Jurnal Healthsains
Printed ISSN: 2722-7782
Electronic ISSN:2722-5356
jurnal.healthsains.co.id

INFORMATION TECHNOLOGY-BASED EDUCATIONAL VIDEO MODEL FOR CHANGES IN GINGIVAL HEALTH STATUS IN ADOLESCENTS

Ainul Auliyah A, Supriyana, Bedjo Santoso, Endah Aryati Eko Ningtyas, Kusno
Poltekkes Kemenkes Semarang, Jawa Tengah, Indonesia
Email: auliyah0597@gmail.com, hastama99@yahoo.com, bedjosantoso27@gmail.com, endahsmg@yahoo.com, denkusno1971@gmail.com

Keywords:
Knowledge; Attitude; Skills; Gingival Index (GI); Educational Videos; Gingival Status.

ABSTRACT
The health problem that adolescents often experience is dental and oral hygiene. RISKESDAS data for 2018, 57.6% of Indonesian people have dental and oral health problems. Gingival problems are common in adolescents. Lack of dental and oral hygiene causes gingival inflammation. Plaque, bacteria, and calculus that accumulate on the tooth surface are the leading causes of periodontal disease. Early detection that is carried out independently and providing solutions for patient prevention and treatment is essential. Media currently developing among adolescents is technology-based media which is increasingly creative and can be a solution for preventing dental disease and providing appropriate information technology-based educational videos and their practical application to changes in gingival health status in adolescents. Research and Development (RnD) with Quasy Experiment pretest-posttest control group design is the research method used. Educational video based on information technology is appropriate for changes in gingival health status with the results of expert validation of 83% and p-value of 0.044, and its application is effective in increasing knowledge (p=0.000), attitude (p=0.002), skills (p=0.000), GI (p = 0.001). As well as indicated by the delta value of knowledge (2.14), attitude (1.29), skills (2.14), and decreased GI score (0.44) compared to the control group. Educational videos have proven appropriate and effective in their application to changes in gingival health status in adolescents marked by decreased gingival index scores.

Info Artikel | Artikel masuk 03-04-23, Direvisi 16-04-23, Diterima 22-04-23

INTRODUCTION

One indicator of dental and oral health is the cleanliness of the oral cavity. This can be seen from the cleanliness of the oral cavity from organic deposits in the form of alba material, calculus, food waste, and dental plaque (Sukanti, 2017). Dental and oral health in Indonesian people is something that needs attention (Hidayat, 2014). Dental and oral health problems, namely diseases of the gums (periodontal), are the 11th most

How to cite: Ainul Auliyah A, Supriyana, Bedjo Santoso, Endah Aryati Eko Ningtyas, Kusno (2023) Information Technology-Based Educational Video Model For Changes In Gingival Health Status In Adolescents, *Journal Health Sains*, *4*(4).
https://doi.org/10.46799/jhs.v4i4.884
E-ISSN: 2722-5356
Published by: Ridwan Institute

common worldwide (Adam & Ratuela, 2022). Based on data from Basic Health Research (RISKESDAS) in 2018, it is stated that as many as 57.6% of Indonesians have dental and oral health problems (Rahmadhita, 2020). The most significant proportion of dental problems in Indonesia, is damaged/cavities/pain at 45.3%. While oral health problems experienced by the majority of the Indonesian population are swollen gums and boils (abscesses) by 14% (Adam & Ratuela, 2022).

Based on data from Basic Health Research (RISKESDAS) in 2018, it is stated that as many as 57.6% of Indonesians have dental and oral health problems (Rahmadhita, 2020). The most significant proportion of dental problems in Indonesia, is damaged/cavities/pain at 45.3%. In contrast, oral health problems experienced mainly by the Indonesian population are swollen gums or boils (abscesses) 14% (Adam & Ratuela, 2022). Data from The National Health Survey (NHS) shows the prevalence of gingivitis 38% at the age of 6-11 years, 62% at the age of 12-17 years, and 57% at the age of 18-24 years. So the highest prevalence of gingivitis occurs during puberty (Sukanti, 2017).

