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# Effect of Health Education using Audiovisual on Knowledge of Osteoporosis Prevention in Elderly

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**Abstract.** Osteoporosis is a disease characterized by reduced bone density resulting in brittle and easily broken bones. Prevention of osteoporosis through health education is important to prevent the risk of complications in the elderly. The use of audio visual methods in health education facilitates the delivery and receipt of health information. This study aims to determine the effect of health education using audio visual on the knowledge of prevention of osteoporosis in the elderly. In this research, pre-experimental design one group pre-post test design” methods were used. The number of samples was 14 respondents using purposive sampling. Data analysis using Wilcoxon test. The results of this study obtained knowledge about the prevention of osteoporosis in the pre-test, namely the sufficient category of 9 respondents (64.3%) and less 5 respondents (35.7%). Knowledge of osteoporosis prevention in the post-test is a good category of 11 respondents (78.6%), and enough as many as 3 respondents (21.4%). Wilcoxon test results obtained p value 0,000 ( $\alpha = 0,05$ ). The conclusion of this study is that there is an effect of health education using audio visual on the knowledge of prevention of osteoporosis in the elderly at the Posyandu for the elderly.

## 1. Introduction

The elderly experience physical and psychological degeneration, so the elderly will easily experience health problems. One prominent health problem is musculoskeletal disorders, especially osteoarthritis and osteoporosis. Osteoporosis or bone loss is a disease characterized by reduced bone density resulting in brittle and easily broken bones. (Lukman & Ningsih, 2011, h140-141; Noor, 2016, h278). Osteoporosis can be found throughout the world and is still a problem in the health of mainstream communities in developing countries

Indonesian White Paper issued by the Indonesian Osteoporosis Association (Perosi) in 2007, osteoporosis in women over 50 years reached 32.3% while in men over 50 years reached 28.8%. In addition to data released by the International Osteoporosis Foundation (IOF), it is predicted that by 2050 as many as 50% of hip fractures will occur in Asia. (Ministry of Health of Republic Indonesia, 2015). Data on the incidence of osteoporosis in Indonesia tends to increase from year to year. The latest data from the Ministry of Health's Nutrition and Food Research and Development Center shows that 41.7% of Indonesia's population is prone to osteoporosis (Dahlan cited by Ariansah, 2013, pg.4). Five provinces with a higher risk of developing osteoporosis were South Sumatra (27.7%),



Central Java (24.02%), Yogyakarta (23.5%), North Sumatra (22.82%), East Java (21.42 %), and East Kalimantan (10.5%). (Ministry of Health of Republic Indonesia, 2005 citation Ariansah, 2013, h4).

Elderly people who have osteoporosis or are at risk for osteoporosis require prevention and management of the disease. Forms of prevention of osteoporosis include develop healthy behavior. The culture of healthy living behavior needs to be socialized so that people's knowledge increases and the incidence of osteoporosis in Indonesia decreases. Knowledge can be obtained, one of them is with health education. Health education is any planned effort to influence other people, whether individuals, groups or communities. So that the community does what is expected by the perpetrators of health education or health promotion. The results expected from a health promotion or health education are health behaviors, or behaviors to maintain and improve conducive health. One of the objective of health education is to provide knowledge and shape behaviors to avoid and prevent diseases and health problems. (Notoatmodjo, 2014, h21).

Health behavior change is influenced by several factors. Factors that influence include method, material or message factors, and officer in charge to deliver the message, as well as assistive devices / props or media used. According to Arsyad (2007, citation by Kusuma, 2015, h5) the most effective tool is audio visual, where the use of audio visual methods can make it easier to convey and receive material and avoid any understanding or error, can also encourage someone's desire to find out more about the information that is being studied.

## 2. Method

The research conducted was quantitative research with Pre-Experimental design. This study only used one intervention group without using a control group. The intervention group was given a preliminary test (Pre Test) and then treated in the form of health education using audio visuals by researchers approximately 60 minutes and after that was given a final test (Post Test). The population in this study were 40 elderly women at health post for elderly. In this study, 14 samples were obtained according to the results of the sample calculation.

## 3. Results

### 3.1. Age

**Table 1.** Average age of health post for elderly  
(n= 14)

No.	Variable	Min	Max	Mean	Standard Deviation
1	Age	50	60	55,00	2,882

Based on Table 1 shows that the average age of the respondent is 55.00 years. Minimum age is 50 years and maximum age is 60 years.

### 3.2. Education

Table 2 Respondents' Frequency Distribution by Education of health post for elderly

No	Category	Frequency	Percentage
1	Elementary school	12	85,7
2	Junior high school	1	7,1
3	Senior high school	1	7,1
Total		14	100,0

Based on table 2 shows that the majority of respondents were elementary school educated as many as 12 person (85.7%), while for junior high school only 1 person (7.1%) and senior high school also 1 person (7.1%).

**4. Occupation**

**Table 3.** Respondent Frequency Distribution by Occupation at health post for elderly

No	Category	Frequency	Percentage
1	Laborer	4	28,6
2	Farmer	4	28,6
3	Housewife	6	42,9
Total		14	100,0

Based on table 3 shows that the majority of respondents work as housewives as many as 6 person (42.9%), for workers there are 4 person (28.6%) and farmers also 4 person (28.6%).

