

# Monitoring and Evaluation of a Model Development Project and Strategic Campaign on HIV/AIDS Prevention among Muslim Communities in Thailand

Kanittha Chamroonsawasdi<sup>1\*</sup>, Sukontha Kongsin<sup>2</sup>, Suwat Srisorrachatr<sup>3</sup>, Nutchawan Boonreung<sup>2</sup> and Sittikorn Rongsumlee<sup>2</sup>

<sup>1</sup>Department of Family Health, Faculty of Public Health, Mahidol University, Thailand

<sup>2</sup>Research Center for Health Economics and Evaluation, Mahidol University, Thailand

<sup>3</sup>Department of Nutrition, Faculty of Public Health, Mahidol University, Thailand

\*Corresponding author: Kanittha Chamroonsawasdi, Department of Family Health, Faculty of Public Health, Mahidol University, 420/1 Rajvithi Road, Rajthavee, Bangkok 10400, Thailand, Tel: (662)354-8536; E-mail: [kanittha.cha@mahidol.ac.th](mailto:kanittha.cha@mahidol.ac.th)

Received date: August 23, 2014; Accepted date: November 19, 2014; Published date: November 25, 2014

Copyright: © 2014 Chamroonsawasdi K, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## Abstract

**Background:** Prevention and control of HIV/AIDS among Muslim communities using religious principles and practices helps to prevent HIV/AIDS epidemic. Therefore, monitoring and evaluation of outcome achievements will shape policy implications.

**Methods:** A mixed method design using both qualitative and quantitative data collection methods was performed to verify the project achievements, best practices on strategic campaign and strengthening partnership and networking for project management among Muslim communities.

**Results:** A total of 60 trainees were selected from 10 communities as peer educators in a training of trainer program to conduct training activities on HIV/AIDS prevention and control among Muslim communities. Best practices focused on people's perceptions that HIV/AIDS reflects the morals and ethics of community members, using the Noble Al Quran to teach people on appropriate sexual behaviours, to sacrifice themselves for others, and to strengthen partnership and networking through religious leaders, community leaders, housewives, village health volunteers and teenagers as a change agent for sustainable project management. Regarding 84% of returned questionnaires from the target communities, the respondents had their knowledge on HIV/AIDS prevention and transmission and their awareness on HIV/AIDS severity in a moderate to high level. There mean scores of knowledge and awareness between male and female respondents were not significant different. Around 59.5% of them reported on sexual experiences and preventive behaviours. In all, 30% had sexual experiences and 100% denied having sex with HIV patients but only 20% always used condoms when having sex. Among 70% who never have sexual experience, 56.7% will always use condom when having sex.

**Conclusions:** The Noble Al Quran helped Muslims to realize appropriate sexual behaviours. Religious leaders are the catalysts of HIV/AIDS prevention and sex education that can be expanded as a nationwide program in every Islamic school.

**Keywords:** Monitoring and evaluation; HIV/AIDS prevention; Muslim community; Religious

## Introduction

HIV/AIDS is an important public health problem in Thailand. It has induced high morbidity and premature death among Thais during the last three decades. The 2012 global report on HIV/AIDS statistics in Thailand reported that the total number of People Living with HIV/AIDS (PLWHA) was 440,000 persons with adult HIV prevalence at 1.1% [1]. The National AIDS Spending Assessment notes that total expenditures on HIV and AIDS programs totaled 7,702 million baht (approximately US\$ 253.4 million) in 2010 and 9,826 million baht (approximately US\$ 323.2 million) in 2011. These figures were 0.08% and 0.09% of the Gross Domestic Product (GDP) in 2010 and 2011 respectively and 2.0% and 2.4% of all health expenditures in 2010 and 2011, respectively [2]. Care and treatment accounted for 74% of overall HIV related spending [2]. Since 2001, the Thai government has launched the universal coverage program to provide accessibility to

healthcare services among Thais including Anti-retroviral (ARV) therapy to support PLWHA free of charge [3] but was still limited and did not cover all needs because PLWHA felt embarrassed and feared disclosure to seek treatment. The PLWHA are stigmatized and discriminated against in society even from family members resulting in poor ARV adherence [4-9]. Most community members still lack knowledge and understanding on HIV/AIDS transmission and prevention and also have negative attitudes towards PLWHA [10-12]. Among religious congregations, community attitudes and beliefs towards HIV/AIDS, homosexuality, substance abuse, unsafe sex practices and having sex outside marriage are the main barriers to involve them in HIV-related activities and to accept PLWHA [13,14]. The present efforts for effective responses to HIV/AIDS prevention and control are moving from individual-based as treatment and care for PLWHA to reduce the likelihood of transmission to community-based level by capacity building and community mobilization of community-based organizations and community leaders for HIV/AIDS education and prevention. The most effective strategies were enhancing knowledge on HIV transmission to raise community

