ORIGINAL ARTICLE

THE EFFECT OF SEX EDUCATION AND LIFE SKILLS FOR PREVENTIVE SEXUAL RISK BEHAVIOURS AMONG UNIVERSITY OF STUDENTS IN THAILAND

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Background: Currently, the problem of sexual risk behaviour of adolescents has increased worldwide, including Thailand. This study compared the effectiveness of promoting life skills to prevent sexual risk behaviours among university students in the Phayao Province of Thailand. **Methods:** A quasi-experimental design was employed with a pre- and post-test study for a sample of freshmen university students. The students were then split into an intervention group comprised of 300 students, with a second group of 250 students from the same faculty as the control group. The intervention group participated in the integrated life skills model for preventing sexual risk behaviours and participatory learning. The educational activities included; lectures, brainstorming, group discussion, role-playing, game simulations and naming experiences through six weekly life skills training sessions of 90 minutes each. Data were collected by self-questionnaires and analysed using descriptive statistics and independent sample *t*-testing. Three different time periods were examined using ANOVA repeated measures analysis of variance. **Results:** Compared between the intervention and control groups determined that implementation of increased knowledge and improved life skills was statistically significant ($p<0.001$) in the intervention group. The intervention group also showed significantly improved communication skills and behavioural preventive measures towards sexual risk than the control group ($p<0.001$). **Conclusion:** The life skills model also effectively reduced the sexual risk behaviours of students at the university. Therefore, this program was beneficial for the development of strategies to increase self-efficacy and it should be integrated into the universities' curriculum. In the long-term sexual risk behaviour changes must be monitored for programme sustainability.

Keywords: Sex education; Life skills; Preventive sexual risk behaviours

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INTRODUCTION

Currently the incidence situation of human immunodeficiency virus (HIV) infections are increasing throughout in the world.[1] Nearly half (42%) of those infected with HIV in 2010 worldwide were adolescents between 15 and 24 years old.[1] During the past decade rapid socio-economic, industrial and urban development has occurred in Thailand. All regions of the country are changing from an agricultural to an industrial economy. This shift had affected the living conditions of many Thai people and resulted in the flow of young people from the poorer urban areas to the cities to seek work and higher education. The manner of sexual behaviour is also rapidly changing and this has profound meaning for the spread of HIV and other sexually transmitted infections (STIs).[2] More than half (55%) of university students did not fully comprehend the prevalent levels of STIs and HIV. Previous studies reported sexual activity percentages of high school students in Thailand at 31.9–47.0% for males and 13.0–30.0% for females.[2,3] In addition, a survey of sexual violence and sexual education in 13–18 year olds in 2011 reported that the rate of sexual activity in teenagers was 31.0%, with the youngest group at 13 years old.[2] The university student adolescent population in Thailand was reported to have higher risk of unwanted pregnancies and STIs/HIV than the general public, due to their increased sexual experimentation and unsafe sexual practices.[2] Previous studies in Thailand indicated that adolescents were becoming sexually active at an earlier age and demonstrating unsafe sexual risk behaviours.[2] The population of Phayao Province in the north of Thailand showed an increase in STIs/HIV.[4–6] The rate of pregnancies, births and STIs among adolescents continues to present a challenge due to the adverse health effects associated with these events.[5,6] (Local measures weak important expertise to prevent risk behaviour such as sex negotiation, condom use and refusal skills to make wise decisions regarding risk behaviours related to STIs and HIV.[3,4] Some adolescents became pregnant, and turned to abortion which was often performed outside registered hospitals by non-health officials.[3,4] Before the programme, a few school-based prevention activities were conducted regarding STIs/HIV in Thailand to improve participants' knowledge and attitudes towards sexually transmitted diseases. However, they mostly followed a traditional passive approach which lacked development skills (lecture and materials dissemination) and did not hold the attention of the students.[7,8]

Knowledge regarding sex education must ensure that the recognition of awareness has been imparted and provide training skills for use in daily life. This study evaluated the effectiveness and development of life skills in promoting the prevention of sexual risk behaviours among university students in Phayao Province. Through the programme multiple dimensions of university students' sexual risk behaviours and life skill needs were addressed in Phayao Province. Results indicated the requirement for immediate and innovative intervention. Therefore, the implementation of a feasible, acceptable and effective intervention programme is urgently required.

