

The Effectiveness of Health Education Program for Liver Fluke Preventing Behavior by Using Hand book and VCD in Primary School Students

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Abstract: This quasi experimental research aimed to study the effectiveness of health education program by using handbook and VCD for liver fluke prevention. Primary school students in 24 schools in Phu Wieng district, Khon Kaen province, Thailand. The samples were 1,237 subjects. The data were collected by questionnaires both pretest and posttest then data analyzed by STATA program. The statistics were analyzed descriptive data such as percentage, distribution, arithmetic mean and standard deviation and comparative internal group were used paired sample t-test. After implementation had mean score of knowledge, attitude, perceived, practice for liver fluke prevention higher than before implementation significantly at $p < 0.001$. Students concern that both instruction for liver fluke were useful and increasing good health behavior in addition would be publish for other school further. Health education program for liver fluke preventing behavior by using hand book and VCD in primary school students increasing knowledge, attitude, perception and practice on liver fluke prevention. It should extend to others schools for good health behavior.

Key words: Effectiveness, Health education program, liver fluke, preventing behavior, hand book, VCD, primary school students

INTRODUCTION

Opisthorchis viverrini, common name Southeast Asian liver fluke is a trematode parasite that attacks the area of the bile duct. *Opisthorchis viverrini* infection predisposes for cholangiocarcinoma, a cancer of the gall bladder and/or its ducts. *Opisthorchis viverrini* is found mainly endemic in Southeast Asian countries northeast Thailand, Laos, Vietnam and Cambodia. Currently, >600 million people are at risk of infection with these trematodes (Sripa *et al.*, 2007; Touch *et al.*, 2009). Infection with these food-borne parasites is prevalent in areas where uncooked cyprinoid fish are a staple of the diet.

Due to poor sanitation practices and inadequate sewerage infrastructure, people infected with *O. viverrini* and *C. sinensis* pass parasite eggs in their faeces into natural water reservoirs where the parasite eggs are eaten by intermediate host snails for example, aquatic snails of the genus *Bithynia*, the first intermediate host of *O. viverrini*. After hatching, free swimming parasites called cercariae are released from the infected snails. Cercariae then locate their next intermediate host, cyprinoid fishes, encyst in the fins, skin and muscles of

the fish and become metacercariae. The metacercariae are infective to humans and other fish-eating mammals (Sripa *et al.*, 2007).

Opisthorchis viverrini is the only liver fluke that has been proved to be associated with Cholangiocarcinoma (CCA) and cancer of the bile ducts (Touch *et al.*, 2009; Chutiwitoonchai *et al.*, 2008). Cholangiocarcinoma is a cancer of the tissue of the bile duct both inside and outside the liver. Cholangiocarcinoma outside of the liver is possible along the length of the intestine. Most (>60%) are found at the bile duct outside the liver. Patients of Cholangiocarcinoma are mostly of age 45-65. The ratio of male to female is 3:1.

The symptoms of the patients who visit the doctor are in 2 main groups: firstly the group with yellowish body and eyes amount to 70%. The patients are yellowish and may have a high temperature with big liver and stomach. The second group without a yellowish body and eyes but a record of constipation of a month or year long.

The main strategies for liver fluke control comprise of three interrelated approaches, namely stool examinations and treatment of positive cases with praziquantel; health education for a promotion of cooked fish consumption to prevent infection and the improvement of hygienic

defecation for the interruption of disease transmission. Between 1984 and 1987, the positive rate of liver fluke infection was 63.6%. In 1988, the positive rate went down to 35.6%. Following the region wide control program started in 1989, the annual positive rates had subsequently decreased to 9.4% in the year 2001. The prevalence rate was remarkably high in the North and moderately high in the Northeast while the prevalence in the central region was considerably low and there was no evidence of disease transmission in the South (Jongsuksuntigul and Imsomboon, 2003).

Survey research from 1,077 persons who were interviewed and completed the questionnaires. The majority were local public health volunteers (31.37%), public health officers (18.72%), televisions (14.38%), local heads of sub-districts (12.31%), doctors and nurses (9.18%), newspaper (5.72%), internets (5.37%) and others (12.95%). Found that 55.11% of the population had a good level of liver fluke knowledge concerning the mode of disease transmission and 79.72% of the population had a good level of prevention and control knowledge with regards to defecation and consumption.