awareness on HIV/AIDS transmission and prevention, abstaining from sexual risk behaviours and maintaining an exclusive relationship with a non-infected single sex partner by behaviour change communication and promotion of condom use [10,15-17]. Regarding community-based organizations, Faith-based Organizations (FBO) influenced community members on their thoughts, beliefs, knowledge and practices in their lifestyles and behaviours including HIV/AIDS prevention [18,19]. McGrik [20] indicated that Muslim religious leaders in the Middle East and North Africa will be the key persons in addressing HIV/AIDS problems to move beyond AIDS awareness and behavioral change since they are respected role models for community members.

This study aimed at monitoring and evaluating a model development project and strategic campaign on HIV/AIDS prevention in a Muslim community under the responsibility of the Northern Muslim Network for Development. This organization is a local non-government organization established since 2003 to provide knowledge and understanding on HIV/AIDS in the Muslim community with funding from international donor agencies and the Thai government [21]. From 2008-2011, a model development project on HIV/AIDS prevention in the Muslim community was established to disseminate information on HIV/AIDS to change attitudes on PLWHA and to strengthen HIV/AIDS prevention among 10 Muslim communities in 2 provinces of Northern Thailand consisting of Chiang Mai and Mae Hong Son Provinces. Principles of the Noble Al Quran were applied to teach the community members to prevent HIV/AIDS epidemics. The evaluation focused on achievement indicators among target communities in terms of HIV/AIDS knowledge, HIV/AIDS awareness, preventive behaviours including condom practices, best practices and strengthening of partnership and networking for effective HIV/AIDS prevention in the Muslim community for policy implications.

## Materials and Methods

### Description of the HIV/AIDS prevention and control model in the muslim community

Since 1989, five epidemic waves of HIV/AIDS in Thailand were found among homosexual men, commercial sex workers, male clients and their wives, and new born babies. Although HIV/AIDS was a major cause of death among Thai people, knowledge and perception on HIV/AIDS in the Muslim community are still limited. They believed that People Living with HIV/AIDS (PLWHA) are those who fail to follow the religious principles and deviate from social norms by having premarital sex or multiple sex partners. HIV/AIDS is believed a deviance from norms in Muslim culture. PLWHA are stigmatized and embarrassed to disclose themselves to the public. Stigmatization occurs even during funerals. From 2008-2011, a model development project on HIV/AIDS prevention in the Muslim community was established under the support from the Health System Research Institute of Thailand (HSRI). The project's objectives were to disseminate information on HIV/AIDS to change attitudes on PLWHA and to strengthen HIV/AIDS prevention among 10 Muslim communities in 2 provinces of Northern Thailand consisting of Chiang Mai and Mae Hong Son Provinces. This project was under the responsibility of the Northern Muslim Network for Development. The Northern Muslim Network for Development is a small to medium size organization with 1 fulltime paid manager, 1 fulltime paid coordinator, 3 trainers and more than 10 unpaid volunteers with strong collaboration and partnerships with Religious Institution

Networks on AIDS, Thailand (RINA) consisting of Buddhists, Muslims, Christians and the Norwegian Catholic Association (NCA). The training materials and activity plans were prepared by the RINA and the NCA. A capacity building Training of Trainer (TOT) program was conducted among 60 volunteers from 10 communities, 6 volunteers from each community. They consisted of religious leaders, community leaders, housewives, Village Health Volunteers (VHVs) and teenagers. A participatory learning experience with group discussion was conducted in each training activity. After the Training of Trainers (TOT) program was finished, the trainees from each community became peer educators to provide knowledge and information on HIV/AIDS to their own community based on religious principles. The After Action Review (AAR) by group discussion between the project manager, the coordinator, the trainers and the peer educators was conducted every day when the peer educators conducted the training activities in communities. The Support-appreciate-learn and Listen-teamwork (SALT) technique was used to identify problems and barriers and solve them when the community activities were carried out.

In August 2009, the HSRI and the National Health Security Office (NHSO), Thailand requested monitor and evaluate the process and impact of the model development project and strategic campaign on HIV/AIDS prevention among Muslim community in Northern Thailand to give information for future direction of HIV/AIDS activities in Muslim communities. The monitoring and evaluation was conducted from August 2009-February 2011 among 10 Muslim communities in Northern Thailand.

