



HANG TUAH UNIVERSITY
FACULTY OF DENTISTRY
PRESENT

INTERNATIONAL SCIENTIFIC MEETING

PROCEEDING BOOK

Dentisphere 3

26TH-27TH, AUGUST 2016
SHANGRI-LA HOTEL, SURABAYA



*Current Concepts and Technology
in Improving Dental and Oral Health Care*

ISBN 978-602-145-90-1-0

PROCEEDING BOOK INTERNATIONAL SCIENTIFIC MEETING

3rd DENTISPHERE (DENTISTRY UPDATE & SCIENTIFIC ATMOSPHERE) CURRENT CONCEPTS AND TECHNOLOGY IN IMPROVING DENTAL AND ORAL HEALTH CARE

REVIEWER :

PROF. FUMIAKI KAWANO, DDS, Ph.D, FACULTY OF DENTISTRY TOKUSHIMA UNIVERSITY, JAPAN
PROF JOONGKI-KOOK SCHOOL OF DENTISTRY CHOSUN UNIVERSITY, KOREA
DRG HENI SUSILOWATI M.KES Ph.D, FKG UGM
DR. DIAN MULAWARMANTI, DRG, M.S, FKG UHT
DR KRISTANTI PARISIHNI, DRG, M.KES FKG UHT
DR. NOENGI PRAMESWARI, DRG, M.KES FKG UHT
DRG. MEINAR NUR ASHIRIN, Ph.D FKG UHT

EDITOR :

DRG DIAN WIDYA DAMAIYANTI, M.KES
DRG AGNI FEBRINA P , M.KES
CARISSA ENDIANASARI, S.ST
RIZA FATMA WARDANI, AMD.AK

SETTING/LAY OUT :

DRG. DIAN WIDYA DAMAIYANTI, M.KES
CARISSA ENDIANASARI, S.ST

COVER DESIGN :

MONICA VITA, SKG

PRINTED AND PUBLISHED BY:

FKG HANG TUAH SURABAYA.PRESS
JL. ARIF RAHMAN HAKIM NO.150 SURABAYA 60111
TELP. 031-5945864, FAX. 031-5946261
WEBSITE: www.hangtuah.ac.id
Cetakan : SURABAYA, 2016-06-29

P 2.37	The Effectiveness of Snake And Ladder Game Method on Small Dentist Cudres' Level of Knowledge and Students' Oral Hygiene Hestieyonini Hadynanawati, Kiswaluyo, Zahara Meilawaty, Ristya Widi Endah Yani	329
P 2.39	Indirect Porcelain Veneer To Fix Instantly Palatoversi Tooth (Case Report) Diana Soesilo	337
P 2.40	Prosthetic Rehabilitation of a Partially Edentulous Patient with Chronic Periodontitis Chaterina Diyah Nanik.K	344
P 2.41	Apex Resection On Post Endodontic Treatment Tooth With Periapical Cystic (Case Report) Fani Pangabdian	353
P 2.42	Oral Mucocele in Pediatric Patient : a Case Report Ayulistya Paramita, Ghita Hadi Hollanda	359
P 2.47	<i>Expression of Osteopontin And Osteoblasts After Given Alloplast With PRF Compare To XenografWithPRF On Bone Defect</i> Hansen Kurniawan, Iwan Ruhadi, Noer Ulfah	365
P 2.48	An Obturator Bottle Feeding Appliance For A Newborn Baby With Cleft Palate Dika Agung Bakhtiar, Agus Dahlan	371
P 2.51	Maxillary Attachment Retained Removable Partial Denture And Mandibular Magnetic Retained Overdenture : A Case Report Rangga Surya Fathrianto, Harry Laksono	376
P 2.55	Direct Class II Resin Composite Restoration on Maxillary Right Posterior Tooth Diani Prisinda, Prilanita Giani	381

The Effectiveness of Snake and Ladder Game Method on Small Dentist Cadres' Level of Knowledge and Students' Oral Hygiene

Hestieyonini Hadnyanawati*, Kiswaluyo*, ZaharaMeilawaty**, RistyaWidiEndahYani*

*Department of Dental Public Health, Faculty of Dentistry, University of Jember

**Department of Medical Biology, Faculty of Dentistry, University of Jember

ABSTRACT

Background: The biggest problem faced by the people of Indonesia in oral health is a disease of dental hard tissues. Activities of dental and oral disease prevention can be done with the promotion of dental health education. The dental health education commonly used today are still using conventional methods that are less attractive to children that need to be innovative extension methods, one of them with a method to make it more fun games and children can participate play an active role. **Purpose:** to determine the effectiveness of the method of snakes and ladders game on the level of knowledge of a small cadre of dentists. **Methods:** This type of research is a quasi experimental research design non-randomized control group pre-test post-test. The population consist of 24 students. The sample selection using the total sampling. The data obtained were analyzed using statistical tests paired T test and Independent T test. **Results:** There was an increase in knowledge after dental health education. **Conclusion:** Extension method of snakes and ladders game effectively used to improve the oral health knowledge.

