Comparison of Educational Methods Between Using Leaflets and Audiovisuals in order to Increase Knowledge on the Oral Cancer among High School Students in Jatinangor, West Java, Indonesia

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Abstract

Oral cancer education could be performed non-formally to increase the knowledge on oral cancer preventive ways. The purpose of this study was to comparison between the leaflet and audiovisual as the methods of health education of preventing oral cancer.

This study used a descriptive comparative method. The sample used was 80 high school students in Jatinangor. 40 students were educated with the leaflet media, while the other 40 were educated with audiovisual. The sample's knowledge was measured with the pre-test and post-test questionnaires. The score was analysed using the Mann-Whitney Test.

The average score of the pre-test in the leaflet media group was 8.73 and the audiovisual group was 8.25. The average post-test score of the audiovisual group was slightly higher (14.43) compared with the leaflet group (14.38).

There was no significant difference between the leaflet and audiovisual media as the methods of health education of preventing oral cancer.

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Introduction

Cancer is one of the most life-threatening diseases [1]. According to Globocan for the International Agency for Research on Cancer in 2012, there were about 14.1 million new cancer cases, and as much as 8.2 million people were reported dying from cancer in 2012 worldwide [2]. According to WHO in 2015, oral cancer was the 11th most frequent cancer. In South Asia, oral cancer became the 3rd of the most common cancer case [3]. The incidence of oral cancer in Indonesia was about 1.5% of all cancer cases [4]. About 90% of oral cancer is Oral Squamous Cell Carcinoma (OSCC)[5].

Oral cancer cases generally occurred in the age group of 50-70 years old. However, recently, there has been a shift of about 17% of the oral cancer cases were occurring in the age group of <40 years old [6]. The environmental factor is one of the oral cancer risk factors, such as socioeconomics. In the Asian countries with the quite high prevalence of oral cancer, most cases were found in the poor socioeconomic group (22-44%). In Pakistan, the prevalence of oral cancer was increased in the low-income group people [6].

Smoking habit is the highest cause of oral cancer (90%). Smokers had 11 times higher risk of being exposed towards oral cancer. Alcohol consumption may also increase the oral cancer risk to 49%. Oral viruses also found to become another cause of oral cancer, such as Epstein Bar Virus (EBV), Human Simplex Virus-1 (HSV-1), and Human Papilloma Virus (HPV) types 16 and 18 [6.7], while genetic factors only cause 3-14% of oral cancer cases. These lesions may progress to mucosal growth and ulceration, OSCC lesions may arise without detectable. Hence, educational interventions aiming at an early recognition of oral cancer symptoms may be considered for high-risk populations [8].

A study performed by Rao in 2013 in India, Pakistan, and Turkey had proven that there

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was a relationship between health education and oral cancer incidence. Illiterate or poorly educated people were having a higher risk of oral cancer due to their lack of knowledge of such matter [6]. Efforts in increasing the knowledge regarding oral cancer can be performed through health education. The media that can be used such as the leaflet and audiovisual [9]. The purpose of this study was to discovered the comparison between the leaflet and audiovisual as the methods of health education of preventing oral cancer.

Materials and methods

This research was a descriptive comparative research with cross-sectional methods, conducted in the period of January-February 2017. The population of this study was the10th-grade high school students in Jatinangor West Java. The samples were chosen with a simple sampling technique. The sample chosen was as much as 80 students filled an informed consent before. Respondents were given a questionnaire regarding oral cancer. As much as 40 students were educated with a leaflet media, while the other 40 students were educated with an audiovisual media. The student's knowledge was measured with 15 pre-test and post-test questionnaires. The average of knowledge score was then analysed using the Mann-Whitney Test.

Results

The results showed the student's knowledge level regarding oral cancer, as presented in Table 1 and Table 2. The average of the pre-test score in the leaflet media group was 8.73, while in the audiovisual media group was 8.25. This result showed that there was a significant increase of the average post-test score in both groups. The average post-test score of the audiovisual media group was slightly higher (14.43) compared to the leaflet media group (14.38).

Table 3 showed that in the group of students given health education using leaflets as media, the average pre-test score was 8.73, and the average post-test score was 14.38. This result showed that there was a significant difference in the students' knowledge before and after being given health education.

The Mann-Whitney test was then used to compare the difference in the student's oral cancer knowledge increase between the leaflet media group, and the audiovisual media group, and the results were presented in Table 4. Based on the p-value obtained (0.104) there was no significant difference of the oral cancer knowledge increase between the students given the health education with the leaflet media and audiovisual media.

Characteristic	Leaflet		Audiovisual	
	n=40	%	n=40	%
Age (Year)				
14	1	2.50	4	10
15	21	52.50	16	40
16	18	45.00	19	47.50
17	0	0	1	2.50
Gender				
Male	17	42.5	15	37.50
Female	23	57.50	25	62.50

Table 1. Characteristics of the Subjects.

