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Distracting Effect of Watching Animation on Children's Anxiety While Vaccination

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ABSTRACT

Background: Vaccination can help children boost their immunity which is good for their growth and development. Children, specifically school-age children, are usually getting vaccination program in school, known as Bulan Imunisasi Anak Sekolah (BIAS) or school children immunization month. However, a lot of children are usually reluctant to attend the program because of the anxiety to get vaccinated. Therefore, this study aimed to help children getting over through their anxiety by giving them visual animation to distract them during vaccination as well as studying the impact of animation on children's knowledge and anxiety during BIAS.

Methods: The methods employed in this study was quasi-experiment with pre and post test design. The data was collected usin a modified questionnaire adopted from Zung Self Rating Anxiety Scale (ZSRAS) and Tailor Manifest Anxiety Scale (T-MAS). The data were analyzed using univariate analysis to acquired frequency distribution, while bivariate analysis was also used to acquired results of dependent and independent t-test. 76 respondents were selected for this study which was divided into two groups: control and intervention groups.

Results: The results show statistically significant between respondents' level of anxiety in intervention group during BIAS (p value 0,000). There was also statistically significance on the level of anxiety after the intervention between intervention and control groups. (p value 0,002).

Conclusion: From the results, in can be concluded that dictraction, specifically animation, during vaccination for children can be an alternative in nursing intervention to lower the anxiety on children.

KEYWORDS: anxiety, distraction, patient education animation, school immunization program.

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INTRODUCTION

The term of 'children' refers to a certain group of people who are aged under 18, including fetus (UU Perlindungan Anak, 2014). Children still have to go through growth and development process before reaching adulthood. A good normal growth and development process can be acquired by a child through some factors externally and internally. One of the external factors can be acquired through immunization which prevents them from getting any disease that can hampers the growth and development process. To complete this immunization process, children must get the basic immunization which is administered while they are in pre-school age and advanced immunization which can be obtained during the school age. Mainly in Indonesia, the advanced immunization can be obtained at school which holds the Bulan Imunisasi Anak Sekolah (BIAS) or school children immunization month.

BIAS is mainly administered only for the first, second, and third grader children. The vaccines provided in BIAS are

varied from measles vaccine to tetanus, diptheria (Td), and Human Papilloma Virus (HPV) which is added on 2018 administered only for girl aged from 10 to 13 (Kemenkes, 2015). This immunization school program is aimed to give preservation on children's immunity in preventing of getting various diseases, such as measles, diphteria, tetanus, and cervices cancer, which is in line to the ministry of health Republic of Indonesia program which prioritizing in building healthy society through an organized, thorough, and sustainable health promotion and diseases prevention.

However, another problem aroused as children most likely to get anxious during vaccination. According to some report in television, it showed that a lot of children tend to cry and reluctant to get vaccinated because they feel anxious, ignorant, and afraid of having painful experience. Therefore, nursing intervention can be important to decrease the anxiety level of the children during vaccination, and one of the interventions that can be implemented is through a distraction method, such as audiovisual stimulus.

Some distraction methods in the form of audiovisuals are are proven to be effective in reducing pain and anxiety during invasive treatment on children. Research by Juanita (2017) showed that applying audiovisual material to children can reduce the anxiety during circumcision procedure which proven through subjective and objective analysis that show significant decreases on anxiety level and heart rate. Research by Suprobo (2017) also showed a same result that audiovisual could help children relieving pain during intravenous (IV) administration. Moreover, research by Agustina (2016) explained on how audiovisual stimulus could alter children's response to IV injection through descending pain modulation and chronification of pain. Dianita (2016) also attempted to apply audiovisual storytelling method on children to help them expressing their feelings of anxiety, fear, pain, and so on, so it was expected that the children could be more cooperative towards any nursing intervention provided which could quicken healing process as expected.

The aforementioned research mostly focused on lowering anxiety level during invasive treatments. Therefore, the authors are curious on how the similar methods can affect to children during vaccination or BIAS program at school.

METHODS

Quasi-experiment was employed in this study. The animation was merely presented to the intervention group. The respondents of the study were consisted of fifth grader students who were willing to be respondents selected and chosen through consecutive sampling technique. Moreover, the number of samples, which were 76, were analyzed using mean score and deviation standard of the previous research. This study was conducted at an elementary school located within the working area of Cipayung district, East Jakarta. There were two instruments used in the study. The first one was a questionnaire consisting of 32 items that cover on the personal data of the respondents, experiences on the previous vaccination, and the respondents' behavior towards vaccination. The second questionnaire was used to measure the anxiety level of the respondents which adapted, arranged, and modified by Solikhah (2012) from Zung Self Rating Anxiety Scale (ZSRAS) and Tailor Manifest Anxiety Scale (T-MAS). There are four criteria of anxiety based on the instrument, which is 0-6 (not/barely anxious), 7-12 (mildly anxious), 13-18 (moderately anxious), and 19-24 (severely anxious).