MATERIAL AND MEDTHODS

A quasi-experimental research method was used. The study was conducted with university students at a state university in Phayao Province between September 2014 and February 2015. Informed consent was given to participants before data collection. Both groups of participants were single blind. Implementation was conducted in a seven-hour session, and the study was followed-up after three months. After implementation, participants received a certificate of attendance and were provided with meals. The sample group was collected by multi-stage random sampling from the University of Phayao. This study used purposive sampling. A list of all first-year students from the School of Medicine in four undergraduate programmes namely Bachelor Community Health, Bachelor Environmental Health, Bachelor Occupational Health and Safety and Emergency Health Science served as the sampling frame. The following criteria were adopted: 1) male and female students were similar, 2) the subjects received counselling services in reproductive health at the medical centre and 3) the field or major did not study projects or research about sex education. The research team generated the allocation sequence. The participants did not know about their assignments through blindness by single blind. Subjects were selected by random from the list of first year students. The 550 eligible participants were split into two groups as 300 in the intervention group and 250 in the control group. Each participant was assigned a code number to identify individuals and also to ensure anonymity. Participation was voluntary and informed consent was given before signing in research activities at period times. Participants placed the completed questionnaires in a sealed envelope with their individual code to ensure the identity of the respondent. They were separated from their parents to make them feel comfortable and free to answer the questions.

Sex education on STIs/HIV prevention using a life skills model[9,10] improved practical life skills through a process of consultation with experts in public health and behavioural modification. Model development was based on life skills and the intrapersonal theory of self-efficacy.[10–12] The information component in the model disseminated knowledge about STIs/HIV prevention by dispelling misconceptions. This included specific information regarding risk reduction such as condom usage, relationships, communication, safe sex decision-making and planning for the future. The motivation element was designed to instil individual positive attitudes and awareness of contraception. Teaching university students about self-efficacy, skills to negotiate sex and condom use formed the basis of the behavioural skills. The programme was conducted with a participatory approach including lectures, brainstorming sessions, group discussions, role-playing, games simulations, naming experience and six weekly life skills training sessions each lasting 90 minutes. After implementation each module was tested. The control group study followed the normal teaching curriculum. After three months the control group was assessed by questionnaire similar to the intervention group. A follow-up on completion of the normal teaching curriculum was made after three months.

Demographic questions covered 11 items including age, gender, income (baht/month), economics, living status, variable experiences (past sexual experience, number of sexual encounters, condom use, alcohol use, sources of information and who the problems were discussed with). The six outcomes of interest were knowledge about STIs/HIV, self-awareness, self-esteem, decision-making skills, communication skills and preventive behaviour.[10,12,13] The scale of knowledge of STIs/HIV was answered as yes or no. A correct answer scored one, with zero marks given for an incorrect answer. The questionnaire evaluated the outcome variables based on the life skill model and self-efficacy theory.[11–13] Ratings were based on Bloom's criteria.[14] Three experts evaluated the content validity by the item-objective congruence method (IOC), giving a rating of 1 (for clearly measuring), -1 (clearly not measuring) or 0 (uncertain measuring). The content validity by IOC was 1 for each item. A pilot study was conducted by 30 participants who tested the similarly with another faculty at the University of Phayao to test the reliability of the summary index of each item. Results ranged from 1–4. The α coefficients were 0.82, 0.81, 0.89, 0.76 and 0.80 from measurement of the Kuder-Richardson Formula 20 (KR-20).[15] Results from the pilot study were used to modify the instrument. Data from the self-questionnaires were analysed using IBM and SPSS statistical version 20 (University of Phayao) for differences of the numerical variables between the intervention and control groups. Non-normal distribution and categorical variables were examined using a non-parameter test and *chi*-quared test respectively. Independent *t*-tests compared knowledge of STIs/HIV self-awareness, self-esteem, decision-making skills, communication skills and preventive behaviour between the experimental and control groups at the three-

time periods. ANOVA was used to compare outcome variables within the experimental group at each of the time periods. The level of statistical significance was set at $p<0.05$.