### Study setting

The study site was in Chiang Mai and Mae Hong Son Provinces in Northern Thailand. The study population included those who lived in 10 Muslim communities where the model development project was implemented.

### Approach and methods of data collection

This was a cross-sectional survey using a mixed method design to collect both quantitative and qualitative data. A logic model to monitor and evaluate [22] a model development project and strategic campaign on HIV/AIDS prevention among Muslim communities was used to determine the project achievements, best practices on strategic campaign and strengthen partnership and networking for project management. Data were collected among 60 peer educators from 10 communities using focus group discussions, in-depth interviews with key informants from 1 project manager, 1 project coordinator, 2 trainers, and a cross-sectional survey using a self-administered questionnaire among 100 community members from 10 communities where the project was carried out.

Sixty peer educators were selected purposively based on their experiences to be involved in the TOT activities. Focus Group Discussions (FGDs) were carried out by the researchers after informed consent had been obtained. A FGDs guide obtained from document review of the project aims, methodologies, targets and outcome indicators was used as a tool to collect data. The guide focused on their reasons to join the project, recruitment methods, learning experiences, best practices in their viewpoints, and how to strengthen their partnership and networking with other communities. The key informants were selected purposively for in-depth interviews with a semi-structured interview schedule by the researchers after informed

consent had been obtained. The schedule focused on how to recruit the trainees, components of a TOT program, the best practices for community capacity building and empowering, how to monitor and solve problems and how to strengthen a partnership and networking. One hundred community members were randomly selected from 10 communities, 10 persons from each community for a community survey using a self-administered questionnaire adapted from the United Nations General Assembly for Special Sessions (UNGASS) on HIV/AIDS, 2002 [23]. The survey was conducted after informed consent had been obtained. It aimed to identify knowledge on HIV transmission and prevention, awareness on HIV/AIDS severity and benefits of preventive behaviours and preventive behaviours to prevent and control HIV/AIDS among community members. After completing surveys the target sample, all questionnaires were sent back to the researchers by the project coordinator.

Data were collected from 10 August 2009-24 February 2011 and were classified in 5 phases.

**Phase 1:** Document review from 10-25 August 2009 to prepare qualitative and quantitative data collection.

**Phase 2:** Qualitative data collection from 22-25 March 2010. Five FGDs were conducted among 60 peer educators from 10 communities (12 persons each FGDs). In-depth interviews with 1 project manager, 1 project coordinator and 2 trainers were also conducted.

**Phase 3:** A cross-sectional survey was conducted from 20 April-31 May 2010 to collect quantitative data using a self-administered questionnaire among community members representing the target group based on the outcome achievements.

**Phase 4:** The first workshop was conducted from 25-26 November 2010 to impart knowledge and share experiences among the study groups and the researchers to identify best practices and strategic campaigns.

**Phase 5:** A second workshop was conducted 24 February 2011 to impart knowledge and share experiences among religious leaders, researchers and the experts from international donor agencies and government and non-government organizations to summarize the best practices, learning experiences and policy implications.

## Data analysis

The qualitative data obtained from FGDs and in-depth interviews were recorded verbatim and analyzed using content analysis based on viewpoints of the respondents. The analysis consisted of open coding using the respondents' own words and phrases. Discussion was facilitated among the research team members to develop initial categories according to the FGDs guidelines and the in-depth interview schedule. After reaching consensus among the research team members, all information were coded and themes identified.

The quantitative data from community survey was analyzed using descriptive statistics such as percentage, mean and standard deviation. Independent t-test was used to compare mean scores of knowledge on HIV transmission and prevention and mean score of awareness on HIV/AIDS severity and benefits of preventive behaviours between male and female respondents from the target communities.

## Ethics Consideration

The research proposal was approved by the Committee on Human Rights Related to Human Experimentation, Faculty of Public Health, Mahidol University, Thailand.

## Results

The outcomes of the model development on HIV/AIDS prevention in Muslim communities included capacity building of 60 peer educators under the TOT program using principles of the Noble Al Quran as best practices to transfer knowledge and awareness on HIV/AIDS transmission and prevention of the target communities. The components of the TOT program, recruitment of the trainees and reasons to join the TOT program were also explained. Furthermore, project monitoring, how to solve the problems among the team members and how to strengthen partnership and networking were also summarized based on methods of data collection.