The study concerns to maintain the respondents' privacy and confidentiality by ensuring respondents' autonomy and amenity through informed consent provision. The research ethic approval letter was issued after the ethical commission approval from the Poltekkes Kemenkes Jakarta III no. KEPK-PKKJ3/145/IV/2018.

The data were analyzed using univariate analysis for the respondents' characteristics distribution, respondents, experiences on the previous vaccination, and attitudes towards immunizations. Bivariate analysis was used on the dependent t-test and independent t-test to determine the effect of animation on children's knowledge and anxiety on immunization.

RESULTS

Table 1. The characteristics of respondents based on their age (n=76)

Variable	Intervention group			Control group		
Age	Mean	Median	SD	Mean	Median	SD
	10.37	10	0.633	10.76	11.00	0.590

The table above shows that the median age of the respondents is dominated by 10-year-old respondents in the intervention group 11-year-old respndents from the control group.

Table 2. The characteristics of respondents based on their gender (n=76)

Gender	Intervention group		Control group	
	n	%	n	%
Male	17	44.7	17	44.7
Female	21	55.3	21	55.3
Total	38	100	38	100

The results of the analysis showed that the largest proportion of respondents in the intervention group and the control group were women, each with 21 people (55.3%).

Table 3. The characteristics of respondents based on their previous immunization experience (n=76)

Experience Immunization	Intervention Group		Control Group	
	n	%	n	%
Once	38	100	38	100
Never	0	0	0	0
Total	38	100	38	100

The results of the analysis showed that all of the respondents in both groups had been previously vaccinated at their school (100%).

Table 4. The characteristics of respondents based on responses towards vaccination (n=76)

Response	Intervention Group		Control Group	
	n	%	n	%
Crying	3	7.9	7	18.4
No significant response	35	92.1	31	81.6
Total	38	100	38	100

The results of the analysis showed that the respondents' response towards vaccination in the intervention group were crying as many as 3 people (7.9%), and in the control group, there were 7 people who were crying during vaccination (18.4%).

Table 5. The characteristics of respondents based on the level of anxiety before intervention (n=76)

Anxiety Level	Intervention Group		Control Group	
	n	%	n	%
Severe	1	2.6	0	0
Moderate	2	5.3	1	2.6
Mild	14	36.8	9	23.7
Not anxious	21	55.3	28	73.7
Total	38	100	38	100

The results of the analysis showed that the level of anxiety before the intervention in the intervention group showed mild anxiety on 14 people (36.8%) and in the control group showed mild anxiety occurred in 9 people (23.7%),

Table 6. The differences in knowledge and anxiety levels before and after intervention in the intervention group and the control group (n=76)

Variable(s)	n	mean	P Value	95% CI
Knowledge of				
Intervention group	38		0.324	-0.080 – (-0.027)
Before		2.97		
After		3.00		
Difference		0.03		
control group	38		-	-
Before		3.00		
After		3.00		
Difference		-		
Anxiety level of				
Intervention group	38		0.000	-0.752 – (-0.300)
Before		2.45		
After		2.97		
Difference		0.52		
control group	38		1,000	-0.108 – 0.108
Before		2.71		

After		2.71		
Difference		-		

The results of the analysis showed that there was a significant difference in the level of respondents' anxiety in the intervention group (p value = 0.000 and = 0.05).

Table 7. The differences in the level of anxiety after treatment between the intervention group and the control group (n=76)

Anxiety level	n	mean	P Value	95% CI
Intervention group	38	2.97	0.002	0.104-0.422
control group	38	2.71		

The results of the analysis showed that there was a significant difference in the level of anxiety after the intervention given between the intervention and control groups (p value=0.002 with =0.05).

DISCUSSION

The respondents in this study were students in the fifth grade in the elementary school. Most of the respondents in the intervention group were 10 years old (47.4%) and the control group was 11 years old (84.2%). All respondents attended in public elementary schools within the same area. All of them bear the same good aptitude in reading skills, so they can understand the questionnaires without having problems and can be cooperative towards any instructions given by the researchers. In this context, age can be a huge determinant factor on a person's perception and mindset in which mind has developed well as the person grows older (Wati, 2011).