Dental and oral hygiene problems and gingiva often occur in adolescents aged 12-15. This is because this age is the critical age for measuring indicators of periodontal disease in adolescents as the age for examination. After all, the teeth have fully grown. Therefore, poor dental and oral hygiene can cause gingival inflammation. Plaque, bacteria, and calculus that accumulate on the surface of teeth are the leading causes of periodontal disease. Periodontal disease often found in adolescents is gingivitis, an inflammatory disease of the tissue around the teeth that begins with gingival inflammation and continues to damage other dental support tissue structures such as cementum, periodontal tissue, and alveolar bone (Korompot et al., 2019). The severity of the disease, can vary in children and adolescents, but this incidence tends to increase with puberty (Wilis et al., 2017).

Inflammation at puberty will disappear if it has passed but cannot disappear entirely unless maximum plaque control is done (Eldarita, 2019). This is due to the need for more public awareness and knowledge to maintain dental health. In addition, cost-saving factors prevent people from routinely carrying out dental examinations and treatments (Eldarita, 2019). Everyone has the right to get the personal health care they need to live a healthy and productive life. However, people are sometimes reluctant to go to health services because they cannot afford to pay to meet their medical needs when seriously ill (Supriyana et al., 2019).

Early detection is carried out independently, and providing solutions for prevention and first treatment to patients before being rushed to the dentist for further examination is necessary (Ikhsan & Santi, 2020). Media which is currently developing among teenagers is technology-based. Information and communication technology that is developing so quickly affects various existing media. It encourages humans to be more creative in managing science to change the human mindset to think effectively and efficiently to be included in developments in the world of information and communication technology (Hidayat, 2014). The development of information and communication technology today involves many multimedia fields because it effectively conveys

information (Hidayat, 2014). Era 4.0 (digital era) is based on science and technology because science and technology will develop increasingly globally, so the education structure must-have aspects of science and three-dimensional applications. The use of an application using a smartphone is a modern service media that is currently very popular with children. Health services are carried out in an integrated manner through smartphones which include promotive, preventive, curative, and rehabilitative approaches (Kuswanto & Radiansah, 2018).

Existing applications can support adolescents' knowledge, attitudes and skills in maintaining healthy teeth and mouth. The more attractive physical appearance in the media will be more motivated to learn, which can affect learning outcomes. A learning medium's beauty, attractiveness and interactivity will make children not saturated and receive the material well (Kuswanto & Radiansah, 2018).(Kuswanto & Radiansah, 2018)

Behaviour change theory states that it takes 21 days to change a person's habits. The 21 days are divided into three stages. Namely, the first seven days are introductions, then the second 7 days are repetitions, where they enter the training stage. Then for the last seven days, it has been more towards strengthening where towards the expected stabilization of behaviour changes into a habit (Santoso et al., 2020).

Various kinds of media are used in health promotion to support the improvement of dental and oral health behaviour. One media that can be used is information technology-based educational video media. This media plays a role in providing education about gingivitis which is packaged in an exciting form to increase students' interest in learning further. Based on the description of the problem above and the existence of theories that support the importance of an information technology-based educational video model on the gingival health status in adolescents.

METHODS

This research uses Research and Development (RnD) methods to produce products and test their effectiveness of these products. The sample consisted of 28 junior high school students who were divided into two groups, namely 14 intervention groups taken from students of SMP Negeri 12 Semarang who were given an Information Technology-Based Educational Video Model and 14 control groups taken from students of SMP Negeri 21 Semarang who were given Education through PowerPoint. Sampling using purposive sampling techniques, namely the determination of samples taken based on inclusion criteria set by researchers, namely junior high school students who experience gingivitis based on examinations carried out before the study, and from the existing population, the number of samples is obtained—data collection using interviews, questionnaires, and GI observation techniques. Test the effectiveness of the data using Wilcoxon and Mann-Whitney.