**5. Knowledge**

**Table 4.** Respondent Frequency Distribution Based on Knowledge at health post for elderly

	Category	Frequency	Percentage	Total
<i>Pre Test</i>	GOOD	0	0	100,0
	ENOUGH	9	64,3	
	LESS	5	35,7	
<i>Post Test</i>	GOOD	11	78,6	100,0
	ENOUGH	3	21,4	
	LESS	0	0	

Based on table 4 shows that the knowledge of the elderly about osteoporosis prevention at the pre test was 9 people (64.3%) in the sufficient category, while in the less category there were 5 people (35.7%). At the post test there was an increase of 11 people (78.6%) in the good category and 3 people (21.4%) in the sufficient category.

**Table 5.** Results of Bivariate Analysis of the Effect of Health Education Using Audio Visuals for Knowledge About Osteoporosis Prevention for elderly women at Jeruk Manis Village, Glagah Jatinom (n= 14)

Group	n	Median (Minimum-Maximum)	P value
<i>Pre Test</i>	14	2 (2-3)	0,000
<i>Post Test</i>	14	1 (1-2)	

Based on table 5 shows that the results of the Wilcoxon Test analysis obtained p value 0,000 <math>\alpha</math> (0.05), so it can be concluded that there is an influence of health education using audio visual knowledge about prevention of osteoporosis at health post for elderly Jeruk Manis Village, Glagah Jatinom.

**6. Discussion**

*6.1. Knowledge of Osteoporosis Prevention before and after treatment of elderly women.*

The results of the study of the knowledge of osteoporosis prevention before being given health education using audio visual was 9 respondents with sufficient result (64.3%) and 5 respondents with insufficient result (35.7%). This is due to the lack of information obtained about osteoporosis. With the information obtained then someone will have knowledge about the prevention of osteoporosis was good to be representing them to do prevention early.

Knowledge about preventing osteoporosis after being given health education using audio visual showed an increase, where respondents who had good knowledge were 11 respondents (78.6%), and enough knowledge was only 3 respondents (21.4%). These results indicate an increase and prove that knowledge about prevention of osteoporosis can increase because of the experience of providing health education using audio visual. Knowledge gained during health education includes the notion of osteoporosis, signs and symptoms of osteoporosis, risk factors for osteoporosis, body parts that often experience osteoporosis, causes of osteoporosis and prevention of osteoporosis.

### *6.2. Effect of Health Education Using Audio Visual on Knowledge of Osteoporosis Prevention in Elderly Women.*

The result of bivariate analysis showed that p-value  $<0,001$  means that  $p < \alpha 0,05$ ,  $H_0$  is rejected, meaning that health education uses audio visual is effective to increase knowledge of osteoporosis prevention in elderly women at integrated health post for elderly Jeruk Manis Village, Glagah Jatinom. The results of this study are supported by Rahmawati, Sudargo & Paramastri (2007) about "The Influence of Counseling with Audio Visual Media Against Improved Knowledge, Attitude and Behavior of Underweight and Poor Nutritional Mothers in Kotawaringin Barat District, Central Kalimantan Province" shows a significant increase in the p-value  $0,000 < \alpha 0,05$ . Besides being used as a tool to clarify, the media can also function to create a deep impression, meaning that what is conveyed is not easy for respondents to forget. Therefore, the media can influence changes in respondents' behavior to be positive, because it is based on the knowledge and life experience of the respondents.

This study found that health education is very effective in increasing one's knowledge and can change individual behavior, in this case knowledge of osteoporosis prevention. This result is in accordance with the aim of implementing a health education program according to WHO, namely to increase individual or community knowledge in the health sector by disseminating knowledge about how to maintain and promote health, achieving changes in individual, family and community knowledge in fostering and maintaining healthy and healthy behaviors, and an active role in efforts to realize optimal health degrees (Subargus, 2011).

This study shows that health education can effectively increase knowledge about prevention of osteoporosis in respondents. This is supported by Novitasari (2015, h50) defining that efforts to increase knowledge in preventing osteoporosis and shaping behavior in improving health status in efforts to prevent osteoporosis are by health education.

The results of the research conducted show that audio visual is very effective to be used in providing health education. According to Arsyad (2007, cited by Kusuma, 2015, h5) the most effective tool is audio visual, where the use of audio visual methods can make it easier to convey and receive material and avoid any understanding or error, can also encourage someone's desire to find out more about the information that is being studied. The delivery is more interesting because it can see the scene or conversation and the sound produced can lead to reality in the image in the form of pure expression.

## **7. Conclusion**

Based on research and discussion about health education using audio visual knowledge of osteoporosis prevention in elderly women can be summarized as follows:

1. The characteristics of respondents in this study were the average age of respondents who attended health education on the knowledge of osteoporosis prevention was 55 years old.
2. Knowledge of respondents before being given health education using audio visual with sufficient result as many as 9 respondents (64.3%), insufficient result was 5 respondents (35.7%).
3. Knowledge of respondents after being given health education using audio visual with excellence result as many as 11 respondents (78.6%) and sufficient result was 3 respondents (21.4%).
4. There is an effect of health education using audio visual on the knowledge of osteoporosis prevention in elderly women at the integrated health post for elderly

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