The attitude and practice in liver fluke prevention and control were also at a good level with a positive awareness, participation and satisfaction of 72.1 and 60.83% of the persons studied. However, improvement is required regarding personal hygiene specifically with hygienic defecation and consumption of undercooked fish (Kaewpitoon *et al.*, 2007).

Protection is the best method, requires a low budget and is most worthwhile, considering the effects which cause great suffering, financial loss and loss of people, leading to a run down of society and the country. Education about food, knowledge and understanding in prevention are the methods to restore energy to the development of the nation. At the primary school age in particular, proper behavior may lead to strong and healthy adults which help the development of the country.

Study of media is the best method to stimulate interest. From the past to the present, handbooks are considered to be good teaching media and are still very popular because they are easy to use, convenient and can be used on every occasion. There may be limitations of electricity but books only need literacy. Another alternative is the VCD which is popular for education, easy to use can include both pictures and colours as well as sound to make them easy to understand.

Media for teaching must be constructed and developed to meet the needs of the target group, particularly for liver fluke which is the most serious disease in the northeast. Media must impress, provide

knowledge and understanding, change personal concepts and correct knowledge and modify health behavior for the prevention of liver fluke especially at school age. The quasi experimental research was aimed at studying the effectiveness of a handbook and a VCD for liver fluke prevention among primary school students in 4 schools in Phu Wieng district, Khon Kaen province, Thailand. The samples were 152 subjects divided into 2 groups; the first experimental group included 82 subjects who received health education about liver fluke prevention using a handbook and the second experimental group were 70 subjects who received health education about liver fluke prevention using a VCD.

The results showed that after implementation both experimental groups had significantly higher mean score of knowledge, attitude, perception and liver fluke prevention practice than before implementation at $p < 0.001$. In addition the difference in mean score between the first and second experimental groups was not significant but both were at a high score level. Both groups of students agreed that both media handbook and VCD were useful. They needed to read and clearly understand for the handbook and needed a teacher for the VCD. The examination for parasites found that there were 18 infections including 14 for liver flukes (11.48%) and a few other parasites.

The research group concerns the importance and necessity of study and research about the effectiveness of educational program for liver fluke prevention by using VCD and handbook for primary school age students to motivate them in changing their health behavior. This may lead to Chalangiocarcinoma protection. This may promote the health of the people and give them a long life, reduction of medicine and better use of medical facilities of the country.

Research objectives:

- To study liver fluke knowledge in students who received health education program by using VCD and handbook
- To study liver fluke attitude in students who received health education program by using VCD and handbook
- To study liver fluke perception in students who received health education program by using VCD and handbook
- To study liver fluke prevention practice in students who received health education program by using VCD and handbook
- Need assessment for educational aids about liver fluke prevention both in VCD and handbook

MATERIALS AND METHODS

This is quasi experimental research.

Population: Primary school students in Phu Wieng district, Khon Kaen Thailand.

Sample group: Primary schoolchildren in 24 schools. The sample had 1,237 subjects. They were educated by received the health education handbook for liver fluke prevention and health education VCD. Quasi experimental research with 1 group. There was a comparison between pretest and posttest using a questionnaire.

Research tools: Tools for data collection were quantitative questionnaire and quantitative questionnaire made by researcher from documents and related research with 6 parts to the questionnaire.

Development tools for Health education program: By using liver fluke prevention handbook and liver fluke prevention VCD.

Collecting data:

- Cooperate with health personnel from Phu Wieng district, Khon Kaen, Thailand
- Cooperate with teachers from 24 schools which have used tools
- Indicate objective and research method and collaborate
- Collect data by using pretest questionnaire
- Spread liver fluke knowledge in 24 schools using handbook and VCD
- Collect data (posttest) and compare the results between pretest and posttest

Data analysis: Quantitative data using STATA program for frequency distribution such as percentage, mean, standard deviation and paired t-test between pretest and post.

RESULTS AND DISCUSSION

General data analysis: The sample group included 1,237 people from 24 school. Most of the subjects were male 51.74 and female 48.26%, most were 10 years old 33.39% and subsequently 11 years old 32.17%. The most sample group in grade 6 is 39.53% and subsequently students in grade 4 is 31.04%. Most students had a lavatory at home 96.69%. Most students had shoes 98.79%. Experienced for

parasite examination 67.91%. Experienced for parasite medicine treatment 75.26%. Most got parasite examination at hospital 60.79% subsequently at school by health personnel 24.25%.