## Qualitative data from in-depth interviews and focus group discussions

**Components of a TOT program:** The key informants summarized the components of a TOT program comprising 7 activities, Activity 1 was entitled, "Open mind, living positive with HIV/AIDS", Activity 2 focused on, "Principles of the Noble Al Quran to give merits to PLWHA", Activity 3 was named, "Analysis of HIV transmission using QQR approach (Quantity of HIV and source of infection; Quality of HIV; Route of transmission)", Activity 4 involved group interaction, "Fluid exchange game", Activity 5 concerned, "HIV infection and its' impacts", Activity 6 concentrated on, "How to prevent HIV transmission", and Activity 7 centered on, "Counselling, referring for treatment and psychological support for PLWHA". They gave their opinion on the training activities as a comprehensive program for capacity building by participatory learning to share ideas and experiences and to obtain skills from role plays. The TOT program incorporated the Noble Al Quran with the goals to sacrifice themselves to others, to give merits to PLWHA and to prevent HIV transmission by proper sexual behaviours as illustrated from the following quotes.

"We used 7 activities the TOT by participatory learning experience with role plays to enhance their skills to become skilled trainers to teach our community members" (A project manager).

"Training contents incorporated "Principles of the Noble Al Quran" incorporated to motivate the trainees on their duties to other Muslims to encourage positive attitudes to PLWHA and give merit to them to reduce stigma. The best way to prevent HIV transmission is to follow principles of the Noble Al Quran on proper sexual behaviours to avoid from pre-marital sex among teenagers and to be faithful to one's spouse" (One trainer).

**Recruitment of trainees and reasons to join the training program:** Sixty trainees were selected from 10 communities to participate in a capacity building project to enhance their knowledge and awareness on HIV transmission and prevention. They comprised religious leaders, community leaders, housewives, VHV's and teenagers. Most of the trainees were willing to join the training because of their social commitment to other Muslims and to be confident in teaching the young generation on HIV/AIDS prevention as exemplified by the quotes below.

“Ten communities were selected to participate in this project. In each community, 6 trainees were selected comprising religious leaders, community leaders, housewives and VHVs to join the TOT activities. One community selected and focused on 6 college teenagers. In the TOT activities, imparting knowledge on HIV transmission and prevention, raising awareness on the importance of preventive measures and understanding how to live with PLWHA were included” (One project manager, one trainee).

“All Muslims have a duty to assist their fellow Muslims. If we can make them know and understand about HIV/AIDS we will do give merits to others” (One VHV).

“When we give merits to someone, we will feel very happy. Sometimes giving is better than receiving. Joining the TOT is beneficial because we will feel confident to teach our young generation on HIV/AIDS prevention” (One community leader).

**Project success:** After the TOT, 60 trainees became community peer educators. They were capable of conducting a series of training activities in their communities to increase knowledge and understanding on HIV/AIDS using principles of the Noble Al Quran to devote themselves to help other people as gleaned from the quotes below.

“Based on principles of the Noble Al Quran, we realized responsibility to help other people in society by devoting ourselves to make people understand the importance of HIV/AIDS prevention and how to reduce stigma on PLWHA” (One religious leader).

**Best practices:** The best practices concerned people’s perceptions that HIV/AIDS reflects morals and ethics of community members and HIV/AIDS is everybody’s problem as everyone is at risk of HIV infection. Principles of the Noble Al Quran were applied to teach young Muslims to avoid from pre-marital sex and to raise awareness of community people on proper sexual behaviours. The Muslim religious leaders were the catalysts of the project because community members were trusted and paid respect to them as evidenced by the quotes below.

“HIV/AIDS is not only a topic to discuss about sexual relationship and safe sex practices but reflects morals and ethics the community to follow the religious principles especially among boys and girls to avoid staying alone in private places” (One religious leader).

“To be faithful to a spouse without extra marital relationships is the best way to prevent HIV transmission” (One housewife).

“HIV/AIDS is closed to us, everybody is at risk of infection if they do not concern on a prevention method” (One housewife).

“All people pay their respect and trust to the religious leader and obey his teaching. He is a change agent of community empowerment” (A project manager).

**Project monitoring and solving problems:** After action review (AAR) is conducted every time when a series of training activities in communities is facilitated using participatory learning experiences. Group discussions between the trainers and peer educators were conducted at the end of each training session to identify problems and barriers and solve them based on the concept of “SALT (Support-appreciate-learn and Listen-teamwork)”. The SALT technique will help the peer educators to identify strengths and weaknesses of their teaching style and how to improve their performance as the quotes below indicate.

“We use AAR every time at the end of our TOT activities to discuss and share ideas and experiences with each other. The SALT technique reflects the teaching style and will create more ideas to adapt the style. Problems and barriers and how to solve them are also discussed among us. Every comments and suggestions is accepted among our teams. We respect every voice. SALT is used when site visit is carried out in each community” (A project manager and a project coordinator).

