Directly Observed Therapy Providers’ Practices When Promoting Tuberculosis Treatment in a Local Thai Community

Jiraporn Choowong¹,², Per Tillgren², Maja Söderbäck²

¹Boromarajonani College of Nursing Trang, Praboromarajchanok Institute for Health Workforce Development, Ministry of Public Health, Thailand
²School of Health, Care and Social Welfare, Mälardalen University, Sweden

Correspondence to: Jiraporn Choowong, School of Health, Care and Social Welfare, Mälardalen University, Box 883, SE 721-23, Sweden. Email: jiraporn.choowong@mdh.se

ABSTRACT

Background: Directly observed therapy (DOT) recommends improving adherence to tuberculosis (TB) treatment by observing patients while they take their medication. Although the practice of DOT providers has been widely studied and promoted, the practice on a community level has to be considered. The aim of this study was to explore experiences of village health volunteers (VHVs) and the family members (FMs) as DOT providers in a local Thai community.

Methods: This qualitative study involved five focus groups with 25 VHVs, and six FMs who discussed their experiences as DOT providers in a local Thai community. An inductive content analysis was performed.

Results: It was found that the participants’ descriptions of their experiences as DOT providers could be divided into two themes - their role and skills and the barriers to the practice of DOT. Their role and skills included the monitoring, promoting and cooperating activities. The barriers to the practice of DOT involved practical problems of advising and documenting.

Conclusions: We found that the DOT providers themselves need to be empowered in their role to empower the TB patients to address their problems and get control of their own situation as well. The DOT providers need to be empowered through improved training, which, in turn, will increase patient autonomy to adhere to the TB treatment. If such training is also given to the FMs they can better act as DOT providers as well. The results may guide the health practices and indicate effective policies for improving the practice of DOT in a local community, especially in high TB burden countries.

Keywords: Tuberculosis, DOT providers, Focus groups, Thailand

INTRODUCTION

Tuberculosis (TB) is a major public health concern, resulting in high rates of morbidity and mortality worldwide, particularly in developing countries. Thailand is classified as one of the 22 countries with the highest TB burden [1]. For complete treatment and cure, the World Health Organization (WHO) recommends the directly observed treatment short course (DOTS) strategy [2-4]. The Thai Ministry of Public Health has included the DOTS strategy in national TB control programs as well [2]. The strategy includes directly observed therapy (DOT), socioeconomic support, psychosocial and emotional support, education and counseling of the patients [4-5]. Among these strategies, DOT is recognized as the key element to ensure patients’ long-term adherence to TB treatment [5].

DOT requires that a healthcare provider or other community member, but not a family member (FM), will provide the prescribed TB drugs and watch the patient swallow every medical dose [4]. Nurses, medical practitioners, or public health practitioners normally will provide DOT in what is classified as center-based DOT [5]. Other DOT providers are village health volunteers (VHVs) or community leaders. This is classified as community-based DOT [6-11]. The initiative to allow VHVs to serve as DOT providers is an attempt by the Thai Ministry of Public Health to respond to the staffing shortage in health care practice [12]. The VHVs in each village are trained to be DOT providers following the guidelines by monitoring the medication and administration of the patient at home. However, the VHVs are the backbone of the health care delivery system, supporting the concept of community involvement in even more primary health care activities [13-14]. Several previous studies from Thailand have found that VHVs’ monitoring of the TB patients leads to a better cure rate [9-12]. On the other hand, it was found in a previous study that the healthcare staff who were directly responsible for managing and running the DOT in a local community perceived practical barriers due to the lack of both skills and knowledge among VHVs [15].

In the Thai practice, there are FMs acting as DOT providers as well. Their service is classified as family-based DOT. A previous study reported that family observation yielded lower cure rates, and much higher default rates than observation by someone outside the family [5]. However, one study also found a family member was the most convenient, acceptable and accessible DOT provider because such a person increased the ability to continue with one’s daily activities during treatment and helped with saving time and money [16]. Although the practice of DOT providers has been widely studied and promoted, the practice on a community level has to be considered. Thus, the aim of this study was to explore experiences among VHVs and FMs as DOT providers in a local Thai community.

MATERIALS AND METHODS

Study Design

The research design was explorative, with an inductive qualitative approach. Focus group discussions (FGDs) were used. The interactive dynamic in the group was expected to lead to greater sharing of experiences of interest for the researcher [17-18]. The participants in the focus group were selected from VHVs and FMs who could share experiences in practicing the DOT.