No	Questionnaire	Leaflet		Audiovisual	
		Pre-test (%)	Post-test (%)	Pre-test (%)	Post-test (%)
1	Oral cancer (OC) is contagious disease	57.5	92.5	62.5	100
2	Tongue cancer includes OC	65.0	97.5	67.5	97.5
3	Common etiology of OC is tobacco	82.5	95.0	97.5	100
4	The other etiology of OC is alcohol	80.0	100	67.5	100
5	OC most occurs in 50 years old	25.0	100	20.0	100
6	OC most occurs on the lips	12.5	72.5	5.0	45,0
7	OC most occurs in female	92.5	97.5	95.0	100
8	The other aetiology of OC is chewing betel leaf	5.0	97.5	5.0	100
9	The symptoms of the beginning of OC is ulcer, and it cannot be cured after 2 weeks	85.0	100	87.5	100
10	Consuming dried salty fish more often leads to OC	12.5	97.5	10.0	100
11	Prevention efforts to avoid OC with smoking	95.0	92.5	97.5	100
12	Keep the intake of nutrition; exercise regularly; control to the dentist twice a year, are prevention effort to avoid OC	97.5	97.5	97.5	100
13	OC may happen in children	87.5	97.5	82.5	100
14	Continuous the sunlight exposure may lead to OC	17.5	100	0.0	100
15	Consuming food overbaked may also lead to OC	57.5	100	30.0	100
	Mean	58.17	95.83	55	96.17

Table 2. Results of Correct Answers of The Questionnaire.

Group	Mean		Δ	SD		
	Pre-test	Post-test	Mean	Pre-test	Post-test	P-value
Leaflet	8.73	14.38	5.65	±1.20	±1.08	0.000
Audiovisual	8.25	14.43	6.18	±1.51	±0.50	0.000

Table 3. Wilcoxon Test Results.

Group	Mean	SD	P-value	α	Notes
Leaflet	5.65	±1.35			There was no
Audiovisual	6.18	±1.58	0.104	0.05	significant difference

Table 4. Mann-Whitney Test Results.

Discussion

The most frequent malignancy of oral cancer is oral squamous cell carcinoma[10,11], oral cancer occurs is on lateral borders of the tongue, the floor of mouth, buccal mucosa, gingiva, soft palate and lips. The oral cancer clinical symptoms may present in a variety of forms which include red/white mixed lesions, erythema, ulcers. However in advanced stages there are ulcers and lumps with irregular margins which are rigid to touch, and pain [8,12] . In cancer diseases context, saliva can detect as biomarker,[13] however is expensive. Because of that we apply health education to provide their cancer knowledge to prevent that diseases. Knowledge is the result of knowing, and this situation happens after people sensed particular object. Sensing occurs through the five senses, which are sight, hearing, smell, taste, and touch [9]. Mostly, human knowledge was obtained through the process in the senses of sight and hearing (audio and visual). Cognitive is an important domain in shaping one's actions [9].

Knowledge is divided into six stages including understanding, comprehension, application, analysis, synthesis, and evaluation [9]. Based on the results of the research, the student's knowledge regarding oral cancer were increasing after given education. This means that the oral cancer education given using both leaflet and audiovisual media was increasing the student's knowledge level thus the education given was proven to be effective.

Table 2 showed a higher increase of knowledge in the leaflet media group, represented from Q8, stated: "The other aetiology of oral cancer is chewing betel leaf". The total correct answer of this question in the pre-test was only 5%, while in the post-test was highly increasing into 97.5%. It is possible that the students are rarely, or never seen people chewing betel leaf, therefore, the side effect of such behaviour might be unknown to them. Another example was represented from Q10, stated: "Consuming dried salty fish so often may lead to oral cancer". The total correct answer of this question in pre-test was 12.5% and in post-test was significantly increasing into 97.5%.

Table 2 also showed that through the audiovisual media, the highest increase of correct answer was found in Q14, stated: "Continuous sunlight exposure may lead to oral cancer" The correct pre-test answer was 0%, while in the post-test was becoming 100%. It can be assumed that such statement was not general knowledge.

Table 3 showed that in the group of students given health education using leaflets as media, the average pre-test score was 8.73, and the average post-test score was 14.38. This result showed that there was a significant difference in the students' knowledge before and after being given health education.

The Mann-Whitney test was then used to compare the difference in the student's oral cancer knowledge increase between the leaflet media group, and the audiovisual media group, and the results were presented in Table 4. Based on the p-value obtained (0.104) there was no significant difference of the oral cancer knowledge increase between the students given the health education with the leaflet media and audiovisual media.

According to Murray, health promotion is a process that allows individuals and communities to increase control over their health determinants, and ultimately improve their health[14] .

Education tools or media can be used in the health education process. They have an important role in information acceptance through senses. The more senses involved, the more information is being understood. According to Hiremath, educational aids are useful in helping to stimulate the sight and hearing senses. The media used in the research were leaflets and audiovisual. Leaflets are useful visual aids to help stimulating the sight senses. Audiovisual is a tool to stimulate both sight and hearing senses. That was why the average post-test correct answer in the audiovisual media group was higher than in the leaflet media [9].

The knowledge improvement of all media groups was indicated by an increasing average correct score in the post-test. Both methods have affected the student's interest and response in receiving information. Audiovisual media, however, was found to be more enjoyable thus made the students become more interesting and improve the learning effectiveness [15]. This result was also consistent with the study conducted by Mathew, suggested that audiovisual was more effective in information delivery because it was able to increase the student's interest and response [16].

In the other hand, the access to leaflets as the learning materials is easier and simple enough to obtain. Leaflets are easy to be read by anyone and anywhere. It can be made very interesting so people will read them, thus knowledge in leaflets can be understood by the reader easily. It can be used and read repetitively thus the cost of production will be more economical. However, the disadvantage of using leaflet is that it is a one-way presentation and less interactive thus it tends to be passive [17].

Conclusions

Health education regarding oral cancer delivered with both the leaflet and audiovisual media was proven to be effective in increasing the level of knowledge of such matters amongst the high school students in Jatinangor, West Java, Indonesia. However, the audiovisual media showed a better improvement in few aspects of the students' knowledge.

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Declaration of Interest

The authors confirm that there are no known conflict of interest associated with this publication.

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