



Effect of Audiovisual Media on the Level of Knowledge of Boarding Students of the West Sumatra Student Coaching and Sports Training Center about the Occurrence of Avulsion

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Abstract: Dental trauma inter alia tooth avulsion is often found among athletes especially of contact sports. This study aimed to evaluate the effect of audiovisual media on the level of knowledge of boarding students of the West Sumatra Student Coaching and Sports Training Center about the occurrence of avulsion. This was a pre-experiment quantitative study with one group pretest-posttest design. The population were all athletes of the Center for Coaching and Sports Training of Students West Sumatera in soccer, athletics, *sepak takraw*, gymnastics, archery, bicycle, judo, karate, wrestling, boxing, taekwondo and *pencak silat*. There were 116 respondents obtained by using purposive sampling techniques. We used questionnaires as the research instrument. Data were analyzed with the Wilcoxon test. The results showed that the average knowledge before the the audio-visual media intervention was 10.39 and after the intervention was 12.43. The non-parametric Wilcoxon test showed a significancy of 0.000 (<0.05) which meant that there was an effect of audio-visual media intervention on the knowledge level of respondents. In conclusion, there is a significant effect of the audio-visual media intervention on the level of knowledge of the students of the West Sumatra Coaching and Sports Training Center about the occurrence of avulsion.

Keywords: knowledge about dental trauma; tooth avulsion; audiovisual media; students of Coaching and Sports Training Center

INTRODUCTION

Sports activities can provide benefits for physical and mental health. Sports that are done without following the rules can have a detrimental impact on the body, including trauma. Trauma or injury that occurs in athletes can interfere with health resulting in less than optimal achievement.¹

Trauma in general is a lesion or injury, both physical and psychological. It is defined as damage or injury that can be caused by physical actions with the disruption of the normal continuity of a structure. Trauma dental injury (TDI) can occur in anterior and posterior teeth in the upper and lower jaws, however, it usually occurs in the anterior teeth, especially central incisors and maxillary lateral incisors, whether primary or permanent teeth.² Research conducted by Glendor³ said that 18.4% of individuals aged 6-20 years experienced at least one trauma to their permanent teeth. Participation in sports activities increases the risk of trauma in athletes. Sports that show a risk of dental trauma include basketball, soccer, hockey, martial arts, and boxing are particularly high risk for trauma. However, non-contact sports can also carry a risk of trauma.⁴

Dental trauma is a condition that is often found in athletes, and not only contact sports that have a high risk of trauma. Andrade et al⁵ in their research reported that the prevalence of dental trauma in athletes who participated in the Pan American Games was 49.6%. This result is higher than those aged 15-19 years, where the prevalence of dental trauma was 24.7% and in adults 33% reported having experienced trauma to permanent teeth. An avulsion is the most severe dental trauma where the tooth is detached from its socket due to a mechanical trauma. Avulsions of permanent teeth generally occur due to falls, fights, sports injuries, car accidents, and child abuse.⁶ According to the Directorate General of Health and Safety (Kemenpora, 2014),⁷ the prevalence of dental avulsions was around 15% of trauma to permanent teeth that occurs due to motorized accidents, fights, and injuries during sports. Moreover, the health implementation for a superlative athlete is a similar health initiative program in general which includes promotive, preventive, curative, and rehabilitative actions.⁸

Trauma can happen to anyone, either due to sport activities or daily activities. In reality, in almost every sport in the Center for Coaching and Sports Training of Students West Sumatera, some athletes are injured and cannot continue training or cannot participate in high-intensity training according to the program of each coach. As a result of a sports injury, an athlete must stop practicing and take a rest and undergo treatment and therapy to recover from the injury.⁹

Knowledge of sports injuries can be an anticipation for students and graduates in carrying out activities as sports practitioners, therefore, that they can provide first aid for injuries as soon as possible and accurately, and can prevent injuries both for themselves and others.¹⁰