Study Setting

The study was conducted in Trang province in southern Thailand, which still has an average TB cure success rate of 90%, ranging between 74% and 100% in the nine different districts (in each district expectation rate = 85%) [19].

Study Participants

A purposive sampling technique was used to recruit VHVs and FMs from the three districts with the highest numbers of new TB case rates in Trang province. Inclusion criteria were: VHVs without regard to gender, who worked in a community and had at least one year of experience as DOT providers, and FMs who had experience as DOT providers in their own households. The sampling started with the first author contacting the TB clinic staff for information about all identified DOT providers in the three districts. A letter of invitation was sent to 20 female VHVs, five male VHVs, and 10 female FMs. Information was given to all
participants and consent was obtained both verbally and in written form. The participants were divided into five focus groups. This sample size follows the concept of information power with regard to achieving sufficient information power related to the participants’ specific experiences and characteristics [20].

Data Collection

Three focus groups included only VHVs, and two groups included VHVs and FMs. The focus groups were conducted from June–August 2013 at the district public health offices, and lasted nearly two hours. The audiotaped discussions were conducted in Thai and moderated by the first author, while a Thai assistant took notes [17]. A semi-structured interview guide with open questions was used (Table 1). During the sessions, part of the time was devoted to informal socialization and local conversation.

### Table 1. Interview Guide

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tell me about your experiences when you carried out the practice of DOT?</td>
</tr>
<tr>
<td>2.</td>
<td>Tell me about your experiences of motivating the TB patients and family members to engage in the DOT?</td>
</tr>
<tr>
<td>3.</td>
<td>Tell me about your experiences of involving patients in the DOT?</td>
</tr>
<tr>
<td>4.</td>
<td>Tell me about your support of TB patients and their families?</td>
</tr>
<tr>
<td>5.</td>
<td>Tell me about how the district leaders support you (VHVs)?</td>
</tr>
<tr>
<td>6.</td>
<td>Is there anything else important you would like to talk about?</td>
</tr>
</tbody>
</table>

Ethical Considerations

The study was approved by the research ethics committee of the Provincial Health Office in Trang, Thailand (0027.001.3/6541) and the Regional Ethical Review Board in Uppsala, Sweden (Dnr. 2013/063).

Data Analyses

The audiotaped interviews were transcribed verbatim in Thai and translated into English by the first author. Cultural equivalency was ensured through back-translation by a bilingual professional [21]. The text was analyzed by inductive content analysis to find the sensitive characteristics of experiences [22-23]. The analysis started with a naïve reading of the transcriptions translated into English by all authors independently to obtain familiarity. The first author identified meaning units, as words, statements, and paragraphs that reflected experiences. The meaning units were condensed, checked for accuracy by re-reading, and finally coded. The similarities and differences between the codes were linked and grouped to form sub-categories, which in turn were organized into categories (Table 2). Finally, relational information between the categories captured the VHVs’ and FMs’ experiences into themes. During the process, 101 different meaning units, 39 codes, 11 sub-categories, four categories, and two themes were obtained. In the result section, the quotations are used in number of focus groups (FGD1–FGD5).

**RESULTS**

**Characteristics of the Participants**

The characteristics of the study participants are presented in Table 3.

The VHVs’ and FMs’ experiences as DOT providers could be categorized into two themes, namely their role and skills, and the barriers to their practice of DOT. Their role and skills included the monitoring, promoting and cooperating activities. The barriers in the practice of DOT included practical problems as shown in Table 4.

**The Role and Skills in the Practice of DOT**

The VHVs received TB education program training from the healthcare staff to be DOT providers. Their experience was that their role and skills in the practice of DOT involved monitoring, promoting and cooperating activities.