RESULTS AND DISCUSSION

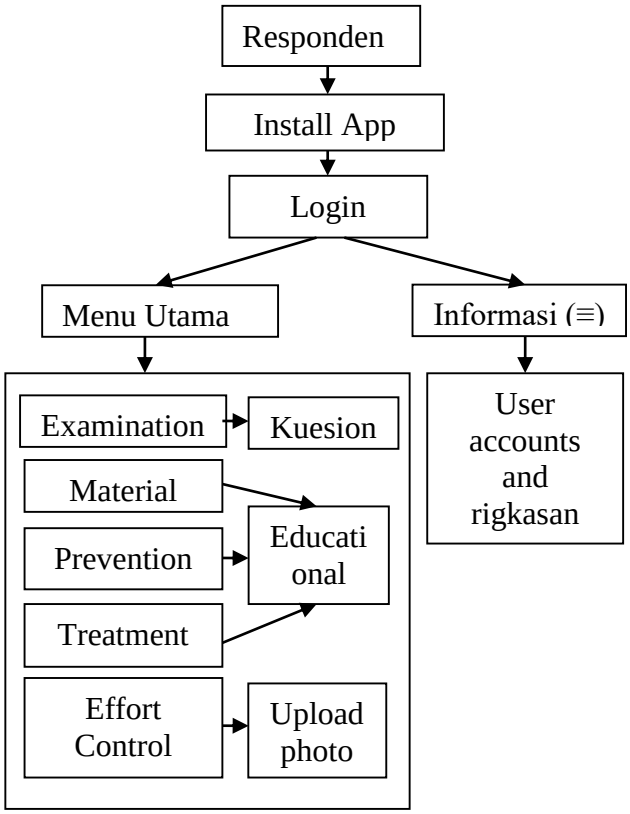
Information Collection

The information collection was carried out by interviews with the Semarang City Health Office, dentists at the Srondol Health Center, and dental and oral therapists at the Srondol Health Center with the conclusion of the interview results that junior high school-age children are more interested in learning to use technology with an attractive and accessible appearance and are not dull. A suitable learning method for junior high school students is two-way communication, making it easier for children to understand information. Efforts for dental and oral health services are carried out by networking, then conducting counselling and providing referrals to children in need.

Design Build Model

This Information Technology-Based Educational Video Model was developed using the SDLC *(System Development Life Cycle) development system*, planning, analysis, *design*, implementation, testing, and maintenance. This model was created to create promotive and preventive media and provide solutions to gingivitis. The substance in this model is a subjective examination, gingivitis education, prevention, and treatment.

Figure 1 Design an Educational Video Model



Expert Validation

Table 1 Expert Validation Test Results

Expert Validation				
n	**Value**	**F(%)**	**Average**	***p-value****
11	47	85	83%	0,044
11	46	83		
11	44	80		

Intraclass Correlation Coefficient (ICC)

Based on table 1 shows that the p-value is 0.044 *(p<0.05)*, which means that the information technology-based educational video model is feasible for changes in gingival health status in adolescents.

Model Trial

Table 2 Respondent Characteristics Data Table 2 Respondent Characteristics Data

Variable	Intervention		Control		*p-value*
	(n)	(%)	(n)	(%)	
Pre Knowledge (Mean±SD)	14 (10,29±1,54)	1014,29	14 (10,86±1,51)	1085,71	0,833*
Gingival Indeks (GI) (Mean±SD)	(0,69±0,23)		(0,98±0,18)		0,257*
Age					
12 Year	3	21,43	3	21,43	
13 Year	5	35,71	5	35,71	0,099**
14 Year	5	35,71	5	35,71	
15 Year	1	7,14	1	7,14	
(Mean±SD)	(13,29±0,914)		(13,29±0,914)		
Class					0,867**
VII	5	35,71	5	35,71	
VIII	5	35,71	3	21,43	
IX	4	28,57	6	42,86	
(Mean±SD)	(2,00±0,829)		(2,00±0,917)		
Gender					0,705**
Man	7	50	8	57,14	
Woman	7	50	6	42,86	
(Mean±SD)	(1,50±0,519)		(1,00±0,514)		

Levene Statistic** ***Chi-Square

Table 2 shows that the mean knowledge before treatment, mean gingival index (GI), mean age, mean class, and mean sex of the intervention and control groups were homogeneous (p>0.05).