The score comparison of knowledge about liver fluke prevention between pretest and posttest for the sample group:

The average liver fluke prevention knowledge pretest scores was middle level 47.62% subsequently was high level 45.76% after implementation increasing to high level score 93.29% subsequently was middle level 6.31. The average score pretest was 9.49, SD 1.46 and posttest was 11.47, SD: 1.23. The change in score between posttest and pretest had statistical significance ($p < 0.001$; 95% CI: 1.99-2.18).

Score comparison of attitude to liver fluke prevention between pretest and posttest in the sample group:

The average liver fluke prevention attitude pretest average scores were in the high level 48.18% subsequently in the middle level was 26.84% after implementation most increasing to high level 90.22% and middle level was 8.73%.

Concerning liver fluke prevention attitude, pre-test score had an average 30.23 (SD: 2.25) while posttest they gained higher scores than pretest at 33.84 (SD: 2.16). Comparing the score between pretest and posttest, there was a statistically significant difference ($p < 0.001$; 95% CI: 3.44-3.79).

Scores for perception about liver fluke prevention between pretest and posttest in the sample group:

Pretest the average perception score was middle level 55.94% high score was 33.14% post test while the posttest average score was higher 73.89 subsequent in middle level 24.01%. The average score of perception 37.08 (3.02) while the post test had an average score of 40.23±2.99. Comparing the score between pretest and posttest, there was a statistically significant difference ($p < 0.001$; 95% CI: 1.22-2.01).

Score comparison of practice in liver fluke prevention between pretest and posttest in sample group:

The practice in liver fluke prevention had an average pretest score was middle level 39.21% and high score 38.64% after implementation increasing to high level 69.68% and middle score 18.67% while average at 23.46, SD: 2.93 at pretest and increasing to posttest at 25.85, SD: 3.35. Comparing the score between pretest and posttest, statistically significance difference ($p < 0.001$; 95% CI: 2.20-2.59). In the

last year, student access to parasite examination 44.54% and no exam 55.46%. Student who access parasite exam found liver fluke infection 9.62%.

The comparison of requirements about liver fluke prevention educational aids between pretest and posttest in the sample group: Considering experience about receiving liver fluke prevention information, it was found that the students gained most knowledge from health teacher who teaching in schools 60.55% subsequent from television 20.15%.

The best method was teaching 36.46% subsequent was reading by themselves clearly 26.11%, they satisfy with media 81.73% most use hand book 58.12% subsequent VCD 46.40%. Most benefit from media was gained knowledge on liver fluke prevention 68.88% and secondly was got guideline for prevention practice 57.88%.

After implementation had mean score of knowledge, attitude, perceived, practice for liver fluke prevention higher than before implementation significantly. Both hand book and VCD stimulus student to interest information and they can see both picture and listening speed from VCD, meanwhile they can read hand book clearly anywhere anytime that available made them increasing changing behavior on good liver fluke prevention.

These relevant that VCD for demonstration of nasogastric intubation made medical students were able to self-improve their procedural skills of nasogastric intubation after viewing the VCD. Application of this method to other basic procedures may be useful (Sookpotarom *et al.*, 2007).

On the other hand, hand book is effective media provide information to enhancing the teaching and learning experience of students. It would contribute to providing a skill (Nabwera *et al.*, 2008) and relevant with cystic fibrosis hand book for teachers study found that after study hand book increase in teachers' knowledge of cystic fibrosis and support communication among nurses, parents and teachers (Ryan and Williams, 1996). Therefore, both of media would be distribute for liver fluke prevention further.

CONCLUSION

The effectiveness of health education program for liver fluke prevention behavior by using hand book and VCD in primary school students after implementation found that increasing knowledge, attitude and perception as well as practice for liver fluke prevention than before significantly different.

RECOMMENDATIONS

This study recommends the following:

- Liver fluke educational aids should be provided for libraries in schools
- They should available more VCD players
- They should interventions about liver fluke prevention in study courses
- They should coordination with public health centers for diagnosis and treatment
- Knowledge and understanding about liver fluke prevention should be reinforced both in school and community and also for parents
- It should extent research study with interventions about liver fluke prevention in another schools
- It should development how to diagnose liver flukes by students in school
- A variety of stimulating educational aids should be developed
- Student participants from the community about liver fluke prevention would be important
- There should promotion and cooperation about liver fluke prevention by changing habits of eating and daily life

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