**a) Monitoring activities:**

Being responsible for monitoring the patients, the VHVs carried out their responsibilities by performing screening, watching patients take medications, and educating them and their families. The screening of the villagers who were at high risk of TB and who showed suspicious
Table 2. Example of Latent Content Analysis Used to Explore the Experiences of VHV and FM in the Practice of DOT

<table>
<thead>
<tr>
<th>Meaning Unit</th>
<th>Condensed Meaning Unit</th>
<th>Code</th>
<th>Sub-category</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainly, the patient is the one who takes responsibility to care for himself, and the VHV must build an intimate relationship with the patient, for example, talking to the patient in order to make the patient understand, and to build trust between the VHV and the patient</td>
<td>The VHV must build an intimate relationship and trust with the patient who takes responsibility to care for himself</td>
<td>Trust the patient</td>
<td>To build trust</td>
<td>Promoting activity</td>
</tr>
</tbody>
</table>

VHS - Village Health Volunteers; FM – Family Member

Table 3. Characteristics of the Study Participants

<table>
<thead>
<tr>
<th>FGD Group No.</th>
<th>Participant Status</th>
<th>No. of Participants</th>
<th>Years of School</th>
<th>Age (yrs)</th>
<th>Experience as VHV (yrs)</th>
<th>Experience as DOT Provider (yrs)</th>
<th>No. of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VHV</td>
<td>6</td>
<td>4-16</td>
<td>23-59</td>
<td>1-15</td>
<td>1-3</td>
<td>10-20</td>
</tr>
<tr>
<td>2</td>
<td>VHV</td>
<td>5</td>
<td>4-16</td>
<td>35-52</td>
<td>5-26</td>
<td>1-3</td>
<td>12-16</td>
</tr>
<tr>
<td>3</td>
<td>VHV</td>
<td>4</td>
<td>4-13</td>
<td>40-45</td>
<td>5-20</td>
<td>1-3</td>
<td>10-15</td>
</tr>
<tr>
<td></td>
<td>FM</td>
<td>3</td>
<td>4-9</td>
<td>46-57</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>VHV</td>
<td>4</td>
<td>4-13</td>
<td>22-57</td>
<td>3-21</td>
<td>1-3</td>
<td>10-18</td>
</tr>
<tr>
<td></td>
<td>FM</td>
<td>3</td>
<td>4-6</td>
<td>38-55</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>VHV</td>
<td>6</td>
<td>4-13</td>
<td>32-56</td>
<td>1-16</td>
<td>1-3</td>
<td>12-17</td>
</tr>
</tbody>
</table>

FGD – Focus Group Discussion; VHS - Village Health Volunteers; FM – Family Member

symptoms such as coughing was perceived as an important task. Both the VHV and the FM considered watching the patients take the medications to be the most common and important role. The FM watched the person with TB in their home, while the VHV visited the patients and watched them take their medications at home at the same time every day. They said:

“When it is medication time, I would go to watch the patient taking the pills at home at the patient’s convenience and make sure that the patients took their pills at the same time every day.” - FGD2

Another role for VHV during the home visits was to teach the patients and their caregivers how to prevent TB from spreading and to show them the necessity of completing the treatment process. Information sheets were used as well as demonstrations of how to separate the bedroom and household belongings in accordance with the recommendations. They said:

“Another role for VHV during the home visits was to teach the patients and their caregivers how to prevent TB from spreading and to show them the necessity of completing the treatment process. Information sheets were used as well as demonstrations of how to separate the bedroom and household belongings in accordance with the recommendations. They said:
“When the patient is ready to go home, we step in to help the patient with medication taking, and instruct him regarding what he should do to prevent the TB from spreading.” - FGD4

In another focus group it was said:

“It is important to explain to them how to perform self-care for the first two months.” - FGD3

b) Promoting activities:

The participants also described a role which involved the importance of promoting activities and skills to support the patient’s adherence to the TB treatment. These activities included giving advice, motivating, building trust, and caring. The VHV said that when receiving the TB diagnosis, the patients did not understand the information that this disease can be cured. They were afraid of facing discrimination and being socially rejected. In the home visits, the VHVs gave advice and assured patients that TB was not such a frightening disease. They tried to motivate the patients every day, again and again, until they accepted the medication and agreed to take it until they were cured. They said:

“When the patient first finds out he has TB, he is still worried, I have to encourage him and tell him that this disease can be cured; however, that can happen only if he takes the medications continuously as the doctor prescribed.” - FGD2