RESULTS

Table-1 shows that the demographics between the intervention and control groups were similar, except for sex. Statistically, there was a significant difference ($p<0.001$). The mean age of the university students was 18–21 years. The majority were females at 67.8% with males 32.2%. More than half the participants in both groups had income less than 3,000 baht per month (62.5%). Economic situation indicated that most of the intervention and control groups had middle and poor status at 69.3% and 24.9% respectively. Both intervention and control groups mainly lived with their parents at 90.3% and 89.2%. Table-2 indicates that there was no significant difference ($p>0.05$) in the mean sexual risk experience between the groups. Therefore, the percentage of the first sexual experience in both groups was 19.5%. The first sexual experience was 20.7% for the intervention group and 18.0% for the control group. Comparison of the average scores between the intervention and control groups for source of information including source of news information and who to discuss this with showed no significant difference ($p>0.05$). Participants received information from the internet, friends/neighbours, family members and school teachers at 38.2%, 31.3%, 11.3% and 10.2% respectively. Nearly two-thirds of the participants talked with family members, friends of the same sex, school teachers and online chat or e-mail with strangers at 42.4%, 20.7%, 14.7% and 10.3% respectively (Table-3).

The results of the data analysis are presented in table-4. There were no significant differences ($p>0.05$) in the average scores for all variables between the intervention and control groups before implementation. However, results after implementation and for the three months later follow-up showed that the average scores of the intervention group increased and were higher than the control group with statistical significance ($p<0.001$).

The results showed changes before, after completion of the course and at the three-month follow-up using analysis of variance (ANOVA) repeated measures for knowledge, self-awareness, self-esteem, decision-making skills, communication skills and preventive sexual behaviour. There was no significant difference ($p>0.05$) in average scores for self-esteem, decision-making skills and preventive sexual behaviour within the intervention groups at baseline. However, the mean scores after implementation were higher than before with statistical significance ($p<0.001$). Results showed that for the three-month follow-up the mean scores were higher than before the implementation with statistical significance ($p<0.001$). Mean scores after implementation were higher than follow-up and statistically significantly ($p<0.001$) (Table-5).

Table-1: Number and percentage of the participants categorized in the intervention and control groups (n=550).

Variables		Total (n=550)	Intervention Group (n = 300) n (%)	Control Group (n = 250) n (%)	*p*-value
Age					0.273[a]
	18	431 (78.4)	241 (80.3)	190 (76.0)	
	19	82 (14.9)	42 (14.0)	40 (16.0)	
	20	17 (3.1)	10 (3.3)	7 (2.8)	
	21	20 (3.6)	7 (2.3)	13 (5.2)	
	Mean ± SD		1.28±0.63	1.37±0.77	
Gender					0.022*,[a]
	Males	177 (32.2)	84 (28.0)	93 (37.2)	
	Females	373 (67.8)	216 (72.0)	157 (62.8)	
Income Baths/month)					0.114[a]
	>5,000	9 (1.6)	5 (1.7)	4 (1.6)	
	4,501 – 5,000	16 (2.9)	10 (3.3)	6 (2.4)	
	4,001 – 4,500	30 (5.5)	22 (7.3)	8 (3.2)	
	3,000 – 4,000	151 (27.5)	88 (29.3)	63 (25.2)	
	<3,000	344 (62.5)	175 (58.3)	169 (67.6)	
	Mean ± SD		1.61±0.88	1.45±0.80	
Economic status					0.336 [a]
	Good	32 (5.8)	16 (5.3)	16 (6.4)	
	Moderate	381 (69.3)	202 (67.3)	179 (71.6)	
	Poor	137 (24.9)	82 (27.3)	55 (22.0)	
Living					0.070[a]
	Parents	494 (89.8)	271 (90.3)	223 (89.2)	
	Father	20 (3.6)	14 (4.7)	6 (2.4)	
	Mother	26 (4.7)	13 (4.3)	13 (5.2)	
	Sibling	10 (1.8)	2 (0.7)	8 (3.2)	

Note: ∗Significance at $p<0.05$. [a]*p*-value are calculated using Fisher's Exact test

Table-2: Number and percentage of the participants by sexual risk experience in the intervention and control groups

Variables	Total (n=550)	Intervention Group (n = 300) n (%)	Control Group (n = 250) n (%)	*p*-value
Past sexual experience				0.249
No past sexual experience	443 (80.5)	238 (79.3)	205 (82.0)	
Had sexual experience	107 (19.5)	62 (20.7)	45 (18.0)	
Number of sexual (n=107)				0.485[a]
None	443 (80.5)	238 (79.3)	205 (82.0)	
Unknown	3 (0.5)	2 (0.7)	1 (0.4)	
One	78 (14.2)	42 (14.0)	36 (14.4)	
Two or Three	19 (3.5)	12 (4.0)	7 (2.8)	
> Four	7 (1.3)	6 (2.0)	1 (0.4)	
Condom use				0.310[a]
Never	455 (82.7)	241 (80.3)	214 (85.6)	
Every time	4 (0.7)	3 (1.0)	1 (0.4)	
Almost every time	23 (4.2)	16 (5.3)	7 (2.8)	
Sometimes	68 (12.4)	40 (13.3)	28 (11.2)	
Alcohol use				0.078[a]
Not at all	366 (66.5)	190 (63.3)	176 (70.4)	
Every day	2 (0.4)	2 (0.7)	0 (0.0)	
Sometimes	182 (33.1)	108 (36.0)	74 (29.6)	