Keywords: knowledge, snakes and ladders game, a small cadre of dentists

Correspondence: Hestieyonini Hadnyanawati, Department of Dental Public Health, Faculty of Dentistry, University of Jember. Jl Kalimantan No37 Kampus Tegalboto Jember, East Java- Email: h3sti3@gmail.com

BACKGROUND

A major challenge encountered by Indonesia and also other developing countries in the dental and oral health field is dental hard tissue diseases. Basic Health Research Report which was conducted by Health Department in 2013 stated that the prevalence of oral and mouth diseases is 25,9%. The prevalence of both diseases is commonly caused by the lack of knowledge, attitude and behavior in maintaining dental and oral health¹. Providing dental health education is an attempt to overcome to this problem.

Education is an important aspect. This is stated in act number 9 year 1960 about health main points which mentioned that the government maintains and enhances social health status through organizing and intensifying efforts in the field by means of education to the society. Education is an effort to enhance health status by way of preventive healthcare which is conducted by health promotion. Health promotional activities aim to elevate competences of individuals, families, groups or communities to live healthy and develop community based health care. They can be done through health education/counseling² which require appropriate methods and media to achieve the goals.

The using of media can facilitate and improve students' comprehension on health education materials to be presented. The selected media should consider the targets, the goals to be achieved and existing resources. Current dental and oral health education is still based on conventional approach making it less attractive to children. Although

modeling principles have been applied, the selection of media that is used down to date felt less evocative, monotonous, unattractive to children and easy to be forgotten.³ Another form of preventive activities is the formation of small dentist cadres who becomes part of School Dental Health Effort (UKGS in Bahasa Indonesia) which its existence should receive fullest attention.

A small dentist cadre is an organized individual within a certain time and during that time, the quality is continuously improved in order to achieve the goal in building up dental and oral health quality.⁴ School-age social groups (6-18 years) which represent a large part of Indonesian population (\pm 29%) which about 50% of them are schoolchildren are the basis of building up small dentist cadre training. Since they are still developing and growing, they are easier to be guided.⁵

Ambulu I and YosSudarso Elementary School are elementary schools located in Ambulu district which exactly located about 27 km from Jember center city and 30 km from Faculty of Dentistry, University of Jember. Both elementary schools are included in Ambulu Public Health Center working area located in Jember regency. Preliminary survey has been conducted in January 2013 by team servant through interviewing Ambulu public health center dentists and the persons in charge from both elementary schools. In the interview, the dentists stated that UKGS activities were still running although they were not routinely carried out. This was due to long time to be taken to bring it off. From interview results with Ambulu I elementary school, it's known that it has UKS room, but it's never functioned as it was intended. Similar

situation was also found in YosSudarso elementary school.

Team servant also looked at the fact that students' level of knowledge on dental and oral health was categorized as sufficient. It's proven by dental and oral health pretest administration to several students in Ambulu I elementary school and YosSudarso elementary school distributed by dental students University of Jember who were conducting Field Work Practice in 2012/2013 academic year. Pretest were conducted randomly to students from both elementary schools and the results showed that students' level knowledge on dental and oral health was still lacking. The pretest mean value from Ambulu I elementary school was 60.67 and 64.6 from YosSudarso elementary school. Other supporting data came from survey conducted by students of Faculty Dentistry who performed Field Work Practice activities in 2012, 2012/2013 academic year which resulted in high categorized DMF-I rate; 6.2 for Ambulu I elementary school and 5.1 for YosSudarso elementary school.

From that situation, it can be concluded that UKGS is still running but it hasn't been reached maximum results. This situation can be seen from students' level of dental and oral knowledge, which is categorized as quite high and caries knowledge which is classified as high.

Based on that situation, we want to augment the UKS/UKGS function in both schools by building up small dentist cadres and introducing game tools. A game is a fun activity which can improve students' characters and abilities.⁶ Methods developed in the learning sciences shows the percentage of success about 75%, prompting us to

develop game method for dental and oral health education.⁷ Snake and ladder game is chosen because this game is commonly played by children.

