

The purpose of this study was to determine the effectiveness of the development of snakes and ladders game as a medium for health promotion in improving knowledge of adolescents about reproductive health

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### ABSTRACT

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**Background:** Choosing a method of health education by involving young people in the complex issues of sexuality and reproductive health helps to make sure the correct information. The game is one proven way to attract attention. The game of snakes and ladders as media of health promotion is an effective tool in providing information and educational interest to teen's and able to increase their knowledge and attitudes.

**Objective:** The purpose of this study was to determine the effectiveness of the development of snakes and ladders game as a medium for health promotion in improving knowledge of adolescents about reproductive health.

**Methods:** The method used a method of research and development (Research and Development) and used research model adapted from the model of development ADDIE (Analysis, Design, Develop, Implement, and Evaluate).

**Result:** The result of this study was produced the media of teen's reproductive health Snakes and Ladders Game. Statistical test results showed that media of teen's reproductive health promotion can improve knowledge.

**Conclusion:** Health promotion by media of snakes and ladders game proved to make students more enthusiastic in the implementation of learning and students can enjoy the movement of snakes and ladders game from beginning to end.

**Keywords:** Adolescent, Health Promotion, Knowledge, Ladder Snake, Reproductive Health

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### INTRODUCTION

Reproductive health is a vital aspect of growth and development throughout human life. High quality of reproductive health education is one of the positive powers in saving the reproduction life of adolescence (PATH, 2012). Adolescence is the period of rapid growth and development of physical, psychological, and intellectual. The other characteristic of adolescents have a great curiosity, love adventure and challenges as well as tend to be brave bear the risk for their crimes without preceded by thorough consideration. If the decision taken in the face of conflict is not right, they will fall into risky behavior and may suffer short-term and long-term in a variety of physical and psychosocial health problems. The nature and risk behavior in adolescents requires the availability of health care services to meet the needs of adolescent health, including reproductive health services (Ministry of Health, 2015).

Adolescent Reproductive Health is a healthy condition related to systems, function and reproduction processes owned by teenagers (Irianto,

2015). According to Ministry of Health of Indonesia, teens need a reproductive health services that aimed to preventing and protecting them from risky sexual behavior that can cause problems of reproductive health. Reproductive health issues that still concern today is the high frequency of early marriage among adolescents in various areas (Kementerian kesehatan RI, 2015).

Premarital sexual behavior has a lot of risks such as pregnancy in adolescence and sexually transmitted diseases infected. Moreover psychologically, teens will feel anxiety, low self-esteem and guilt. Besides other impact is the social impact, such as isolated, drop-out in who are pregnant, and the changing role. Teenager pregnancy can lead to abortion and marriage in early age (Ministry of Health, 2015). Indonesian Child Protection Commission (KPAI) and the Ministry of Health in October 2013 saying that, approximately 62.7% of adolescents in Indonesia have had sex outside marriage and 20% had become pregnant outside of marriage while 21% of women pregnant outside marriage had an abortion. The survey results

Central Bureau of Statistics in 2012 revealed that the rate teenager pregnancy in the 15-19 age reached 48 out of 1,000 pregnancies (BKKBN, 2014). Based on data from the BKKBN, Rejang Lebong regency get the highest number of teenage marriage and premarital sexual events in Bengkulu (BKKBN, 2017).

Adolescent knowledge about reproductive health in Indonesia is still very low. Nasution shows that knowledge significantly affect sexual behavior before marriage (Nasution, 2012). A WHO study shows lack of knowledge of adolescents about the fertile period can be seen on their knowledge about the risks of pregnancy. A total of 19.2% of teens stated that woman who had sexual intercourse before menstruation may become pregnant, and as much as 8.8% of teens who have heard the term fertility stating women cannot get pregnant when having sexual intercourse in the fertile period. This lack of teenagers knowledge is necessary to get the attention because sexual relations between men and women remain at risk of getting pregnant (BKKBN, 2014).

Choosing a method of health education by involving young people in the complex issues of sexuality and reproductive health helps make sure to get the correct information. The game is one proven way to attract attention. The game makes people relax, resulting in an optimistic mood, a challenge to embrace the material, encourage participation and input from everyone (PATH 2002). Snakes and ladders game as health promotion media is an effective tool in providing information and educational interest to teens and were able to increase their knowledge and attitudes (Zamzami, 2014). Sari's et al research showed that health education through the medium of snakes and ladders can increase knowledge about hand washing (Sari et al., 2012). Godeon's et al study in Thailand showed that the training of peers using the snakes and ladders of sexually transmitted information significantly affect the increase in knowledge and confidence (Gedeon et al., 2016).