Methods that can be used in learning dental and oral hygiene practices for school-age children include demonstration methods and audiovisual methods. Audio-visual media has sound elements and images that can be seen, for example video recordings, various sizes of films, sound slides, and so on.¹¹

Initiatives to increase knowledge in adolescents need to be given through a learning media that can describe real physical concepts. Video is one of the medias that can be used. Video is an audio-visual media that can describe objects and events as they are. Through video media, students can understand learning messages more meaningfully, so that, the information conveyed through the video can be fully understood.¹²

The West Sumatra Coaching and Sports Training Center is the place where the achievement coaching process takes place. The successful process of coaching is determined by many factors, including programs that have been prepared by coaches, organizations and adequate facilities and infrastructure as well as important factors from the government and society.¹³ The Center for Coaching and Sports Training of Students West Sumatera is a very potential place to train athletes at school age because this center can select and nurture talented students to excel at national and international levels.⁸

Based on the statement described, it can be concluded that avulsion is a serious problem.

Researchers are interested in continuing the research previously done by Putri and Yandi¹⁴ regarding dental trauma by adding the influence of audio-visual media on the level of knowledge of the occurrence of avulsions in The Center for Coaching and Sports Training of Students West Sumatera Padang City students. This center is a forum for prospective athletes to develop their sport talent without neglecting academic achievement. This study was carried out together in the initial survey on The Center for Coaching and Sports Training of Students West Sumatera since counseling about the influence of audio-visual media on the level of knowledge of the occurrence of avulsions had never been done. Therefore, authors are interested to evaluate the effect of audiovisual media on the level of knowledge of boarding students of the West Sumatra Student Coaching and Sports Training Center about the occurrence of avulsion.

METHODS

This was is pre-experiment quantitative study with one group pretest-posttest design. This study was conducted at the Student Sports Training and Development Center to determine the effect of the audio-visual media method on the level of student knowledge about avulsion in Desember 2019.

The population in this study were all athletes at The Center for Coaching and Sports Training of Students West Sumatera in football, athletics, *sepak takraw*, gymnastics, archery, cycling, judo, karate, wrestling, boxing, taekwondo and *pencak silat*. The inclusion criteria were dormitory students, willing to be subject research by signing an *informed consent*, aged 14-18 years, got approval from each coach, got approval from students' parents, and participated either in one of the sports mentioned. The exclusion criteria were students that were absent when the research was conducted and those who wore orthodontics. The sampling technique used the purposive sampling method based on the criteria determined with a sample of 139 students in soccer, athletics, *sepak takraw*, gymnastics, archery, bicycle, judo, karate, wrestling, boxing, taekwondo, and *pencak silat*. Research requirements were informed consent, a letter of passing the ethical review, and maintain the confidentiality of samples for not disseminated. The tools and materials used during the study were pens, questionnaire sheets as a research instrument already tested for validity, video players (projector and laptop), loudspeakers (speakers and microphones), and informed consent.

The method of research was, as follows: conduction a survey to find out and record the number of dormitory students at the West Sumatra Coaching and Sports Training Center in Padang; respondents were given informed consent as a sign of approval to become research subjects; respondents would be explained by filling out the questionnaire sheet; respondents were given questionnaire sheet and asked to fill out the questionnaire based on their knowledge; the questionnaire sheets were collected and then the students were given an intervention, namely audio-visual media about the occurrence of avulsion; one week after the intervention, the respondents were given again questionnaire sheets and asked to fill out the questionnaire according to their knowledge; and questionnaire sheets were collected and then data processing and analysis were carried out.

Univariate analysis was conducted to determine the characteristics of each variable studied. Analysis of the data presented was descriptive statistical value including the average level of knowledge before treatment and the average knowledge after treatment. Bivariate analysis was conducted to determine whether there was an effect before and after being given knowledge about avulsion with audio-visual media intervention. The data obtained were tested for normality using the Kolmogorov-Smirnov test because the study sample size was >50 , and the homogeneity test was carried out using Levene's test to determine whether the data was homogeneous or not. The statistical test used was the paired T-test, a parametric test (normal distribution of data) which was used to find the relationship between two or more variables if the data were in the form of a numerical scale, but if the data distribution was not normal, the Wilcoxon test could be used.

