Video-based *versus* Medical Personnel-led Training for the Knowledge on Condom Use, Partner Notification and Sexually Transmitted Infections in Rural Communities in Thailand: A Randomized Comparison Pilot Study

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ABSTRACT

Objective: To compare the knowledge regarding partner notification (PN), condom use (CU) and sexually transmitted infections (STIs) after video-based or medical personnel-led training.

Methods: From December 2016 to January 2017, we conducted an opened-label randomized study in four communities (20 participants/ community) in Bangsaphannoi district, Prachuabkirikhan province. In each community, the participants were randomly allocated into Group A (medical personnel-led training) or Group B (video-based training). Both trainings covered similar contents which included knowledge about STIs (5 minutes); how to safely notify their partners (10 minutes) and techniques of correct condom use (10 minutes). Participants' knowledge was assessed by five one-best questions for each topic before and after the training. Comparison of scores within group and between groups was done by using Wilcoxon rank sum test and Wilcoxon signed rank test. $P < 0.05$ was considered statistically significant.

Results: From 160 eligible participants, 148 could complete the study (74 in Group A and 74 in Group B). Between two groups, there was no difference of participants' characteristics, including age, education, employment, sex debut, STIs and number of partners. Both training techniques significantly improved participants' knowledge and there was no difference between them. The lowest median score and least improvement of knowledge were found in PN.

Conclusion: At the community level, both video-based training and medical personnel-led training improve the knowledge on PN, CU and STIs with comparable results.

Keywords: Sexually transmitted disease; partner notification; condom use; patient education (Siriraj Med J 2017;69: 231-237)

INTRODUCTION

Sexually transmitted infections (STIs) have become one of the major global health problems.[1] In Thailand, the incidence of STIs during 2010-2014 had increased and the most commonly reported one was gonorrhea,[2] which is highly contagious, but curable. One of the strategies to resolve the STI problem is to, along with the appropriate treatment, concurrently treat their partners.[3] Partner notification (PN), previously named contact tracing, aims to alert the contacted people to get tested and treated. PN can be done by the patient her/himself, a provider or combination.[4] Patient referral is preferred in developing countries, including our setting.[5] This approach requires a high degree of patients' understanding of their diseases, and how to appropriately inform their own sexual partners of the need for tests and/or treatment. A

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systematic review has shown that education, either single or multiple sessions, can lessen sexual risk behaviors.[6]

Patient referral can be enhanced by giving intensive education to the indexed STI patients. Educational tools are available in various forms. Clinic-based tool, which is superior to peer-based one or technology-facilitated method,[7] includes that led by medical personnel and watching videos. A systematic review has shown that interactive counseling leads to good outcomes[8] and one study has shown that video-based training results in a significant reduction of the incidence of STIs.[9] Accordingly, in a resource-constrained setting, easily understandable videos with medical personnel's supervision may fulfill the strategic plan of controlling STIs. The present study aims to compare two training techniques, video-based *versus* medical personnel-led training, on the knowledge regarding STIs, CU and PN.

MATERIALS AND METHODS

From December 2016 to January 2017, we conducted an opened-label randomized study among healthy participants in four communities in Bangsaphan district, Prachuabkirikhan province. The prevalence of STIs in Bangsaphannoi district from 2014 to 2016 was comparable with the national prevalence of STIs in the 2016 national survey of the Bureau of Epidemiology of Thailand.[10] Out of ten communities in the district, four were randomly selected. Each community contains around 50,000 people. The protocol was approved by Siriraj Institutional Review Board, Faculty of Medicine Siriraj Hospital, Mahidol University (Si 761/2559) and Bangsaphannoi Hospital.

Participants

The inclusion criteria were being older than 18 years; living in the community for at least 6 months; and being able to understand Thai language. Those who were working in the field of Public Health or Medicine; having attended in any courses related to STIs; and who had no sexual experience were excluded.