**Strengthening partnership and networking:** Self-assessment and sharing ideas and experiences among the peer educators from different communities was conducted to strengthen partnership and networking by helping each other to carry on the training activities using a plan-do-check-act process closely monitored and supervised by the project manager, the project coordinator and the trainers. The learnings from a successful community are shared among the other communities through site visit. Feedback for effective management to solve problems and to strengthen the community campaign on HIV/AIDS is given by the project manager, the project coordinator and the trainers as seen in the following quotes.

“We use a PDCA cycle to perform our training activities. Ideas and experiences are shared among our team. Self-help groups among 10 communities to mobilize resources for training activities are organized under close supervision and monitoring from the project manager and the trainers” (One housewife).

“A community site visit is performed by our team members to share learnings and exchange experiences on effective management to strengthen the activities” (One trainer).

## Quantitative data from community survey

**Demographic data of the target communities:** After 60 peer educators conducted a series of community training program on HIV/AIDS prevention in 10 communities, 10 persons in each community were chosen to evaluate their knowledge and awareness on HIV/AIDS and preventive behaviours of HIV transmission as the outcomes achievement. From 100 of the target groups in communities, 84 questionnaires returned (84%). The mean age of participants was 33.60±9.59 years (range 15-65) and 62% were female. In all, 64% were single, 67% of them stayed in the municipal area, 59% were born in this area with mean of duration to stay as 24±17.82 years (range 4-58). A total of 34.5% completed secondary school level while 25 % completed bachelor degree or higher. Around 38% were students, 33.3% had small private businesses and 14.2% were housewives. The median family income/month was 10,000 baht (range 3,000-25,000 baht; 32 baht=1US\$) with only 29.7% with sufficient saving. Most of them (95.2%) received health information from different sources including television (89%), newspaper (83.3%), health personnel (65.4%) and VHVs (50%). Regarding sexual experiences and preventive behaviours only 50 respondents from 84 returned questionnaires gave the answers (59.5%). It was found that 30% of the respondents who answered on sexual experiences with the mean age of first sex at 23.8±4.9 (range 18-35). In all, 70% had sex during the last 6 months with only 16% always using a condom.

**Knowledge on HIV transmission and prevention:** The participants were asked about their knowledge on HIV transmission and how to prevent it. Table 1 summarizes the main understanding on HIV transmission and prevention. Most of them (95.2%) could answer correctly regarding having multiple sex partners was a risk factor for HIV transmission, sharing the same needles and syringes for

intravenous drug use is a risk factor for HIV transmission (92.8%) and anti-retroviral drug are available at present (92.8%). Majority of them could answer correctly toward having a blood test before marriage reduces the risk of HIV transmission (80.9%) and condoms can prevent HIV transmission (72.6%). More than half could answer correctly regarding having sex with only one exclusive, uninfected partner can prevent HIV transmission (60.7%), HIV infection cannot be transmitted by mosquito bite (69%), PLWHA can participate in communities activities (69%), HIV infection cannot be transmitted by eating with PLWHA (56%), HIV infection cannot be transmitted by using the same toilet with PLWHA (64.3%) and people who look clean can have HIV (56%). After summarizing their total knowledge score, 24% and 54.7% of respondents had knowledge at a high level (>80% of total score) and at a moderate level (60-79% of total score).

Item	Statement	% of correct answer (N=84)
1	HIV can be avoiding by using condom.*	72.6
2	HIV can be avoiding by having sex with only one exclusive, uninfected partner.*	60.7
3	Having multiple sex partners are at risk for HIV transmission.	95.2
4	A person can get HIV from mosquito bite.*	69.0
5	A person can get HIV by sharing a meal with someone who is infected.*	56.0
6	A person can get HIV by using the same toilet with PLWHA.	64.3
7	A healthy-looking person can have HIV.*	56.0
8	Having blood test before marriage reduces the risk of HIV transmission.	80.9
9	Sharing the same needles and syringes for intravenous drug use is a risk for HIV transmission.	92.8
10	Anti-retroviral (ARV) drug are available at present.	92.8
11	PLWHA can participate in community activities such as wedding, funerals, etc.	69.0
12	Blood test is the most confirmatory test of HIV infection.	63.1
13	HIV infection is not a heredity disease.	51.2

**Table 1:** Knowledge on HIV transmission and prevention.\*United Nations General Assembly for Special Session (UNGASS) on HIV/AIDS, 2002. HIV: Human Immunodeficiency Virus; PLWHA: People Living with HIV/AIDS.

Table 2 summarizes the comparison of knowledge scores on HIV transmission and prevention between male and female respondents. The mean score of knowledge among males were slightly higher than the mean score of knowledge among females (5.28±1.32 and 5.13±1.53). It was found that the mean scores of knowledge between the two sexes were not significant different (t=0.447, df=82, p-value=0.656).