Most of the patients felt stigmatized and experienced a great deal of fear. The Thai concept used is ‘Rung Kiat’, which means to be socially rejected. Then the VHVs as well as FMs indicated that their skill in building trust and caring made it easier for the patients to deal with the diagnosis and adherence to the TB treatment. To build trust was perceived as preventing the patients from silently going through the treatment on their own and from becoming isolated due to fear and being ostracized or rejected by their community. Hence, they wanted to show respect towards the TB patients’ needs, and wanted to maintain the patients’ confidentiality. Also, they did not want to hurt the patients’ feelings or cause the patients to think that they as DOT providers did not want to care for them. They experienced it as important to understand the specific person with regard to his or her emotional characteristics and response to the personal situation. VHVs said:

“If a patient wants to keep it secret, for example, Mr. A. has TB and doesn’t want anyone to know it, I will not tell Mr. B that Mr. A has TB. I will do whatever I can to maintain their confidentiality, to make them happy and build their trust in me.” - FGD3

The FMs said:

“We have to do things properly and show them that we are willing in the family to take care of each other.” - FGD3

c) Cooperating activities:

The cooperating activities involved the VHVs cooperating in teams, and providing co-counseling with more health providers. They worked as a team when making home visits, cooperating with other to give more attention when caring for the patients. They found that:

“One VHV might talk to the family, while another would help clean the house, and yet another would talk to the patient.” - FGD2

The VHVs also co-operated with the patients’ relatives and helped them become involved in the care for the patient. They said:

“We will talk to his relatives and ask them to help care for him, and not to rely on only the VHV, as the VHV has a lot of other things to do too. Therefore, FMs who live with the patients have to have a hand in caring for them.” - FGD2

The VHVs provided counseling with the healthcare providers if the patients did not accept the TB diagnosis. VHVs wanted them to educate or provide the TB patients with reliable information. This made the patients feel that they were not being left behind or neglected. As one VHV said:

“We have to ask the TB clinic staff to help us explain things to the patients, such as how to care for themselves.” - FGD3
Table 4. Village Health Volunteers’ and Family Members’ Experiences in the Practice of DOT

<table>
<thead>
<tr>
<th>Theme</th>
<th>Categories</th>
<th>Sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role and skills</td>
<td>Monitoring activities</td>
<td>Watching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Screening</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Educating</td>
</tr>
<tr>
<td>Promoting activities</td>
<td></td>
<td>Giving advice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Motivating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building trust</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Caring</td>
</tr>
<tr>
<td>Cooperating activities</td>
<td></td>
<td>Cooperating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing co-counselling</td>
</tr>
<tr>
<td>Barriers</td>
<td>Practical problems</td>
<td>Lack of competence in documenting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of skill to advise the TB patients</td>
</tr>
</tbody>
</table>

**The Barriers to the Practice of DOT**

The VHVs said that they wanted the healthcare providers to support them more with practical problems as they experienced a lack of competence in documenting, and lacked skills in advising the patients, their families, as well as the community.

a) Practical problems:

To document and report to the health center it was necessary for the VHVs to have writing skills and to use correct grammar. They experienced difficulties with reporting correctly. The lack of competence in documenting made them spend more time on writing reports than on caring for the patients. It was stated:

“The documentation for the health centre must be in written form. Some VHVs know the data, but are not good at putting it in writing. Some are good at writing reports, while others are good at practicing in the field.” - FGD2

Another practical problem was that even though the VHVs completed the training, they still lacked skills and were unable to apply what they had learned about how to care for the patients and their families. They felt they lacked skills in how to advise and motivate the patients. They needed more up to date knowledge about TB when performing their tasks.

“We would like to have practical knowledge that we can apply to our work in the real world, for example, how to modify or rearrange the patients’ living area and its surroundings, and health recommendations for patients, FMs or those who live or work close to the patient.” - FGD2

**DISCUSSION**

This study focuses on the DOT providers’, VHVs’ as well as FMs’, experiences in a local Thai community. They described experiences which involved tasks and challenges concerning their role, and skills of monitoring, promoting and cooperating activities. They further described practical barriers due to lacking skills to motivate the patients, their families, and communities, as well as lack of competence in documenting. It was obvious that they were more task-oriented in their role and skills, but also demonstrated a wish to be more holistically-oriented towards the patients.

The DOT providers’ experiences will be understandable from the perspective of successful implementation of evidence into practice [24-26]. According to the framework of Promoting Action on Research Implementation
in Health Services (PARIHS), a successful implementation will occur when the evidence as a source of knowledge is good, the context is receptive to change with monitoring and feedback mechanisms in place, and there is an appropriate facilitator of change available [25-26]. There is evidence that DOT following WHO guidelines improves TB outcome and improves the quality of care [5,7,9,10,27].