Small dentist cadres are taken from grade III, IV and V as they already had capability to read well, ability to communicate actively and chance for having longer opportunity to disseminate the information to their friends and environment before graduating from elementary schools.

Children development stages are divided into 4 stages; motoric stadium (0-18 months or 24 months), pre operational stadium (1-7 years), concrete operational stadium (7-11 years), and formal operational stadium (11-15 years).⁸ School-aged children are involved in concrete operational stadium meaning that they are no longer relying information acceptance merely on five senses-based information as they begin to have abilities to distinguish between objects that visible to the eyes and concepts coming from real situation. All matters that don't relate clearly will be hard to be put into their thoughts.⁹

METHODS

This research is quasi experimental research type using non randomized control group pre test post test research design with cross sectional approach. The research was conducted in YosSudarso elementary school and Ambulu I elementary school. Twenty four small dentist cadres from both elementary schools were involved in the research population. The sample selection method used total sampling in which all populations are incorporated.

The research was conducted in three phases. For the initial step, the sample was given a pre test in the form

of questionnaire, then it's followed by giving them oral health education/counseling through snake and ladder game method, and subsequently same questions were given for the post test questionnaire as the final step. Counseling materials delivered are about dental and oral anatomy, teeth caring tips, bad oral health habits, and mouth-healthy foods.

After that, statistical paired T test was performed to see the knowledge advance before and after health education materials delivered. This test was followed by statistical Independent T test to analyze differences on knowledge level of improvement between Ambulu I elementary school and YosSudarso elementary school students.

Besides giving pre test and post test questionnaire, oral examination was also conducted to the students using OHI-S index in order to assess oral hygiene status of Ambulu I elementary school and YosSudarso elementary school students.

RESULT

Dental and oral health education and training were given to small dentist cadres. These programs were attended by 24 small dentist cadres consisting of 18 cadres from Ambulu I elementary school and 6 cadres from YosSudarso elementary school.

Dental and oral health education was provided using discourse method combining with snake and ladder game as the game supporting tool method. This combining method turned out to attract participants' attention as they seemed to pay attention and listen to lectures and

demonstration presented enthusiastically and orderly. Participant cadres then played snake and ladder games which embodying dental and oral health materials and seemed enjoying them much. It's proven by their enthusiasm when conveying questions and feedbacks to the materials delivered. In other words, the participants gave positive responses to the activity.

Not only did team servant give dental and oral health education and training to small dentist cadres in both schools, but they also held brushing teeth demonstration which was followed by all students. Subsequently, evaluation was conducted by team servant by administering post test to the participants. The results showed that small dentist cadres' level of knowledge on dental and oral healthcare underwent elevation. Pre test and post test mean results can be seen in table 1

Table 1. Pretest and Posttest Mean Values of Ambulu I Elementary school and YosSudarso Elementary school

School Name	Pretest t	Posttest t	Δ
Ambulu I	53,62	87,78	34,16
SD YosSudars	55,8	85,7	29,9

Explanation :

Δ = post test and pre test deviation value

Table 1 shows that pretest mean value of YosSudarso elementary school (55,8) is higher than that's of Ambulu I elementary school (53,62) whilst post test mean value is found higher in Ambulu I elementary school (87,78) than that's of YosSudarso elementary school (85,7). The pre test and post test mean value deviation is higher in Ambulu I elementary school.

Pre test and post test data were tested using KolmogorovSmirnof test and Levene test. The result indicates data are normal and homogeneous. Hereinafter, statistical Paired T test was conducted to observe knowledge improvement after education materials using snake and ladder games in Ambulu I and YosSudarso elementary school has been delivered. The result of statistical Paired T test can be seen in the following table.

Table 2. Pre test and post test statistical Paired T test result in Ambulu I elementary school

	Sig. (2 tailed)
Pre test-Post test	0,000

Table 2 shows significant difference ($p < \alpha = 0,05$) between pre test and post test in counseling using snake and ladder game in Ambulu I elementary school. The result shows value increase before and after education using snake and ladder games delivered.

Table 3. Statistical pre test and post test paired T test result in YosSudarso elementary school

	Sig. (2 tailed)
Pre test-Post test	0,000

Table 3 illustrates significant difference result ($p < \alpha = 0,05$) between pre test and post test value using snake and ladder game in YosSudarso elementary school. This result shows value improvement before and after counseling using snake and ladder game delivered.