## METHODS

The method used in this study was a method of research and development (Research and Development). Research development was more focused on efforts to produce a particular product then tested its effectiveness, so it's ready to be used significantly in the field. The product produced in this study was the media of health promotion, teen's reproductive health snakes and ladders game. This study used research model adapted from the model

of development ADDIE (Analysis, Design, Develop, Implement, and Evaluate).

In this study researchers used the game until the final stage because researchers also tested on the development of health promotion media products of reproductive health snakes and ladders game for adolescents to measure knowledge increase about reproductive health.

Study samples were taken using a convenience sample technique is sampling used by researchers randomly when withdrawals cannot be done. The reason researchers used convenience sample because the school was only given permission to take a sample study in one class only. Total sample study amounted to 34 people. The research was conducted at the Junior High School No. 1 Curup. Rejang Lebong regency of Bengkulu province.

The stage of health promotion media development of snakes and ladders game begins the analysis stage, the need to develop appropriate media health promotion about adolescent reproductive health. The next stage is designing stage with the concept of health promotion media snakes and ladders game that will be adapted to the material to be used. Designing ladder snake media campaign assisted by I Nyoman Sutiasa from ITB to obtain an original image and in accordance with the concept of adolescent reproductive health. The next stage is the stage of development, after getting snakes and ladders game design; the researchers conducted a probability assessment of health promotion media snakes and ladders game from subject matter experts and media experts. Validation provided by subject matter experts and media experts is media revision of ladder snake promotion.

The implementation stage, Trial Product stage 1 was done in SMP Negeri 2 Curup Rejang Lebong. Students involved in trials in a real situation with the number of 22 students of class VIII and IX as well as to test the validity and reliability of the questionnaire knowledge of adolescents. The second designing revisions of snakes and ladders done after first stage of trial product based on feedback and suggestions from students. Researchers revised the ladder snake media and questionnaires to be used at the stage of evaluation and research data collection.

## RESULTS

The results of this study produced Snakes and Ladders Kespro Media Campaign teenagers. Through the development model ADDIE (Analysis, Design, Develop, Implement, and Evaluate and



**Table 4. Differences Knowledge Level Test Pre and Post Test Class VIII students SMP Negeri 1 Curup**

|           | mean  | SD   | 95% CI |       | t      | df | Sig (2-tailed) |
|-----------|-------|------|--------|-------|--------|----|----------------|
|           |       |      | Lower  | Upper |        |    |                |
| Knowledge | -.647 | .691 | -.888  | -.406 | -5.459 | 33 | .000           |

9 Statistical test results obtained paired t test p value of 0.000 means that health promotion media snake ladder adolescent reproductive health can improve knowledge

**DISCUSSION**

Reproductive health is a vital aspect of growth and development throughout human life. Reproductive health education of high quality is one of the positive powers in saving the reproductive life of adolescence. Teens need to understand health in order to know their body and reproductive organs, to understand the function and development of reproductive organs correctly, understand the changing physical and psychological, to protect themselves from the risks that threaten their health and safety, preparing for the healthy and bright future, and developing responsible attitudes and behavior regarding reproduction process. The level of knowledge of reproductive health is one of the factors that can influence teen sexual behavior before marriage. Lack of knowledge, the nature and risk behavior in adolescents who have an impact on adolescent reproductive health status requires the availability of health care services to meet the needs of adolescent health, particularly the reproductive health service that friendly for teen's.

Choosing a method for health education by involving young people in the complex issues of sexuality and reproductive health helps make sure to get the correct information. The game is one proven way to attract attention. The game makes people relax, resulting in an optimistic mood, a challenge to embrace the material, encourage participation and input from everyone (PATH 2002). Ladder snake game as health promotion media is an effective tool in providing information and educational interest to teens and were able to increase their knowledge and attitudes (Zamzami, 2014).

The learning process in children cannot be compared with an adult. Psychologically, children need more fun atmosphere to play in learning. Various attempts have been made to provide knowledge to children in school about personal hygiene and environmental, whether formally in the curriculum as well as through counseling. But not much is done by using instructional media in the form of a game.

Play is any activity carried out for the pleasure of it without considering the end result. Playing can be divided into two categories: active and passive. In active play, pleasure arises from what the individual. On the other hand, in the passive play (entertainment) the pleasure derived from the activities of others he saw. Currently there has been a change in attitude towards play as a result of the scientific study of what can be donated for the development of children's play activities. Play is also a means for children to facilitate the learning process. At the playing time, children try out their ideas, ask and question the issues and obtain answers to their problems. Playing is not just playing around.

Ladder snake media have been selected for the type of game that is educational, interesting and familiar to be played at any age. Snakes and ladders is a board game that is divided into small plots and several plots drawn a "ladder" or "snake" that is linked to another plot and there are certain rules that must be obeyed players (Ariesta, 2011).

