriyono, M. (2016). Efektivitas Pendidikan Kesehatan Dengan Media Audiovisual Oleh Peer Group Terhadap Pengetahuan Menggosok Gigi Kelas 4 Dan 5 Di Sdn Kalicari 01 Semarang. Karya Ilmiah.
 15. Kristianto, J., Priharti, D., & Abral, A. (2018). Efektifitas Peyuluhan Kesehatan Gigi Dan Mulut Dengan Media Video Melalui Whatsapp Dalam Meningkatkan Derajat Kesehatan Gigi Dan Mulut Di Panti Asuhan Yos Sudarso Jakarta. Quality: Jurnal Kesehatan, 12(1), 8-13.
 16. Setiawati S., Dermawan A.C., (2008). Proses Pembelajaran Dalam Pendidikan Kesehatan. Trans Info Media. Jakarta.
 17. Notoatmodjo, (2007). Promosi Kesehatan Dan Ilmu Perilaku. Rineka Cipta, Jakarta.
 18. Harapan, I. K., & Adam, J. Z. (2020). Efektivitas Metode Aplikasi Video Inovatif Dengan Metode Demonstrasi Menyikat Gigi Terhadap Kebersihan Gigi Dan Mulut Siswa Sekolah Dasar Inpres Buntong Kecamatan Mandolang Kabupaten Minahasa. Jurnal Kesehatan Gigi, 7(2), 108-112.
 19. Latuconsina, R., & Maelissa, S. R. (2019). Keberhasilan Metode Audiovisual Dan Simulasi Terhadap Keterampilan Menggosok Gigi Siswa. Moluccas Health Journal, 1(1).
 20. Sadiman Arief S., Dkk, (2007). Media Pendidikan: Pengertian, Pengembangan, Dan Pemanfaatannya. Pt Rajagrafindo Persada. Jakarta.
 21. Sari, N. N. R. P., Purwanti, I. S., & Juanamasta, I. G. (2019). Edukasi Film Terhadap Perilaku Menggosok Gigi Pada Anak Usia 6-8 Tahun. Promotif: Jurnal Kesehatan Masyarakat, 9(2), 152-158.
 22. Santoso, B., Anwar, M. C., & Muliadi, M. (2019). Monopoly Game As Android-Based Dental Health Education Media. Journal Of Applied Health Management And Technology, 1(1), 7-15.
 23. Sara, P. (2016). Efektifitas Metode Pendidikan Kesehatan dengan Simulasi Permainan Ular Tangga terhadap Perubahan Sikap tentang Kesehatan Gigi dan Mulut Anak Usia Sekolah di SDN 03 Singkawang Tengah. Jurnal ProNers, 3(1).
 24. Aljafari, A., Rice, C., Gallagher, J. E., & Hosey, M. T. (2015). An Oral Health Education Video Game For High Caries Risk Children: Study Protocol For A Randomized Controlled Trial. Trials, 16(1), 1-10.
 25. Yusmanijar, & Abdulhaq, M. (2019). Hubungan Tingkat Pengetahuan Tentang Keskilut Dengan Perilaku Perawatan Gigi Dan Mulut Pada Anak Usia Sekolah 7-9 Tahun Di Sd Islam Al Amal Jaticempaka. Afiat, 5(01), 80-91.
 26. Jacobson, D., Jacobson, J., Leong, T., Lourenco, S., Mancl, L., & Chi, D. L. (2019). Evaluating Child Toothbrushing Behavior Changes Associated With A Mobile Game App: A Single Arm Pre/Post Pilot Study. Pediatric Dentistry, 41(4), 299-303.
 27. Batuwael, E., Dkk, (2016). Analisis Dan Perancangan Game Edukasi Kebersihan Mulut Pada Anak Umur 5-10 Tahun Berbasis Android. E-Jurnal Teknik Informatika.
 28. Pratiwi, D. A., Yuniar, N., & Erawan, P. E. M. (2016). Pengaruh Penyuluhan Metode Permainan Edukatif Dan Metode Ceramah Terhadap Pengetahuan, Sikap Dan Tindakan Tentang Pencegahan Penyakit Diare Pada Murid Sd Di Kecamatan Poasia

- Kota Kendari Tahun 2015. (Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat), 1(2).
29. Palguna, Y.N., Wiranatha, A.K.A.C. And Buana, P.W., (2020). Aplikasi Game Rpg Little Krishna Adventure. Jitter: Jurnal Ilmiah Teknologi Dan Komputer, 1(2), Pp.274-284.
 30. Santoso, B., Anwar, M. C., & Muliadi, M. (2019). Monopoly Game As Android-Based Dental Health Education Media. Journal Of Applied Health Management And Technology, 1(1), 7-15.
 31. Yusmanijar, & Abdulhaq, M. (2019). Hubungan Tingkat Pengetahuan Tentang Kesgilut Dengan Perilaku Perawatan Gigi Dan Mulut Pada Anak Usia Sekolah 7-9 Tahun Di Sd Islam Al Amal Jaticempaka. Afiat, 5(01), 80-91.
 32. Marimbun, B. E., Mintjelungan, C. N., & Pangemanan, D. H. (2016). Hubungan Tingkat Pengetahuan Tentang Kesehatan Gigi Dan Mulut Dengan Status Karies Gigi Pada Penyandang Tunanetra. E-Gigi, 4(2).
 33. Notoatmodjo, (2010). Ilmu Prilaku Kesehatan. Rineka Cipta, Jakarta