Tabel 1 Uji Normalitas

Variable	*p-value*
Delta (Δ) Knowledge	0,049***
Delta's (Δ) Attitude	0,005**
Delta (Δ) Skills	0,018***
Delta (Δ) GI	0,028**

***Shapiro-Wilk **Intervensi ***Kontrol**

Based on table 3 shows that the difference data (Δ) knowledge, attitudes, skills, and GI in the intervention and control groups are not normally distributed, so *nonparametric* tests are used, namely the *Wilcoxon* test for paired tests and the Mann-Whitney test for unpaired tests.

Table 4 Test of Knowledge Effectiveness of Junior High School Students

Statistics				
Variable	**Group**	**Mean±SD PretestPretest**	**Mean±SD Posttest**	***p-value***
Paired Test				
	Intervention	10,29±1,54	12,43±1,15	0,000*
	Control	10,86±1,51	12,07±1,97	0,004**
knowledge	Unpaired Test	Change Value (Δ)		
		Delta±SD (Δ)		*p-value*
	Intervention	2,14±1,17		0,041***
	Control	1,21±0,97		

***Paired Sample T Test **Wilcoxon ***Mann Whitney**

Based on table 4, it shows the results of the effectiveness test of knowledge pair data in the intervention group showing a significance value of p = 0.000 (p <0.05) meaning that educational videos are effective in increasing junior high school students' knowledge. Knowledge in the control group showed a significance value of p=0.004 (p<0.05) meaning that power point media was also effective in increasing junior high school students' knowledge. Strengthened by a delta value of 2.14 in the intervention group and 1.21 in the control group.

The results of the effectiveness test for unpaired data on the value of change (Δ) show a significance value of p=0.041 (p<0.05), which means it is significantly significant, meaning that educational videos and power point media are effective in increasing knowledge in the intervention group and the control group.

Table 5 Test of Attitude Effectiveness of Junior High School Students

Statistics				
Variable	**Group**	**Mean±SD PretestPretest**	**Mean±SD Posttest**	***p-value***
Paired Test				
	Intervention	43,21±2,48	44,50±2,68	0,002*
	Control	42,50±2,84	44,57±3,22	0,000**
Attitude	Unpaired Test Change Value (Δ)			
		Delta±SD (Δ)		*p-value*
	Intervention	1,29±0,73		0,038***
	Control	2,07±1,07		

Wilcoxon **Paired Sample T-Test ***Mann Whitney

Table 5 shows the results of the effectiveness test of paired attitude data in the intervention group showing a significance value of p = 0.002 (p <0.05), meaning that educational videos effectively increase the attitudes of junior high school students. Then the control group showed a significance value of p = 0.000 (p <0.05), meaning that PowerPoint media was also influential in increasing the attitude of junior high school students. Strengthened by a delta value of 1.29 in the intervention group and 2.07 in the control group.

The results of the effectiveness test for unpaired data on the value of change (Δ) showed a significance value of p=0.038 (p<0.05), which means it was significantly significant, meaning that educational videos and power point media were effective in improving attitudes in the intervention group and the control group.

Table 6 Test the Effectiveness of Junior High School Students' Skills

Statistics				
Variable	**Group**	**Mean±SD PretestPretest**	**Mean±SD Posttest**	***p-value***
Paired Test				
	Intervention	5,36±1,21	7,50±1,74	0,000*
	Control	6,36±1,49	7,43±1,60	0,007**
Skills	Unpaired Test Change Value (Δ)			
		Delta±SD (Δ)		*p-value*
	Intervention	2,14±1,17		0,021***
	Control	1,07±1,07		

Paired Sample T-Test **Wilcoxon ***Mann Whitney

Based on table 6, the effectiveness test of the skill pair data in the intervention group showed a significance value of p=0.000 (p<0.05), meaning that educational videos effectively improved junior high school students skills. Then the control group showed a significance value of p = 0.007 (p <0.05), meaning that PowerPoint media was also influential in improving the skills of junior high school students. Strengthened by a delta value of 2.14 in the intervention group and 1.07 in the control group.