Most of the respondents in both groups were female as many as 21 people (55.3%). Both male and female students can work well together and be cooperative during the research. This is in accordance with Suryabrata's opinion (2010 in Wati, 2011) which explains that gender differences, both male and female, do not significantly affect the level of knowledge and attitudes of students after being educated. Eventhough, in this stdudy, the female respondents gave more attention towards the education session than male respondents. Therefore, it is proven that the gender difference does not affect to their level of knowledge.

Another good factor is that all of respondents had received vaccination at the school before which benefit the researchers in exploiting their previous experiences dyring vaccination. Vaccination had become one of the Indonesian government's programs to reduce infant and children mortality rates which made it important (Kemenkes, 2017). However, it is understandable that children may not see the importance of it and may react towards it with crying instead. This can be seen from the results of the analysis which shows the proportion of responses when vaccinated in the intervention group and the control group was crying. The teacher also confirmed that some students cried during the previous vaccination program. Different responses for each individual are influenced by, among other things, weaknesses in various information processes (Blackburn, 1990 in Juanita, 2017).

However, the knowledge about immunization and vaccination on the respondents before the intervention shows good results (97.4-100%) and knowledge about immunization after the intervention was overall very good (100%). Overall, respondents have received several immunizations at school, including immunization against measles, diphtheria, and HPV. Giving immunizations that have been repeated has an impact on increasing children's understanding of immunization. The experience of giving immunizations repeatedly increases children's memory about immunization, so the respondents can fill out questionnaires well. A person's education generally affects his way of thinking. Knowledge of respondents before and after treatment has good value and is very good so that it affects the process of accepting during immunizations (Kadir, 2014).

The level of anxiety before intervention in the intervention group showed mild anxiety occurred in 14 people (36.8%) and in the control group showed mild anxiety occurred in 9 people. Children (23.7%), while the level of anxiety after intervention in the intervention group showed mild anxiety occurred in 1 person (2.6%) and in the control group showed mild anxiety occurred in 11 people (28.9%).

During the treatment in the intervention group, material about vaccination and immunization was provided. The provision of materials involves parents with the aim that parents understand the importance of immunization for their children, so they can give informed consent for their children to be vaccinated. The second treatment was the implementation of a simulation of immunization with dolls and vaccination equipment. Respondents were very enthusiastic during the simulation. The respondents responded that they would follow the immunization in an orderly manner. The third treatment was playing a video about immunization as an audiovisual distraction medium for the respondents. The respondents participated in the activities enthusiastically and were willing to cooperate with health workers when administering immunizations. The fourth treatment was playing a video on how to give immunization as an audiovisual distraction to the respondents. The audiovisual used is in the form of animated

videos related to immunization materials and how to administer immunizations. Respondents seemed to like the animated video that was displayed. Respondents were very cooperative and willing to be immunized at the time of immunization at school.

The results of the analysis showed that there was a significant difference in the level of anxiety in the intervention group (p value = 0.000 and = 0.05). The results of the analysis showed that there was a significant difference in the level of anxiety after treatment between the intervention and control groups (p value = 0.002 with = 0.05). These results indicate that the respondent's anxiety level has decreased related to immunization after the treatment of giving animation audiovisual distraction about how to give immunization. There was a significant difference in the level of anxiety in respondents after the treatment carried out by researchers in the form of providing audiovisual distraction about immunization and how to give immunizations to school children. The existence of distraction techniques can inhibit the work of the sympathetic nervous system, so the production of neurotransmitters is inhibited so that the pulse, blood pressure and other physiological responses that are signs of anxiety can return to normal (Juanita, 2017). This shows that the provision of animated audiovisual about immunization is effective in reducing the level of anxiety in children.

Based on the results of the analysis there are no factors that affect the level of knowledge and the level of anxiety in immunization. The level of knowledge for all respondents indicates that they are already understand about immunization. This can be influenced by the respondent's history of having repeated immunizations which indirectly affects the respondent's understanding on immunization. BIAS program which is routinely given in schools and the provision of "outbreak" immunization is usually also socialized in communication media such as television. Health promotion and explanations about the immunization program on television are usually repetitively shown, so it is easy for children to catch the explanation. This factor can also be one of the which affects the increased understanding of immunization and the level of anxiety of respondents when giving immunizations.

The teachers at schools before giving immunizations usually remind them that immunizations will be carried out a few days before. The teacher also reminds respondents to bring a statement letter of parental consent regarding to the immunization. When giving the letter, the teacher usually reminds the time of immunization and expects the respondent to be orderly when giving immunization.

CONCLUSION

The study shows that the audiovisual distraction is proven to be effective in decreasing the level of anxiety of children while getting vaccine. There is a significant difference in the level of anxiety of the respondents in the intervention group during the BIAS program as well as the significant difference in the level of anxiety after the intervention between the intervention and control groups during the BIAS program at school.

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