Two weeks before the recruitment, public announcement about the project was verbally done by community health workers to invite local people to partake in the study. Each participant was explained about the study and only eligible participants were invited. After obtaining informed consent, in each community, the participants were randomly allocated into medical personnel-led training or video-based training according to computer-generated sequence with 1:1 allocation ratio which was sealed in opaque envelops. The randomization sequence was generated by a researcher who was not involved in the enrollment process (Tanasugarn L).

Intervention

The training session was conducted in a quiet and confined area. Participants were given 10 minutes to fill out their personal information, 10 minutes for pre-intervention test, 25 minutes for either medical personnel-led training or video-based training and 10 minutes for post-intervention test. All of the case record forms were instantly kept in a separated envelops. The data collectors organized the data files by labeling each group with "A" or "B" group which was unknown to the data analyzers (Tanasugarn L and Chayachinda C).

The training materials included knowledge about STIs; how to appropriately notify their partners and techniques of correct condom use. Out of four STIs, including syphilis, gonorrhea, pelvic inflammatory disease (PID) and trichomoniasis, only one was taught in each community. For CU and PN, all participants were trained using similar content.

Group A (medical personnel-led training) was conducted by four fourth year medical students (Kittipongphat N, Prachapipat N, Korkerdmana Y, Techavorasinskul N) who were trained by a senior gynecologist who is specialized in STIs (Chayachinda C). The training took place two weeks prior to the recruitment and included two sessions of private training. Participants in Group B (video-based training) watched three videos which were part of the standard patients' educational animation-video series in Female STIs Clinic, Department of Obstetrics and Gynaecology, Faculty of Medicine Siriraj Hospital.

In a group of ten participants, each training lasted for 25 minutes and was facilitated by one investigator (Kittipongphat N/ Prachapipat N/ Korkerdmana Y/ Techavorasinskul N). All trainers were blinded from questions in the assessment form (Box 1). The content in both training techniques was the same. One of the four STIs was randomly assigned to one community.

Outcome measurement

Knowledge on CU, PN and four STIs was assessed by self-completed 15 one-best questions (five for each topic). Participants in each community were taught about and assessed for one of the four STIs. All questions in the assessment form (Box 1) were validated by two experts in the field of STIs from the Department of Obstetrics and Gynaecology, Faculty of Medicine Siriraj Hospital. The same form was used in both pre-intervention and post-intervention to compare the difference within groups and between groups.

Box 1. List of questions in the assessment form.

Condom usage

1. What is the condom's benefit?
2. In which case condom should not be used?
3. Who cannot use condom?
4. What condition should be avoided for storing condom?
5. If condom is broken, what should be done?

Partner notification

1. What is the definition of 'partner' in partner notification?
2. What is partner notification for?
3. Which of the followings is the consequence of inappropriate partner notification?
4. When should partner notification not be done?
5. The following documents should be prepared during notifying partner(s), except..

Pelvic inflammatory diseases

1. What are transmission routes that cause pelvic inflammatory diseases?
2. What are symptoms of pelvic inflammatory diseases?
3. How to diagnose pelvic inflammatory diseases?
4. What is the treatment of pelvic inflammatory diseases?
5. Is it necessary to treat sexual partner(s) of patients with pelvic inflammatory diseases?

Gonorrhea

1. How is gonorrhea transmitted?
2. What are symptoms of gonorrhea?
3. How to diagnose gonorrhea?
4. What is the treatment of gonorrhea?
5. Is it necessary to treat partner(s) of patients diagnosed with gonorrhea?

Syphilis

1. What is not the transmission route of syphilis?
2. What are symptoms of syphilis?
3. Which statement is true regarding pregnancy with syphilis?
4. How to prevent vertical transmission of syphilis?
5. Is it necessary to treat partner(s) of patients diagnosed with syphilis?

Trichomoniasis

1. How is trichomoniasis transmitted?
2. What are symptoms of trichomoniasis?
3. How to diagnose trichomoniasis?
4. What is the treatment of trichomoniasis?
5. Is it necessary to treat partner(s) of patients diagnosed with trichomoniasis?