**Awareness on HIV/AIDS severity and benefits of preventive behaviours:** Participants were asked to verify their awareness on HIV/AIDS severity and benefits of prevention. Table 3 describes their

awareness regarding its severity and benefits on safe sex practices to prevent HIV transmission. The majority of them reported awareness on HIV/AIDS severity instanced by: cannot be cured (76.2%) and PLWHA can work and live as normal people (77.8%). Slightly more than half indicated that using a condom every time when having sex can prevent HIV transmission (60.7%), HIV/AIDS is a fatal disease (57.1%) and people who live far from urban areas have a chance to get HIV infection (57.1%). Only a few agreed that using a condom when having sex with PLWHA will not be a risk factor for HIV transmission (29.8%). After summarizing their total awareness score, 18.5% and 76.2% of respondents had awareness at a moderate level (60-79% of total score) and at a low level (<60% of total score).

Types	Group	N	Mean ± SD	t-test (df)	p-value
Knowledge on HIV transmission and prevention	Male	32	5.28±1.32	0.447(82)	0.656
	Female	52	5.13± 1.53		
Awareness on HIV/AIDS severity and benefits of preventive behaviours	Male	32	20.09± 1.44	1.374(82)	0.173
	Female	52	19.61±1.61		

**Table 2:** Comparison of mean scores of knowledge and awareness between male and female respondents.

Item	Statement	% of answer(N=84)	
		Yes	No/Not sure
1	HIV/AIDS cannot be cured	76.2	18.0
2	HIV/AIDS is a fatal disease	57.1	30.0
3	PLWHA can work and live as normal people	77.8	22.8
4	People who live far from urban areas have a chance to get HIV infection	57.1	62.0
5	At present, your community has PLWHA	56.0	30.0
6	You have been tested for HIV	52.4	2.0
7	Using condom every time when having sex can prevent HIV transmission	60.7	2.0
8	Using condom when having sex shows how you love your partner	38.1	62.0
9	Using condom when having sex shows how much trust you give your lover	36.9	50.0
10	Using condom when having sex with PLWHA will prevent you from HIV transmission	29.8	87.8
11	When having sex with anyone without condom use, you are at risk for HIV transmission.	45.2	42.0

**Table 3:** Awareness on HIV/AIDS severity and benefits of preventive behaviours. HIV: Human Immunodeficiency Virus; PLWHA: People living with HIV/AIDS.

Table 2 summarizes the comparison of awareness scores on HIV/AIDS severity and benefits of preventive behaviours between male and

female respondents. The mean score of awareness among males was slightly higher than the mean score of knowledge among females (20.09±1.44 and 19.61±1.61). It was found that the mean scores of awareness between the two sexes were not significant different (t=1.374, df=82, p-value=0.173).

**Preventive behaviours of HIV transmission among sexual experiences group:** In all, 30% of respondents reported on sexual experiences. Table 4 describes preventive behaviours of HIV transmissions. Among this group, only 20% always used a condom when having sex, 100% denied having sex with HIV patients, 86.7% never changed their sex partner and 33.3% sometimes use the withdrawal method for birth control and HIV prevention.

Item	Statement	% of answer(N=15)		
		Always	Sometimes	Never
1	Always use condom when having sex	20.0	26.7	53.3
2	Withdraw when having sex	66.7	33.3	0
3	Changing sex partner when having sex	6.7	6.7	86.7
4	Having sex with HIV patients	0	0	100.0

**Table 4:** Preventive behaviours of HIV transmission among sexually experienced group.

**Intention to practice preventive behaviours among the non-sexually experienced group:** Intention to practice preventive behaviours among the non-sexually experienced group is shown in Table 5. A total of 56.7% will always use a condom when having sex, 33.3% will withdraw when having sex, 93.3% will not have multiple sex partners and 96.7% will not have sex with either males or females.

Item	Statement	% of answer(N=35)		
		Yes	No	Not sure
1	Will always use condom when having sex	56.7	16.7	26.7
2	Will withdraw when having sex	33.3	26.7	40.0
3	Will have multiple sex partners	0	93.3	6.7
4	Will have sex with both male and female sex partners	0	96.7	3.3

**Table 5:** Intention to practice preventive behaviours of HIV transmission among non-sexually experienced group.

## Discussion

The monitoring and evaluation of a model development project on HIV/AIDS prevention among Muslim communities in Northern Thailand was conducted by the external reviewer team assisted by the project manager and the project coordinator to document and collect data in 10 communities. The logic model for evaluation was used as a conceptual framework to identify the project achievements, best practices on strategic campaigns and strengthening partnership and networking for project management. This logic model is a tool for thinking through the most appropriate elements to measure the

outputs and outcomes achievement from the activities being carried out under the resources provided [22,23].