According to Novarina, snakes and ladders game is a lightweight recreational toy that quite popular in Indonesia just like a monopoly board, ludo, checkers and checkers. Snakes and ladders was a part of traditional games in Indonesia although no comprehensive data about the game appearance. In ancient times, the numbers of Indonesian children were playing snakes and ladders made this game become very popular in the community. The game is light, simple, educating, entertaining and highly interactive when played together. Everyone can create their own board with a number of boxes, snakes and ladders as desired (Novariana, 2010).

Media that could stimulate more than one of the senses such as lectures using audio-visual aids will be more effective than just using one receptor, for example writing. It is expected that the media also can touch the cognitive, affective and psychomotor (Marzano, 2001). Various methods of learning that have been carried out and frequently used was counseling. The method that believed to be quite effective in health promotion or health education is the use of audio-visual equipment. According to Edgar Dale (in Wibowo & Suryani, 2013) which is described in a cone, by reading people can remember 10% content material, by

listening will remember 20% content, by watching will remember 30% content, by listening and watching will remember 50% content material.

The game method used in this study may be one of the alternatives effective audio-visual methods because it tends to lead to high interest in children. This interest comes in term of 'play' that is an expression that promises happiness feeling. Snakes and ladders games are able to activated emotional and cognitive aspects in learning process. Snakes and ladders game also creates a feeling of happiness and positive emotions that arise through motivation when subjects expect to win satisfaction for successfully answered questions and climb the stairs, the failure of fun, communication and social relationships close among players.

When the subject answered the question correctly, the subjects showed happiness feeling. Even if the answer is wrong, the subjects continued to laugh and then listen to the answers correctly read by other players. Cheerfulness that occurred during the game is believed to make the subject health from physically and psychologically. Quick laughter looks simple but actually involves complex physical systems, namely respiratory, muscular and cardiovascular. When laughter happen it can increased breath or oxygen circulation through the blood and clearing the lungs. It happened in muscle too that give relaxation and also occur on the cardiovascular system of the heart and increase blood pressure which increases the oxygen circulation of cells throughout the body. Hafen's et al research showed an increase in psychological aspects such as self-esteem, coping skills, creativity and of course reduced stress feeling so the happiness comes. Happiness feeling believed would help the process of receiving information.

The game can be considered as a goal-oriented activity with the challenges and obstacles faced by the players. The process of goal achievement is very important in the learning process based on the game. According to Baranowski and colleagues (2008), this is an element of self-regulated learning that prioritizes processes that students use in treating cognitive ability, motivation and its performance during attempts to complete a task or game.

The results are consistent with some previous research that shows the developments of the media of snakes and ladders games are very effective in the learning process. Nugrahani's results study (2007) showed that the visual-based learning media in the form of snakes and ladders game is very effective to increase the absorption and understanding students'

on the learning with the increase value 18.8 percent. Monawanti's research results (2010) also showed a significant difference between the results of learning taught by IGT method using the media of snakes and ladders games and the learning outcomes of students who are taught by lecture with question and answer methods. Furthermore, the implementation of learning historical materials with the application of media-assisted discussion method in the game of snakes and ladders image has increased from both categories into the excellent category (Mulyatik, 2009). Snakes and ladders games have additional elements that are flexible, have feedback, be competitive, and their active participation (Kurniawati et al., 2017).

Health promotion by media of snakes and ladders game proved to make students more enthusiastic in the implementation of learning and students can enjoy the movement of snakes and ladders game from beginning to end. The students' interest and enthusiasm of the learning was proven to increase the knowledge about reproductive health.

According to the Indonesian Ministry of Health (2018), in the provision of health promotion that involves intuiting has difference level. Absorbing level power of information obtained through watching 83% and by listening 11%. However, remember the information people can do it by reading 10%, by listening 20%, by watching 30%, by listening and watching 50%, by the sentence we say 80% and sentence and action 90%. From the results above shows that the media snakes and ladders games can improve absorption 94% and recall of information a person 90%. So someone who uses more than one sense will be easier to absorb the lessons delivered.

## CONCLUSION

The conclusion of this study, the results of primary data collection after the intervention, can be summed up as follows:

1. Development of Reproductive Health Promotion Media Youth Snakes and Ladders has done through the validation stage materials experts, media specialists and product trials.
2. Statistical test results obtained paired t test p value of 0.000 means that reproductive health promotion media snake ladder for adolescent can improve knowledge



The purpose of this study was to determine the effectiveness of the development of snakes and ladders game as a medium for health promotion in improving knowledge of adolescents about reproductive health

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