The results of the effectiveness test for unpaired data on the value of change (Δ) showed a significance value of p=0.021 (p<0.05), which means it was significantly significant, meaning that educational videos and power point media were effective in improving skills in the intervention group and the control group.

Table 7 GI Effectiveness Test of Junior High School Students

Statistics				
Variable	**Group**	**Mean±SD PretestPretest**	**Mean±SD Posttest**	***p-value***
Paired Test				
	Intervention	0,69±0,23	0,25±0,19	0,001*
	Control	0,98±0,18	0,72±0,18	0,000**
GI	Unpaired Test Change Value (Δ)			
		Delta±SD (Δ)		*p-value*
	Intervention	0,44±0,23		0,017***
	Control	0,26±0,14		

Wilcoxon **Paired Sample T-Test ***Mann Whitney

Based on table 7, the results of the effectiveness test of a gingival index (GI) paired data of junior high school students in the intervention group showed a significance value of p = 0.001 (p < 0.05), meaning that educational videos were effective in reducing the GI of junior high school students. Then the control group showed a significance value of p = 0.000 (p < 0.05), meaning that PowerPoint media also effectively reduced the GI of junior high school students. Reinforced by delta values of 0.44 in the intervention group and 0.26 in the control group.

The results of the unpaired data effectiveness test of change value (Δ) showed a significance value of p = 0.017 (p < 0.05), which means significantly meaningful, meaning that educational videos and power point media were effective in reducing GI in the intervention group and control group.

Model Results

The model results are in the form of information technology-based educational videos, one of the innovations in promotional and preventive activities for adolescents who experience gingivitis in supporting behaviour improvement towards gingival health status. The results of the model are as follows:

Menu Login

Login by entering your username and password, and if you do not have an account, then register first in the list section below.

Main Menu

The main menu consists of 5 menus, namely the examination menu, material menu, prevention menu, treatment menu, and effort control menu.

Inspection Menu

Examination menu to check the hygiene of teeth and gums by filling out a questionnaire in the "subjective" section.

Material Menu

The material menu contains information about gingivitis disease, displaying educational videos based on the symptoms.

Prevention Menu

The prevention menu contains about how to prevent gingivitis which displays educational videos based on the symptoms.

Treatment Menu

The treatment menu for treating gingivitis displays educational videos based on the symptoms found.

Effort Control Menu

The effort control menu contains what is done in controlling gingival health by uploading photos on the application to see the development of gingivitis.

Examination Summary

My examination contains a summary of the examinations that have been carried out along with the efforts needed to deal with gingivitis experienced.

DISCUSSION

Adolescence is when dental health problems are experienced, such as gingivitis, due to a lack of oral and dental health maintenance. Adolescent children, such as junior high school children, still need coaching in maintaining dental and oral health because adolescence is a period of rapid growth and development, so coaching still needs to be done (Mardeilita, 2019).

Overcoming these problems is done by shaping the behaviour of preventing and treating dental and oral diseases in adolescents by using suitable media to achieve health counselling goals (Prasko et al., 2016). The method that is suitable to be used as a media is with a model that can provide information technology-based dental and oral health education in the form of *android* (Prasasti, 2019). The application of educational videos can be used as a promotive and preventive media that can support behaviour change, namely knowledge, attitudes, and skills in maintaining dental and oral health in adolescents.

The effectiveness of the model on the knowledge of junior high school students

Student knowledge was measured using a test about gingivitis totalling 14 questions in the form of multiple choice with a score of 1 if the answer is correct and a value of 0 if the answer is wrong during the pretest and posttest. Based on the results of the difference between the two data, it was found that the application of educational videos was more effective than the provision of PowerPoint media in the control group, judging from the delta value of the intervention group being higher than the delta value of the control group.