Afterwards, Independent T test was used to observe knowledge differences before and after counseling using snake and ladder game between Ambulu I and YosSudarso elementary school. Statistical test result can be seen in the table 4.

Table 4. Statistical Independent T test result

	Sig. (2 tailed)
Equal Variances Assumed	0,483
Equal Variances Not Assumed	0,459

Table 4 displays significant result about 0.483 and 0.459 ($p > \alpha = 0.05$). This result shows no knowledge differences after dental and oral health education was delivered using snake and ladder game between Ambulu I elementary school and YosSudarso elementary school.

Oral hygiene examination was also conducted using OHI-S index to assess oral hygiene status of Ambulu I elementary school students and YosSudarso elementary school students. OHI-S index examination result can be seen in table 5.

Table 5. OHI-S index mean value in both schools

School Name	OHI-S index
SD Ambulu I	0,17
SD YosSudarso	0,14

Table 5 shows that OHI-S index is lower in YosSudarso elementary school, but generally OHI-S index in both schools are categorized as good.

DISCUSSION

This research used questionnaire as measuring tool to determine students' level of knowledge on dental and oral health. Several materials that were given to the students in this research were the causes of dental and oral diseases, various kinds of dental and oral purifiers, the right time to brush teeth and ways to brush

teeth correctly. In the causes of dental and oral diseases section, it's amplified that the major factors which drive an individual to the diseases are bacteria, dirty oral environment, and sweet and sticky foods. In the right time to brush teeth materials, it's explained that the correct times to brush teeth are after breakfast in the morning and before going to bed in the night. Students are also suggested to go to dentists at least once in 6 months.

This study aims to determine the effectiveness of dental and oral health education through snake and ladder game method to the students' level of knowledge on dental and oral health. This game will be taught to small dentist cadres in Ambulu I and YosSudarso elementary school students with an eye to improve students' level of knowledge on dental and oral health, especially for small cadre dentists and grade III to V students in both schools.

This research was divided into 3 sessions; pre test, counseling using snake and ladder game, and post test. Pre test was conducted to analyze small dentist cadres' level of knowledge before counseling. After that, small dentist cadres were given snake and ladder game method which consists of dental and oral health education materials. Students could see and read dental and oral health materials and images directly when playing the game which then elevate their level of knowledge. It would be recognized in their high scores on post tests.

Pre test and post test mean deviation value result in table 1 shows knowledge improvement after counseling with snake and ladder game delivered.

Knowledge advance which comes after counseling implies that an action can result in a change; something

initially unknown becomes known and something formerly they don't understand becomes something understandable¹⁰. Dental and oral health education on this matter is an act of intervention in the form of knowledge provision that makes students feel motivated to practice maintaining their dental and oral health properly that it can heighten their dental and oral health status.¹¹

Knowledge advance is affected by counselors and the used media. Correct media and method help to achieve counseling goals. Every medium has different intensity to be understood by the counseling targets. The selected media depend on targets' level of education, types of targets, aspects to be achieved, the used methods and existing resources.¹²

There are differences in the knowledge advance level on each individual after counseling delivered. It originates from internal and external factors a individual has. External factors include individual environment such as family, school, etc. Internal factors consist of those which are derived from the will coming from an individual soul such as motivation, interest, willingness, desire, etc.¹³

From analysis results (table 3 and 4), it's known that game counseling using snake and ladder games works effectively intensifying students' knowledge on dental and oral health. Game based learning works more effectively enhancing students' knowledge because it does not merely offer materials but also fun and liberating atmospheres.⁶

Counseling as a process of learning will take more benefits when it's combined with games especially for children because learning and playing are active and fun combination for

them.¹⁴ Snake and ladder game is familiar game for children. Dental health education materials with snake and ladder game are presented in image form equipped with information which can attract students' attention, train students' intelligence and dexterity to learn the ideas manifested inside. According to Edgar Dale cone, the acceptance process through original objects has the highest intensity to perceive the information whilst material delivery process using words works less effectively or at the lowest intensity.¹⁵

In this research, snake and ladder games are presented in the form of educational games. They are an example of education supporting equipments in teaching process. Educational games stimulate students' knowledge advance higher than those of conventional means for a number of reasons. Pictures appeal students more than text, faster information acceptance. This game is also more interactive since pictures ease students to play in their mind to be oriented in problem solving.¹⁶

Snake and ladder game is counseling media at tenth layer of Edgar Dale cone. The snake and ladder game is presented in the form of educational games which will provide illustrations of the actual conditions that occur in everyday life making it works more effectively in enhancing students' knowledge about dental and oral health.