RESULTS

Figure 1 showed the characteristics of the respondents, such as age and gender. There were 116 respondents participated in this study, most were males (71.6%), and in the age group of 15 years old (31.9%) and the age group of 17 years old (31,4).

Figure 1. Frequency distribution of respondents' characteristics. N=116

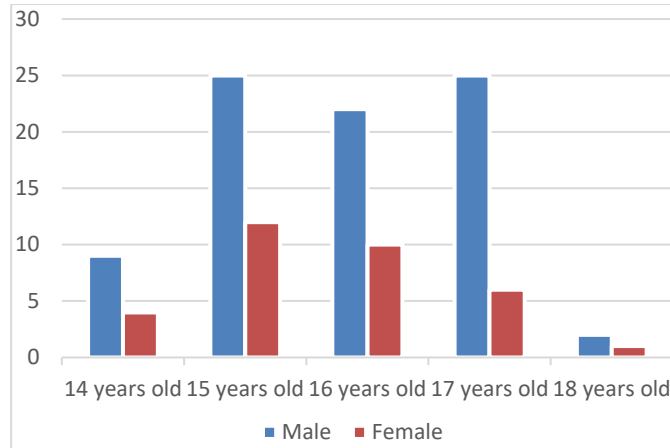


Figure 2 showed that the highest percentage of student sport was *sepak takraw* (16.37%) and the least ones was judo and archery (3.44%).

Figure 2. Sport branches in this study

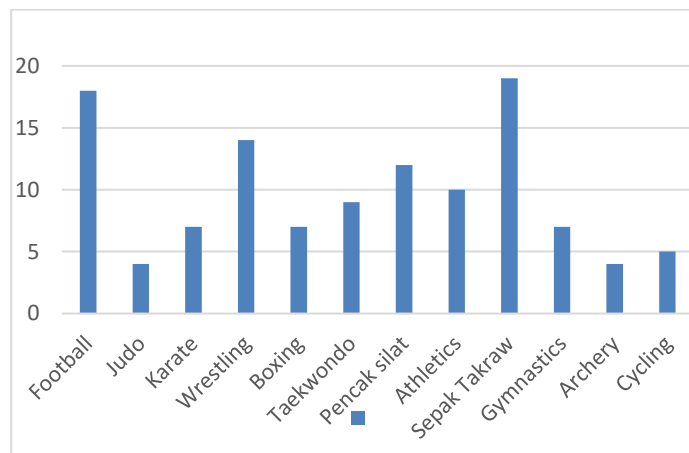


Table 1 showed that the average knowledge of the respondents before the intervention was 9.47 and the knowledge of the respondents after the intervention using audio-visual media was 12.44.

Table 1. Descriptive knowledge of pretest and posttest results

Knowledge	Average
<i>Pre-test</i>	9.47
<i>Post-test</i>	12.44

The data obtained from the observations were tested for normality using the Kolmogorov-Smirnov test because the data were more than 50. The normality test of respondents' knowledge before and after the intervention showed a p-value of <0.05. Thus, it can be concluded that the data obtained were not normally distributed.

Table 2. The Kolmogorov-Smirnov test results

Group	Sig. Value
<i>Pre-test</i>	0.000
<i>Post-test</i>	0.000

Table 3 showed that the homogeneity test was carried out with Levene's test. The results of the homogeneity test of variation obtained significant results where the sig value was 0.000 (<0.05). So, it can be concluded that the data from all groups were not homogeneous.