The educational material contained in this model is in the form of understanding the causes, effects and consequences of gingivitis which is in the form of a video that combines images and writing that is very interactive as well as the display of the model developed is very interesting in terms of appearance and use so that adolescents do not feel bored in receiving existing education. This menu has increased the knowledge of students.

Educational videos are also considered adequate because they involve many senses in their reception, namely being heard and seen (audio-visual). This helps students learn, which clarifies and facilitates the understanding of the language being learned, which aims to optimize the achievement of learning objectives in a short time by making students' interest in learning more motivated to practice what has been taught. Then educational videos also increase interest in student learning because students can listen and see the picture directly. This aligns with research conducted by Norfai and Rahman, which states that videos are effectively applied to students because the message conveyed attracts more attention, speeds up understanding, and makes students concentrate more (Norfai & Rahman, 2017).

Print and electronic media significantly affect a person's knowledge, so the public readily accepts various information (Femala & Ayatullah, 2020). Delivering health messages with interactive media to children through colour images, simple language, and videos is very useful to help children obtain information efficiently and entertainingly (Amalia, 2017).

The effectiveness of the model on the attitudes of junior high school students

Student attitudes were measured using a test of 10 questions with five answer choices based on the Likert scale, namely five values for strongly agreeing answers, 4 for affirmative answers, 3 for less friendly answers, 2 for disagree answers, and 1 for strongly disagreeing answers during the pretest and posttest. Based on the results of the difference between the two data, it was found that the application of power points in the control group was more effective than the provision of educational videos in the intervention group, judging from the delta value of the control group was higher than the delta value of the intervention group. However, both are equally effective in improving student attitudes.

A person's attitude changes due to a process of knowledge that increases from unknowing to knowing, then understanding and making attitudes change. A person's attitude becomes good after knowing you risk becoming sick if you do not change your health behaviour. Attitude is a shift in action but does not include an action or activity. Attitudes include evaluative predispositions that largely determine how an individual acts (Aurelina, 2021).

Attitude is an individual's reaction to a stimulus from a particular object that can cause opinions and emotions. Attitude is a stimulus to a known object by showing positive and negative attitudes. This is under research conducted by Prasetya, which states that the information in the media gives an inviting message which, if the message is strong, will provide a sufficient basis for assessing something so that a good attitude is formed (Fitri, 2019). Changes in attitude will form depending on the method used in conveying dental and oral health information messages.(Prasetya et al., 2019)

The Effectiveness of the Model on the Skills of Junior High School Students

Student skills were measured using a test totalling ten questions with a score of 1 if the answer was yes and a score of 0 if the answer was no during the pretest, pretest and posttest. Based on the results of the difference between the two data, it was found that the application of educational videos was more effective than the provision of PowerPoint media in the control group. It was seen that the delta value of the intervention group was higher than the delta value of the control group.

The educational video given to the intervention group is effective for the skills of junior high school students because the video used is packaged attractively and is a media that school children like, thus causing concentration when receiving education from the video so that it runs optimally and affects good understanding then encouraged to do things and information received from the video. The stimulus obtained from this educational video media stimulates the senses of hearing and vision of adolescents, which impacts the application of what is learned from the educational video to be applied in everyday life. Skills are also the response of the target self to his behaviour.

With the knowledge that children already have, they will also decide on their health behaviour. The excellent knowledge and attitude that has been taken will influence the child in acting. The existence of educational materials and prevention and treatment methods in this model causes students to know and then take good attitudes and actions in preventing or treating the gingivitis they experience. This is in line with research conducted by Mujahidin, which shows that skills greatly influence dental and oral health behaviour. Practical skills in dental and oral health are due to the awareness of each individual regarding oral health, which will have an impact if neglected. In addition, the actions taken by respondents can be assessed by their daily habits in maintaining oral *hygiene* (Mujahidin & Sampoerna, 2018).