Note: [a]*p*-value are calculated using Fisher's Exact test

Table-3: Number and percentage of the participants by source of information in the intervention and control groups

Variables	Total (n=550)	Intervention group (n = 300) n (%)	Control group (n = 250) n (%)	*p*-value
Source of information				0.159[a]
Television	22 (4.0)	10 (3.3)	12 (4.8)	
Internet	210 (38.2)	110 (36.7)	100 (40.0)	
School teacher	56 (10.2)	27 (9.0)	29 (11.6)	
Newspaper/magazines	12 (2.2)	5 (1.7)	7 (2.8)	
Friends/neighbours	172 (31.3)	109 (36.3)	63 (25.2)	
Radio	12 (2.2)	4 (1.3)	8 (3.2)	
Family member	62 (11.3)	33 (11.0)	29 (11.6)	
Health professional	4 (0.7)	2 (0.7)	2 (0.8)	
Whom to discussion				0.509[a]
Friend of the same sex	27 (4.9)	12 (4.0)	15 (6.0)	
Family member	233 (42.4)	128 (42.7)	105 (42.0)	
Friend of the opposite sex	114 (20.7)	64 (21.3)	50 (20.0)	
Girlfriend/boyfriend	35 (6.4)	15 (5.0)	20 (8.0)	
School teacher	8 1(14.7)	45 (15.0)	36 (14.4)	
Health professional	3 (0.5)	1 (0.3)	2 (0.8)	
Online chat or e-mail stranger	57 (10.3)	35 (11.7)	22 (8.8)	

Note. [a] *p*-value are calculated using Fisher's Exact test

Table-4: The comparison of studied variables between the intervention and control groups at three-time periods

Variable	Intervention group (n=300)		Control group (n=250)		*t*-test	*p*-value
	mean	S.D.	mean	S.D.		
Knowledge						
Baseline	1.85	0.56	2.00	0.62	3.08	0.374
After**	3.00	0.05	2.38	0.58	19.63	0.001*
Follow up**	3.06	0.01	2.24	0.47	24.35	0.001*
Self - awareness						
Baseline	1.52	0.50	1.60	0.50	2.01	0.177
After**	3.00	1.00	2.39	0.50	22.57	0.001*
Follow up**	3.12	0.12	2.48	0.53	19.50	0.001*
Self - esteem						
Baseline	1.49	0.570	1.44	0.536	1.20	0.079
After**	2.91	0.30	1.15	0.36	57.07	0.001*
Follow up**	3.00	1.00	1.28	0.47	68.28	0.001*
Decision making skill						
Baseline	1.54	0.53	1.59	0.56	1.08	0.380
After**	3.02	1.00	1.74	0.50	46.58	0.001*
Follow up**	3.00	1.00	1.79	0.46	48.34	0.001*
Communication skill						
Baseline	1.50	.570	1.62	0.623	2.37	0.158
After**	3.00	1.00	1.74	0.44	39.04	0.001*
Follow up**	3.05	1.00	1.79	0.42	40.14	0.001*
Preventive behaviour						
Baseline	1.21	0.460	1.25	0.435	1.18	0.91
After**	2.87	0.33	1.21	0.42	47.08	0.001*
Follow up**	2.91	0.28	1.23	0.43	48.24	0.001*

Note: *Significance at level 0.05 (2-tailed)

Table-5: The comparison of studied variables within the intervention group at three-time periods (n=300).