Statistical analysis

STATA version 12.0 (StataCorp LP, College Station, TX, USA) was used for the analysis. Descriptive statistics such as N (%), mean ± standard deviation (S.D.) and median with interquartile range [IQR, P25-P75] were used. Chi square was used for the comparison of categorical variables. Normal distribution of data was tested by Shapiro-Wilk test. Unpaired t-test was used to compare parametric continuous data. Wilcoxon rank sum test was used to compare non-parametric continuous data between groups and Wilcoxon signed rank test was used to compare pre-intervention and post- intervention scores within each group. $P < 0.05$ was considered statistically significant.

RESULTS

From 160 eligible participants, 148 could complete the whole study (74 in Group A and 74 in Group B). Fig 1 shows that number of participants from each community was comparable.

There was no difference in characteristics between the two groups. (Table 1) The mean age of all participants was 48±10 years and 88.0% of them were female. More than 40% of participants had the level of education higher than or equal to secondary school level. Less than 20% had regular income. The majority of them had one partner and started sexual relations at around the age of 20. Over 70% had more than one child. Prevalence of STIs and their partners' STIs was 3/148 (2.0%) and 2/148 (1.4%), respectively.

Table 2 shows comparison of knowledge in CU, PN and STIs within group and between groups. Both training techniques significantly improved participants' knowledge ($p < 0.05$). There was no difference between them ($p > 0.05$). The lowest median score and least improvement of knowledge were found in PN.

DISCUSSION

This pilot study illustrates the possibility of implementing video-based training to increase knowledge in STI health education at a community level in Thailand. Both medical personnel-led training, which is a traditional method, and video-based training clearly improve participants' knowledge and show comparable results. This finding is consistent with that in previous studies.[11,12]

As STIs are prevalent in primary care settings,[3] so the educatinal materials and process have to be simple. The labor-intensiveness of medical personnel-led training may limit its daily application. Therefore, technology must be included. Video viewing, a low-cost technology, is a promising tool as it can be implemented in all settings. A systematic review has shown its efficacy in improving people's knowledge and healthcare.[13]

The set of validated educational videos used in the present study have been applied in the female STI clinic at Siriraj hospital for many years. Our findings support that the videos are also understandable at a community level. Accordingly, they may potentially be applied to other primary care settings in Thailand. This will promote intensive education to indexed STI patients which will result in better partner notification. Such intervention will be congruent with the second national policy and strategies on reproductive health of Thailand which has incorporated family planning, sex education and control of STIs.[14]

We found that the effect of training was much more striking in CU and STIs than PN. Notifying contact partners by the indexed patient is challenging as it involves not only knowledge, but also communication skills. Poor PN may bring about intimate partner violence and *vice versa*.[15] At the moment, Thailand has no national guideline for partner notification. Thus, intensive education by any means may better partners' co-operation in eradicating STIs from the relationship.

The strength of the study is the randomized design conducted in the community level on evidence-limited topics in Thailand. However, the representativeness of population should be taken into consideration as the average age of the participants was 48 years when STIs are prevalent in younger people. In addition, the application of knowledge, attitude and behavior model in health promotion is known to be a non-linear model.[16] An increase in knowledge score may not be directly linked to a change in sexual health practice. Therefore, collecting data on actual change in STI occurrences and sexual practice in a larger study is highly warranted.

In summary, both video-based tool and medical personnel-led training improve the knowledge on PN, CU and STIs with comparable results at the community level.

Conflict of interest: NK, CC, LT, MC, NP, YK, NT declared no conflict of interest.