The effectiveness of the model on changes in the gingival health status of junior high school students

The gingival health status of students is measured by conducting a gingival examination with a gingival observation sheet, namely the gingival index (GI), and then the score at the time of the pretest and posttest. Based on the results of the difference between the two data, it was found that the application of educational videos was more effective than the provision of PowerPoint media to the control group in decreasing the gingival index score seen from the delta value of the intervention group higher than the delta value of the control group.

The decrease in the gingival index score in students is because students have obtained information from the media about the impact of gingivitis is left and give a positive response to the material they receive so that they implement it in the maintenance of their daily gingival health. A better mindset will make them do the prevention and treatment of gingivitis independently, for example, by brushing their teeth properly and correctly and other ways of maintaining dental and oral health or checking their dental health with the dentist. This is under research conducted by Linasari and Karsal, which

states that dental health maintenance habits such as brushing teeth correctly and adequately affect the severity of gingivitis in adolescents (Linasari & Meilendra, 2019).

CONCLUSION

Information technology-based educational videos have proven feasible and effective in their application to gingival health status, as evidenced by pre-and posttest data changes. The knowledge of junior high school students has increased in maintaining gingival health with the application of educational videos because the educational material contained in the videos is packaged in an attractive and easy-to-understand form and is developed according to the needs of students who still lack knowledge about gingivitis. The attitude of junior high school students has increased in maintaining gingival health with the application of educational videos due to curiosity and positive responses from students supported by good knowledge after receiving information that influences their attitude. The skills of junior high school students have increased in maintaining gingival health with the application of educational videos because, in adolescents, there is awareness about oral health which will have an impact if neglected. The gingival health status of junior high school students changed with the application of educational videos, which was marked by a decrease in the gingival index (GI) score before and after being given educational videos. This is because educational videos can inform students about the impact that can occur next if gingivitis is ignored. Hence, adolescents' mindset changes better by preventing and treating gingivitis.

BIBLIOGRAFI

Adam, J. D. Z., & Ratuela, J. E. (2022). Tingkat Pengetahuan Tentang Kebersihan Gigi Dan Mulut Siswa Sekolah Dasar. *Indonesian Journal Of Public Health And Community Medicine*, *3*(1), 1–7.

Amalia, M. N. (2017). Analisis Pengaruh Konsumsi Rokok Terhadap Produktivitas Tenaga Kerja Di Indonesia. *Jurnal Sains Dan Seni Its*, *6*(1), 51–66.

Aurelina, A. (2021). Pengaruh Aplikasi Personal Dental Health Care Terhadap Perilaku Pemeliharaan Kesehatan Gigi Dan Mulut Pada Siswa Sd N Pedalangan 02 Semarang. *Jigim (Jurnal Ilmiah Gigi Dan Mulut)*, *4*(1), 30–40.

Eldarita, E. (2019). Pengaruh Masa Pubertas Terhadap Keadaan Gingiva Pada Remaja Usia 10-20 Tahun Di Puhun Pintu Kabun Kecamatan Mandiangin Koto Selayan Kota Bukittinggi. *Menara Ilmu*, *13*(8).

Femala, D., & Ayatullah, M. I. (2020). Penyuluhan Media Audio Terhadap Pengetahuan Dan Tingkat Kebersihan Gigi Dan Mulut. *Journal Of Oral Health Care*, *8*(1).

Fitri, R. (2019). Efektivitas Booklet Terhadap Pengetahuan Dan Sikap Pemeliharaan Kesehatan Gigi Mulut Pada Ibu Hamil. *Jurnal Maternitas Kebidanan*, *4*(1), 66–74.

Hidayat, T. (2014). Penerapan Teknologi Augmented Reality Sebagai Model Media Edukasi Kesehatan Gigi Bagi Anak. *Creative Information Technology Journal*, *2*(1), 77–92.

Ikhsan, M. F. N., & Santi, R. C. N. (2020). *Sistem Pakar Diagnosa Penyakit Gigi Dan*

Mulut Manusia Menggunakan Metode Case Based Reasoning Similaritas Sorgenfrei Dengan K-Nn.