Time point compared		Mean	Difference score between Mean	*p*-value
Knowledge F=9.53				
	Baseline	1.85	1.15	0.002*
	After	3.00		
	Baseline	1.85	1.21	0.001*
	Follow up	3.06		
	After	3.00	0.06	0.001*
	Follow up	3.06		
Self – awareness F=4.04				
	Baseline	1.52	1.48	0.045
	After	3.00		
	Baseline	1.52	1.6	0.002*
	Follow up	3.12		
	After	3.00	0.12	0.001*
	Follow up	3.12		
Self – esteem F=1.45				
	Baseline	1.49	1.42	0.228
	After	2.91		
	Baseline	1.49	1.51	0.001*
	Follow up	3.00		
	After	2.91	0.09	0.001*
	Follow up	3.00		
Decision making skill F=1.17				
	Baseline	1.54	1.48	0.278
	After	3.02		
	Baseline	1.54	1.46	0.001*
	Follow up	3.00		
	After	3.02	0.02	0.001*
	Follow up	3.00		
Communication skill F=5.01				
	Baseline	1.56	1.5	0.058
	After	3.00		
	Baseline	1.56	1.55	0.001*
	Follow up	3.05		
	After	3.00	0.05	0.001*
	Follow up	3.05		
Preventive behaviour F=1.39				
	Baseline	1.21	1.66	0.239
	After	2.87		
	Baseline	1.21	1.7	0.001*
	Follow up	2.91		
	After	2.87	0.04	0.001*
	Follow up	2.91		

Note: *Significant level 0.05

DISCUSSION

During the past decade, the development of learning processes in health education and life skills has proved successful, especially through knowledge dissemination of adaptive psychosocial and relationship development skills of adolescents.[10,13] This integrated life skills model for preventing sexual risk behaviours and participatory learning has been effective in significantly improving knowledge, self-awareness, self-esteem, decision-making skills and communication skills towards preventive sexual behaviour among participants. The life skills approach used in this intervention study was an interactive, educational methodology that did not only focus on the transmission of knowledge but also aimed at shaping attitudes and developing skills. The findings of this study were similar to one local study[8] and other research[16,17] with significant positive changes in self-efficacy and attitudes of students towards HIV/AIDS. The results of this study show that life skill models promote improved knowledge for university students with increased self-awareness, self-esteem, decision-making skills, communication skills and preventive sexual behaviour through learning and role-play of condom use. The participation of university students in active learning can strengthen relationships between students and teachers and improve the classroom climate to better accommodate a variety of learning styles and provide alternative teaching methods. This study demonstrated that such

interactive education activities were welcomed by university students who perceived the intervention as both valuable and enjoyable. Our results were similar to previous studies, suggesting that data coupled with skills positively affects the sexual behaviour of the young.[18] One important reason for the good effect of the model among university students was the use of participatory approaches during the intervention. These were warmly welcomed by the university students. A participatory approach is a prominent characteristic of life skills training. The findings from this study demonstrated that a participatory methodology involving group discussions, debates, brainstorming, storytelling and role-play was different from traditional didactic teaching methods. This approach has also been innovated in China[16] where sexual education is hampered by the existence of gender-stereotypical norms of cultural and ethnic aspects. Consequently, any attempt to integrate understanding regarding STIs/HIV knowledge will show better results.

Our findings indicated that all universities should plan activities and life skills programmes to apply and prevent the risks of sexual behaviour among students. However, the creation of the activities must first realise that sexuality is sensitive to teenager's feelings and before the activities commence the trust of the students must be gained and treated with sincerity. Second, male and female students should be encouraged to role-play together so that they can gain familiarity with each other. This is important for the activities to be successful. Third, the teaching and learning process should be performed by grouping students together. This will motivate the students with interest about learning and make them more self-assertive. Brainstorming can be used to promote students' ideas and results adapted to teaching in other subjects. Lastly, life skills are best practiced using scenarios. These will develop the students' ability to assess situations and decide the correct way to efficiently deal with them. In the future, we suggest focusing on educational activities. The current disease situation can be emphasized using problem-based learning, naming experiences and real situations. Enhanced cognitive skills and analysis will stimulate the interest of students to perform the activities. A potential limitation of this study was that groups were not randomly. However, we had appropriate statistical test of both intervention and control groups. Changes in sexual risk behaviours require a follow-up study after six months and further studies to confirm the long-term sustainability. Activities should increase the knowledge, self-esteem and communication skills among students as 'booster programmes'. The skills that are learned will continue to stimulate and achieve behavioural change. In addition, any future courses will provide the knowledge and experience of reproductive health and life skills for the participants.

AUTHOR'S CONTRIBUTIONS

KS: Conceptualize, designed the study and prepared the draft of the manuscript. RK: Reviewed, added intellectual part, RS supervised research. MC: Analysed and interpretation of data.

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