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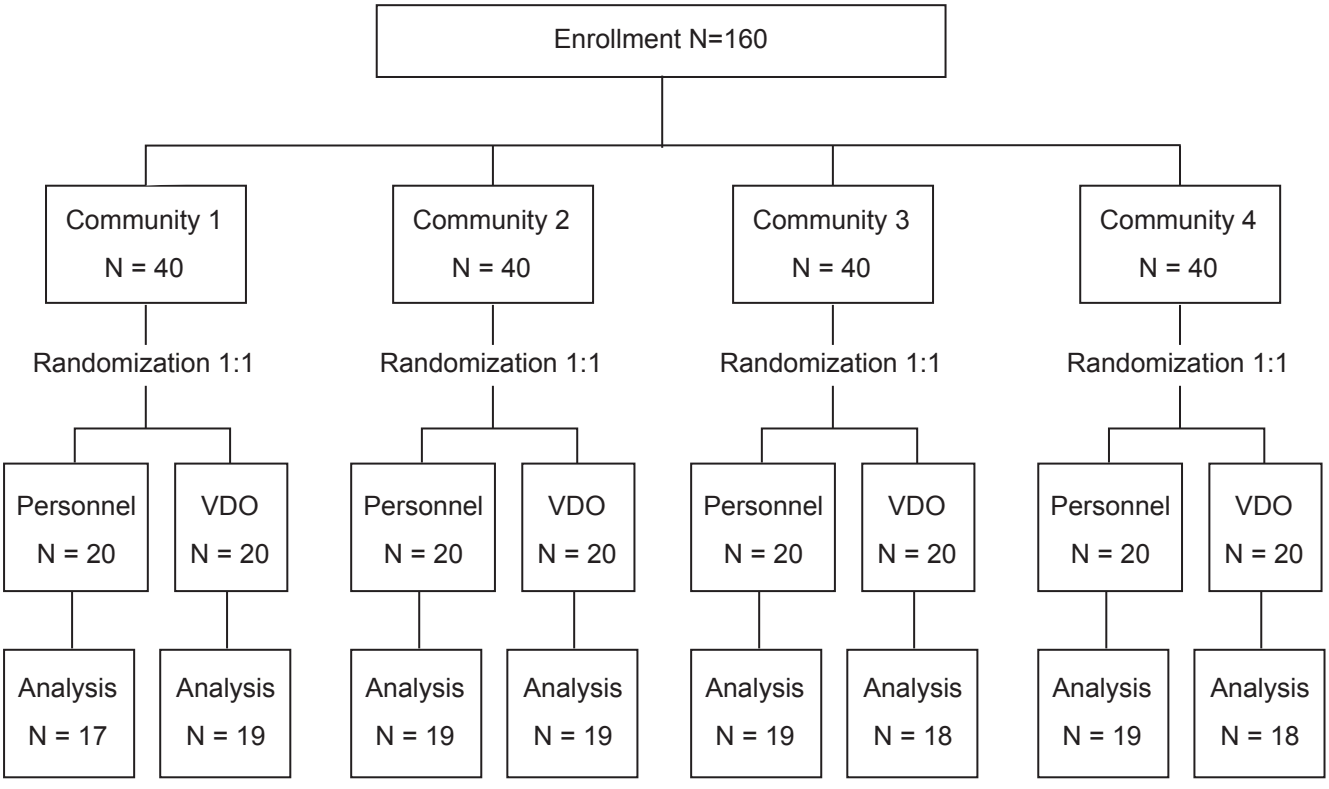

Fig 1. Flow of participants (N = 148).

TABLE 1. Baseline characteristic between the two groups.

Characteristics	Personnel-led training (N = 74)	VDO-based training (N = 74)	P-value
Age (year)	47.9±10.0	48.3±10.1	0.852
Gender: Female	65 (87.8)	67 (89.3)	0.774
Education: At least secondary school	32 (43.2)	34 (45.3)	0.797
Occupation			0.410
Housewife	29 (39.2)	37 (49.4)	
Employee/ officer	14 (18.9)	10 (13.3)	
Temporary job	31 (41.9)	28 (37.3)	
Number of children			0.875
No children	4 (5.4)	5 (6.7)	
One children	17 (23.0)	15 (20.0)	
More than one children	53 (71.6)	55 (73.3)	
Age at first sexual intercourse	21.8±4.5	21.2±3.8	0.359
Number of partners			0.422
One partner	64 (86.5)	68 (90.7)	
More than one partners	10 (13.5)	7 (9.3)	

Data were presented as Mean ± SD for continuous data and N (%) for categorical data

TABLE 2. Changes in knowledge between the two groups in each community.