Korompot, F., Siagian, K. V, Pangemanan, D. H. C., & Khoman, J. (2019). Efektivitas Tindakan Skeling Terhadap Perawatan Gingivitis Di Rumah Sakit Gigi Dan Mulut Universitas Sam Ratulangi Manado. *E-Gigi*, *7*(2).

Kuswanto, J., & Radiansah, F. (2018). Media Pembelajaran Berbasis Android Pada Mata Pelajaran Sistem Operasi Jaringan Kelas Xi. *Jurnal Media Infotama*, *14*(1), 15–20.

Linasari, L., & Meilendra, K. (2019). Hubungan Perilaku Menyikat Gigi Pada Malam Hari Dengan Tingkat Keparahan Gingivitis Pada Remaja Di Bandar Lampung. *Jurnal Ilmiah Keperawatan Sai Betik*, *14*(2), 200–204.

Mardeilita, S. (2019). Perilaku Pemeliharaan Kesehatan Gigi Remaja Di Sekolah Menengah Pertama Negeri 4 Kota Banda Aceh. *Jurnal Sago Gizi Dan Kesehatan*, *1*(1), 45–53.

Mujahidin, A., & Sampoerna, G. (2018). Hubungan Tindakan Kesehatan Gigi Dan Mulut Pasien Terhadap Kepatuhan Dalam Menjalani Perawatan Berulang. *Conservative Dentistry Journal*, *8*(2).

Norfai, N., & Rahman, E. (2017). Hubungan Pengetahuan Dan Kebiasaan Menggosok Gigi Dengan Kejadian Karies Gigi Di Sdi Darul Muâ€Tm Minin Kota Banjarmasin Tahun 2017. *Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan*, *8*(1), 212–218.

Prasasti, A. K. (2019). Pemanfaatan Permainan Digital Sebagai Sarana Edukasi Kesehatan Bagi Anak Usia Sekolah. *Jurnal Keperawatan Florence*, *4*(1), 37–43.

Prasetya, A. W., Rochadi, K., & Lumongga, N. (2019). Pengaruh Media Sosial Dalam Peningkatan Pengetahuan Dan Sikap Siswa Perokok Terhadap Pencegahan Stain Gigi Di Sma Negeri 1 Sei Lepan Kabupaten Langkat Tahun 2019. *Jurnal Kesmas Jambi*, *3*(1), 31–40. Https://Doi.Org/10.22437/Jkmj.V3i1.7474

Prasko, P., Santoso, B., & Sutomo, B. (2016). Penyuluhan Metode Audio Visual Dan Demonstrasi Terhadap Pengetahuan Menyikat Gigi Pada Anak Sekolah Dasar. *Jurnal Kesehatan Gigi*, *3*(2), 53–57.

Rahmadhita, K. (2020). Permasalahan Stunting Dan Pencegahannya. *Jurnal Ilmiah Kesehatan Sandi Husada*, *9*(1), 225–229.

Santoso, B., Susanto, E., Widyawati, M. N., Rahman, W. A., & Rajiani, I. (2020). Revitalizing School Dental Health Effort Through" Model 222" As A Strategy To Achieve Caries-Free Indonesia 2030. *Systematic Reviews In Pharmacy*, *11*(2).

Sukanti, E. (2017). Pengaruh Status Kebersihan Gigi Dan Mulut (Ohi-S) Terhadap Status Gingiva (Gi) Pada Siswa Smp Psm Kota Bukittinggi. *Menara Ilmu*, *11*(74).

Supriyana, Susanto, E., Irmawati, Sunindya, B. R., Gunawan, A. T., & Rajiani, I. (2019). Evaluation Of The Health Policy Implementation Of Indonesian Social Insurance Administration Organization In Primary Health Care Facilities. *Indian Journal Of Public Health Research & Development*, *10*(1).

Wilis, R. R. S. S. S. S., Sudirman, P. L., & Sawitri, A. A. S. (2017). Kebutuhan Perawatan Periodontal Pada Remaja Usia 15-18 Tahun Di Sman Semarapura, Klungkung. *Bali Dental Journal*, *1*(2).