To date, the most successful program of DOT practice in Thailand has integrated the VHVs into the TB health service as DOT providers for TB patients, like facilitators [6,9-11]. The VHVs in the Thai community have, for a long time, been recognized as an international model for community-based public health, and acclaimed as a global success by the WHO [15]. Thus, the VHVs will make a valuable contribution to improving access to and coverage of TB control in Thai communities. They represent an important health resource with great potential for providing and extending a reasonable level of health care to TB patients in community [11]. Also, there is robust evidence that VHVs can undertake actions that lead to improving the TB outcome [9-11,13].

For organizing and training the DOT providers, it is the healthcare staff who take responsibility in Thailand [12]. Thus, the VHVs are trained through a specific TB education program according to the DOT guidelines, which in turn are based on WHO recommendations for community-based DOT [2,4]. The healthcare staff then expect that the VHVs will understand their role as DOT providers and their tasks concerning TB patients, and will be able to meet their responsibilities in a suitable and effective manner [6].

It was found in earlier studies that the healthcare staff did not trust FMs to act as DOT providers [16]. On the other hand, in the policy a patient can choose FMs as a DOT provider, but they will not be trained as DOT providers. In this study it was found that the FMs tried to watch the patient take the medication in a proper way and care for them through family-based DOT. The VHVs then would conduct home visits once a week to cooperate with family members, assess the patients’ medication, educate the patients and their families, and give them advice about the necessity to complete the treatment process and motivate them to take the full course of medication [12].

We also found that the challenges to the VHVs’ role and skills start when encountering patients who do not know that TB can be cured, as well as when the patients are afraid of facing discrimination. The patients will keep their illness secret, conceal their TB disease from others, and delay the treatment. This stigmatization, called ‘Rung Kiat’, is a Thai concept which means to be socially rejected. Earlier studies have shown that the fear of stigma is a significant barrier to early DOT treatment, patient adherence and successful implementation of the DOT [28-30].

The VHVs demonstrated that they have to develop their skills of promoting activities to improve the patients’ confidentiality, decrease the fear of stigma of the TB patients, and promote the patients’ adherence to TB treatment. It was understood from the VHVs in this study that they wanted to focus more on ‘caring and encouraging’ the patient. They wanted to have what can be understood as a more holistic orientation to improve the patients’ capacity for self-care. These activities will come close to the meaning of patient empowerment, referring to making the patients feel more powerful [31-34]. The patients will become empowered to adhere to the TB treatment via their interactions with the VHVs [31-32]. However, to empower the TB patients to address their problems and get control of their own situation, the DOT providers themselves need to be empowered in their role as well. The TB education program training focusing on the duty of performing tasks needs to be addressed.

We acknowledge that there are some limitations to this study. There may be some limitations related to the translations, as some words and feelings cannot always be translated accurately from Thai into the English language. The experiences of the participants’ discussion and the findings cannot be generalized. To improve the critical analysis and to ensure the accuracy of the interpretations, the trustworthiness of this study was strengthened by triangulation involving multiple researchers throughout the analytical process. In addition, this study was reported according to the consolidated criteria for reporting qualitative
research (COREQ) guidelines. We have ensured a high quality of reporting in the study [35].

CONCLUSIONS

Although the practice of DOT provided by VHVs had positive effects on patients’ adherence to TB treatment and cure rate in earlier studies, there further is a need to improve their conditions. The results in this study found that the DOT providers themselves need to be empowered in their role, to empower the TB patients to address their problems and get control of their own situation as well. The DOT providers need to be empowered through improved training, which, in turn, will increase patient autonomy to adhere the TB treatment. If such training is also given to the FMs they can better act as DOT providers as well. The results may guide the health practices and indicate effective policies for improving the practice of DOT in a local community especially in high TB burden countries.

AUTHORS’ CONTRIBUTIONS

JC, PT and MS are responsible for concept development and design of the study. JC undertook literature review and data collection. All authors perform data analysis and interpretation, reviewed the manuscript and approved the final manuscript.

ACKNOWLEDGEMENTS

The authors are grateful to all participants who generously shared their experiences and thoughts in the interviews.

CONFLICT OF INTEREST

Authors have declared that no competing interests exist.

REFERENCES