From findings, most respondents in communities had knowledge on HIV/AIDS prevention and transmission at a moderate to high level but their awareness on condom use and condom practices was low. This finding is similar to the study by Rispel et al. [24], Ugarte et al. [10], Aboud et al. [14], Thanavanh et al. [11] which found that community members understand HIV/AIDS transmission and how to prevent it but they did not recognize the importance of condom use. The model development project for HIV/AIDS prevention campaign among Muslims focused on religious teaching for appropriate sexual behaviours and HIV/AIDS reflecting morals and ethics of community members. This concept can be supported by the study of Trinitapoli [25] that reported outcome achievements of religious teaching corresponded with the ABCs of HIV prevention: abstain (for never married persons), be faithful (for married persons) and condom use (among sexually active persons).

The capacity building on HIV/AIDS prevention and control using religious leaders, community leaders, housewives, village health volunteers, and teenagers as a catalyst for peer-led education on HIV/AIDS knowledge and prevention is an effective way for project sustainability [25]. When people are empowered to conduct training activities for HIV/AIDS education themselves, they can plan and manage effective strategies to fit within local context. Technical assistance encompassing HIV/AIDS knowledge, training skills and abilities to implement and evaluate the intervention is necessary for capacity building of the team similar to the study conducted by Mayberry et al. [16]. Strengthening partnership and networking among the team helps people realize the importance of HIV/AIDS and adopting appropriate sexual behaviours is a key success strategy supported by the study of Rispel et al. [24].

Monitoring and evaluating outcome achievements of this study in terms of knowledge, awareness and preventive behaviours on HIV/AIDS among the target communities may be limited due to self-reporting and the individuals who collected data were also trainers or VHVs. Smith indicated that when data were collected by a facilitator or a co-facilitator of the intervention, respondents may not feel comfortable sharing a great deal of sensitive information about their lives especially sexual behaviours.

## Conclusions

Prevention and control of HIV/AIDS among Muslim communities using religious principles and practices helps prevent HIV/AIDS epidemic. Religious leaders are appropriate change agents because community members pay respect to them and follow their teachings. The best practice emphasized the principles of the Noble Al Quran that Muslim people should devote their selves to help other people to realize the importance of HIV/AIDS as merit makings. Additionally, morals and ethics of community members leading to appropriate sexual behaviours and HIV/AIDS prevention is everybody's concern as everyone is at risk HIV infection. A self-help group sharing experiences among the team members will strengthen partnership and networking for effective management and project sustainability. Among community members, knowledge on HIV transmission and prevention is at a moderate to high level but condom practices were still limited because of sensitivity. These findings recommended that positive attitudes toward condom use should be strengthened among Muslim communities to increase understanding the condom's benefits

in preventing HIV transmission. The National Committee on AIDS should support HIV/AIDS activities and sex education campaigns as routine activities to teach in every Islamic school. The government should give financial support to implement HIV/AIDS activities through the Sheikhul Islam Office and expand as a nationwide program. Religious networks among Islam, Buddhism and Christians should be strengthened to mobilize resources and to share religious principles toward HIV/AIDS prevention for effective management in the nearby future.

## Acknowledgements

The researchers would like to thank all respondents for collecting data. This research was supported by the NHSO, Thailand. The publication was supported by the China Medical Board (CMB), Faculty of Public Health, Mahidol University, Thailand.

We acknowledge Mr. Thomas McNamon, a native English speaker from the Faculty of Public Health, Mahidol University for editing this manuscript.