Analysis result shows no significant difference in students' knowledge advance after receiving snake and ladder game counseling. This result is due to student conditions in both schools which already had equally intelligent and easy to comprehend the materials delivered.

Dental and oral examinations were also conducted using OHI-S index to observe students' oral hygiene. It implied that students already had good attitude and behavior to maintain dental and oral health; they accustomed to brush their teeth although it's not in the correct time.

The challenge encountered when implementing this activity is the difficulty in conditioning the students to be focused orderly. This problem can be overcome by the prepared game.

CONCLUSION

Dental and oral health education using snake and ladder method works effectively to increase students' level of knowledge about dental and oral health care.

In order to follow up these activities, it's suggested to build up other ongoing health promotional activities which aim to change people's behavior so that they have capability to keep and maintain teeth and mouth health independently and accustomed to healthy lifestyle.

REFERENSI

1. Astuti, N.R. *Promosi Kesehatan Gigi dan Mulut dengan Metode Ceramah Interaktif dan Demonstrasi disertai Alat Peraga pada Guru Sekolah Dasar Sebagai Fasilitator*. Tesis. Yogyakarta: Program Pasca Sarjana Ilmu Kesehatan Masyarakat Universitas Gajah Mada. 2013 (12 Januari 2014)
2. Fitriani, S. 2011. *Promosi Kesehatan*. Yogyakarta: Graha Ilmu
3. Hariyani, N, Setyo, L, Soedjoko. *Mengatasi Kegagalan Penyuluhan Kesehatan Gigi pada Anak dengan Pendekatan Psikologis*. Dentika Dental Jurnal. 2008
4. Depkes RI. 2000. *Pedoman Upaya Kesehatan Gigi dan Mulut di Puskesmas*. Jakarta : Departemen Kesehatan Direktorat Jendral Pelayanan Medik Direktorat Kesehatan Gigi. Dikutip dari

- http://www.bpkpenabur.or.id/file/meningkatkan_konsentrasi.pdf. p 46-51
5. Fatjang, I. *Ilmu Kesehatan Masyarakat*. Jakarta : PT. Citra Aditya Bakti. 2000. p 13-15, 119-122
 6. Dananjaya, U. *Media Pembelajaran Aktif*. Bandung: Nuansa. 2010
 7. Setyorini, I. *Penggunaan Media Permainan Kartu Kuartet Pada Mata Pelajaran IPS Untuk Peningkatan Hasil Belajar Siswa di Sekolah Dasar*. Surabaya: PGSD FIP Universitas Negeri Surabaya, 2013 (10 Oktober 2014) <http://ejournal.unesa.co.id>
 8. Sudono, A. *Sumber Belajar dan Alat Permainan*. Jakarta: Grasindo. 2000
 9. Desmita. *Psikologi Perkembangan*. Bandung: PT. RemajaRosdakarya. 2005
 10. Pulungan, R. *Pengaruh Metode Penyuluhan Terhadap Peningkatan Pengetahuan dan Sikap Dokter Kecil dalam Pemberantasan Sarang Nyamuk Demam Berdarah (PSN-DBD) di Kecamatan Helvetia tahun 2007*. Tesis. Medan: Universitas Sumatera Utara. 2008
 11. Green, W. *Health Promotion Planning an Education and Environmental Approach*. London: Mayfield Publishing Company. 2000
 12. Notoadmodjo, S. *Promosi Kesehatan dan Perilaku Kesehatan*. Jakarta: RinekaCipta. 2012
 13. Akbar, Reni Hawadi. *Psikologi dan Perkembangan Anak (Mengetahui Sifat, Bakat dan Kemampuan Anak)*. Jakarta: PT. Gramedia. 2001
 14. Mardhiah, H. *Efektifitas Metode Bermain dalam Penyuluhan Kesehatan Gigi dan Mulut Pada Siswa Kelas VI SD Islam AnNizam*. - Skripsi. Medan: Fakultas Kedokteran Gigi Universitas Sumatera Utara. <http://repository.usu.ac.id> (1 November 2014)
 15. Notoadmodjo. *Pendidikan dan Perilaku Kesehatan*. Jakarta: RinekaCipta. 2003
 16. Dani, M. *Pembelajaran Interaktif dan Atraktif Berbasis Game dan Animasi Untuk Pendidikan dasar dan Menengah di Indonesia*. Bandung: Institut Teknologi Bandung. 2013. <http://iatt.kemendiknas.go.id>. (1 November 2014)