Table 3. The Levene's test results

Variable	Sig	Sig limit
Before-After knowledge	0.000	0.05*

Based on the normality test and that the data were proven not normal and not homogeneous, then a non-parametric Wilcoxon test was carried out with a confidence level of 0.05. Before and after the intervention using audiovisual media, from 116 respondents, knowledge decreased by none, knowledge increased by 113 students, and knowledge remained as many as three students. Based on the non-parametric Wilcoxon test, sig 0.000 <0.05 was obtained. This meant that there was an influence of audio-visual media on the knowledge level of boarding students of the West Sumatra Student Coaching and Sports Training Center about the occurrence of avulsion.

Table 4. The Wilcoxon test results

Treatment	Knowledge	N	Sig	Sig limit
Pre-Test	Decrease	0	0.000	0.05
	Increase	113		
Post-Test	Constant	3		
	Total	116		

DISCUSSION

This study was conducted to determine the effect of audio-visual media on the level of knowledge of boarding students of the West Sumatra Student Coaching and Sports Training Center about the occurrence of avulsion with a total of 116 respondents. Data were obtained by giving a questionnaire before and after the intervention in the form of audio-visual media. Based on the results it was known that the average knowledge of respondents before being given the intervention was 9.47, while the average knowledge of the respondents after being given the intervention was 12.44. These results indicated that there was an increase in the average level of knowledge of the students after being given an intervention using audio-visual media.

The results of statistical tests (Table 4) showed that there was an effect of audio-visual media on the level of knowledge of the respondents about the occurrence of avulsion. The Wilcoxon test results obtained a p-value of 0.000 ($p < 0.05$) which indicated that there was an effect of audio-visual media as an educational medium on the level of knowledge of the respondents about the occurrence of avulsion. The increase in knowledge was because audio-visual media made the students become interested and understood the information conveyed. Therefore, the intervention given in the form of audio-visual could increase the knowledge of these students. This result is in line with the research of Yanti et al¹⁵ who evaluated the effect of health education using audio-visual media on the knowledge and attitudes of adolescents regarding efforts to prevent sexually transmitted diseases (STDs). Yanti et al¹⁵ stated that there was an increase in the average knowledge and attitudes of adolescents regarding efforts to prevent STDs after being given health education using audio-visual media. This result is also in line with the research of Kumboyono¹⁶

about the difference in the effect of counseling using print media and audio-visual media to increase knowledge of tuberculosis patients among respondents aged between 15-55 years. However, due to the difference in the number of characteristics of respondents based on age, it can affect differences in knowledge of tuberculosis patients whereas the group aged 15-55 years who were given health education using audio-visual media had a higher increase in knowledge.

Notoatmodjo¹⁷ said that audio-visual media was a form of health education media that aimed to improve health behavior. Through this media, there will be a transfer of information and convey health messages. Therefore, the provision of audio-visual media in health education about avulsion is one of the learning processes that aim to develop understanding and improve the ability or behavior to achieve optimal health for students at Sport Training Center Padang City about avulsion.

The results of this study are in line with previous research conducted by Mediana et al¹⁸ about the effect of education through audio-visual media on the knowledge and attitudes of overweight adolescents, where the results obtained that there was an effect of education using audio-visual media and leaflets on increasing the knowledge and attitudes of overweight adolescents.

This study has obstacles when it would be carried out, such as preparing the letter of ethical review which had to wait for a long time; setting a schedule with the agency; and at the time of giving the questionnaire, some coaches could not take part in the study because at that time there was other training and visitors.

CONCLUSION

There was an effect of audio-visual media on the level of knowledge of the students of the West Sumatra Student Coaching and Sports Training Center in Padang, Indonesia, about the occurrence of avulsions.

It is suggested to the school to use audio-visual media to provide education about knowledge about avulsion and other possible trauma during any sports to the students at school. For students to be able to apply in life and remind each other to always maintain healthy teeth and mouth. For further research, it can be added with other educational methods; one of them is by using leaflets, so that, the conveyed information can be accepted easily to increase students' knowledge about avulsion.

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Conflict of Interest

The authors affirm no conflict of interest in this study.

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