## References

- UNAIDS (2012) UNAIDS Global report: UNAIDS report on the global AIDS epidemics 2012, HIV/AIDS statistics in Thailand, 2012.
- Thailand AIDS Response Progress Report 2012: Status at a glance.
- Suraratdecha C, Saithanu S, Tangcharoensathien V (2005) Is universal coverage a solution for disparities in health care? Findings from three low-income provinces of Thailand. *Health Policy* 73: 272-284.
- Peltzer K, Ramlagan S (2011) Perceived stigma among patients receiving antiretroviral therapy: a prospective study in KwaZulu-Natal, South Africa. *AIDS Care* 23: 60-68.
- Rintamaki LS, Davis TC, Skripkauskas S, Bennett CL, Wolf MS (2006) Social stigma concerns and HIV medication adherence. *AIDS Patient Care STDS* 20: 359-368.
- Gausset Q, Mogensen HO, Yameogo WM, Berthé A, Konaté B (2012) The ambivalence of stigma and the double-edged sword of HIV/AIDS intervention in Burkina Faso. *SocSci Med* 74: 1037-1044.
- Krüsi A, Wood E, Montaner J, Kerr T (2010) Social and structural determinants of HAART access and adherence among injection drug users. *Int J Drug Policy* 21: 4-9.
- Waite KR, Paasche-Orlow M, Rintamaki LS, Davis TC, Wolf MS (2008) Literacy, social stigma, and HIV medication adherence. *J Gen Intern Med* 23: 1367-1372.
- Negash T, Ehlers V (2013) Personal factors influencing patients' adherence to ART in Addis Ababa, Ethiopia. *J Assoc Nurses AIDS Care* 24: 530-538.
- Ugarte WJ, Högberg U, Valladares E, Essén B (2013) Assessing knowledge, attitudes, and behaviours related to HIV and AIDS in Nicaragua: a community-level perspective. *Sex Reprod Healthc* 4: 37-44.
- Thanavanh B, Harun-Or-Rashid M, Kasuya H, Sakamoto J (2013) Knowledge, attitudes and practices regarding HIV/AIDS among male high school students in Lao People's Democratic Republic. *J Int AIDS Soc* 16: 17387.
- Naing CM, Hakim M, Yee DA, Mun KR, Yung TC, et al. (2010) HIV/AIDS-related knowledge, attitudes and perceptions: a cross-sectional household survey. *Southeast Asian J Trop Med Public Health* 41: 952-960.
- Bluthenthal RN, Palar K, Mendel P, Kanouse DE, Corbin DE, et al. (2012) Attitudes and beliefs related to HIV/AIDS in urban religious congregations: barriers and opportunities for HIV-related interventions. *Soc Sci Med* 74: 1520-1527.
- Aboud F, Huq NL, Larson CP, Ottisova L (2010) An assessment of community readiness for HIV/AIDS preventive interventions in rural Bangladesh. *SocSci Med* 70: 360-367.
- Chang LW, Serwadda D, Quinn TC, Wawer MJ, Gray RH, et al. (2013) Combination implementation for HIV prevention: moving from clinical trial evidence to population-level effects. *Lancet Infect Dis* 13: 65-76.
- Schwartländer B, Stover J, Hallett T, Atun R, Avila C, et al. (2011) Towards an improved investment approach for an effective response to HIV/AIDS. *Lancet* 377: 2031-2041.
- Mayberry RM, Daniels P, Yancey EM, Akintobi TH, Berry J, et al. (2009) Enhancing community-based organizations' capacity for HIV/AIDS education and prevention. *Eval Program Plann* 32: 213-220.
- Lindgren T, Schell E, Rankin S, Phiri J, Fiedler R, et al. (2013) A response to Edzi (AIDS): Malawi faith-based organizations' impact on HIV prevention and care. *J Assoc Nurses AIDS Care* 24: 227-241.
- Garcia J, Parker RG (2011) Resource mobilization for health advocacy: Afro-Brazilian religious organizations and HIV prevention and control. *SocSci Med* 72: 1930-1938.
- McGirk J (2008) Religious leaders key in the Middle East's HIV/AIDS fight. *Lancet* 372: 279-280.
- Northern Muslim Network for Development (2008) Annual report on HIV/AIDS campaign among Northern Muslim community of Thailand.
- Harris MJ (2010) Evaluating public and community health programs. John Wiley & Sons, Inc., San Francisco, USA.
- United Nations General Assembly Special Session (UNGASS) on HIV/AIDS (2002) Monitoring the declaration of commitment on HIV/AIDS: Guidelines on construction of core indicators. Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS).
- Rispel LC, Peltzer K, Nkomo N, Molomo B (2010) Evaluating an HIV and AIDS Community Training Partnership Program in five diamond mining communities in South Africa. *Eval Program Plann* 33: 394-402.
- Trinitapoli J (2009) Religious teachings and influences on the ABCs of HIV prevention in Malawi. *SocSci Med* 69: 199-209.
- Ibrahim N, Rampal L, Jamil Z, Zain AM (2012) Effectiveness of peer-led education on knowledge, attitude and risk behavior practices related to HIV among students at a Malaysian public university-A randomized controlled trial. *Prev Med* 55:505-510.
- Smith BD, Kalayil EJ, Patel-Larson A, Chen B, Vaughan M (2012) Retaining clients in an outcome monitoring evaluation study: HIV prevention efforts in community settings. *Eval Program Plann* 35: 16-24.