Knowledge component		Community A		Community B		Community C		Community D		Total scores	
		Group A (N=17)	Group B (N=19)	Group A (N=19)	Group B (N=19)	Group A (N=19)	Group B (N=18)	Group A (N=19)	Group B (N=18)	Group A (N=74)	Group B (N=75)
CU	Pre	4 [3, 5]	4 [3, 5]	5 [4, 5]	5 [4, 5]	4 [3, 5]	4 [3, 5]	3 [3, 5]	4 [3, 5]	4 [3, 5]	4 [3, 5]
(0-5)	Post	4 [4, 5]	5 [3, 5]	4 [4, 5]	5 [5, 5]	4 [3, 4]	4 [3, 5]	5 [4, 5]	4.5 [4, 5]	4 [4, 5]	5 [4, 5]
	*P**	*0.622*	*0.109*	*0.497*	*1.000*	*0.609*	*0.424*	*0.002*	*0.244*	*0.009*	*0.058*
	Post-Pre	0 [-1, 1]	0 [0, 1]	0 [0, 1]	0 [0, 0]	0 [-1, 1]	0 [0, 1]	1 [0, 2]	0.5 [-1, 1]	0 [0, 1]	0 [0, 1]
PN	Pre	2 [2, 3]	3 [2, 4]	3 [2, 3]	3 [3, 5]*	2 [2, 3]	3 [2, 3]	2 [1, 4]	3 [2, 3]	2 [2, 3]	3 [2, 3]*
(0-5)	Post	2 [2, 2]	2 [1, 5]	3 [2, 3]	3 [2, 4]	2 [1, 3]	2 [2, 3]	1 [1, 2]	2 [1, 4]	2 [1, 3]	2 [2, 3]
	*P**	*0.103*	*0.178*	*0.218*	*0.020*	*0.742*	*0.125*	*0.192*	*0.330*	*0.260*	*0.003*
	Post-Pre	0 [-1, 0]	-1 [-1, 1]	0 [0, 1]	-1 [-1, 0]*	0 [-1, 1]	0 [-1, 0]	0 [-2, 0]	0 [-1, 0]	0 [-1, 1]	0 [-1, 0]
STIs	Pre	4 [4, 5]	4 [3, 4]	2 [2, 3]	3 [2, 3]	4 [3, 4]	4 [3, 5]*	4 [3, 4]	3 [2, 5]	3.5 [2, 4]	3 [3, 5]
(0-5)	Post	5 [5, 5]	5 [5, 5]	4 [3, 4]	4 [4, 4]	5 [4, 5]	5 [4, 5]	5 [5, 5]	5 [4, 5]	5 [4, 5]	5 [4, 5]
	*P**	*0.003*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*0.010*	*<0.001*	*0.002*	*<0.001*	*<0.001*
	Post-Pre	1 [0, 1]	1 [0, 2]	1 [1, 2]	1 [0, 2]	1 [0, 2]	0 [0, 1]	1 [1, 2]	1.5 [0, 3]	1 [0, 2]	1 [0, 2]
Overall	Pre	10 [9, 12]	11 [9. 12]	9 [7, 11]	11 [9, 11]*	10 [8 ,11]	10 [10, 11]	9 [8, 11]	10 [7, 12]	9 [8, 11]	11 [9, 12]*
(0-15)	Post	11 [10, 12]	11 [9, 14]	11 [9, 11]	11 [10, 13]	10 [9, 12]	11 [10, 12]	11 [10, 12]	11 [10, 13]	11 [10, 12]	11 [10, 13]
	*P**	*0.211*	*0.012*	*0.002*	*0.049*	*0.044*	*0.182*	*0.014*	*0.025*	*<0.001*	*<0.001*
	Post-Pre	1 [0, 2]	1 [0, 2]	2 [0, 3]	1 [0, 1]*	1 [-1, 3]	0 [0, 1]	2 [0, 3]	2 [0, 3]	1.5 [0, 3]	1 [0, 2]

Group A = Personnel-led training, Group B = video-based training, Pre = pre-intervention scores, Post = post-intervention scores
Data were presented as median [P25, P75]
*P-values obtained from comparison within group by Wilcoxon signed rank test
**P-value <0.05 when P-values were obtained from comparison between groups by Wilcoxon rank sum test

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