A qualitative assessment of barriers and facilitators to antiretroviral adherence in Thai patients

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Abstract

Objectives: Excellent adherence to combination antiretroviral therapy can suppress HIV replication and produce life expectancies nearing those of individuals without HIV infection. This qualitative study sought to identify the barriers and facilitators to good antiretroviral medication adherence in Thai patients living with HIV.

Methods: Semi-structured interviews were conducted with a convenience sample (n=21) of patients attending routine clinic visits at Srinagarind Hospital in Khon Kaen, or HIV-NAT, the Thai Red Cross AIDS Research Centre in Bangkok.

Results: Median informant age was 43 years (range 27–60 years) and 43% were female. We identified key facilitators and barriers to adherence among HIV-infected Thai patients along three major themes (patient-related, health system-related and medication-related). Stigma was a primary concern for most informants, operating throughout Thai society to induce feelings of shame for Thai people living with HIV. Determination to stay healthy and incorporate taking cART into their daily routine were key components of good adherence. Supportive and trusting relationships, particularly with the clinic team, empowered patients to maintain good medication adherence.

Conclusions: Changing public perceptions about HIV, and training of HIV clinic staff on the importance of trusting and supportive provider–patient relationships in promoting good health outcomes, will help Thailand achieve its aim of having zero new HIV infections, zero discrimination and zero AIDS-related deaths by 2030.

Keywords: adherence, HIV, Thailand, Southeast Asia, antiretroviral agents

Introduction

High and sustained levels of adherence to combination antiretroviral therapy (cART) can suppress human immunodeficiency virus (HIV) replication to low levels and help HIV-infected patients achieve life expectancies nearing those of individuals without HIV-infection [1,2].

Thailand, with an adult HIV prevalence of 1.2%, has the highest HIV prevalence in Southeast Asia. A National Treatment Program currently provides first, second and limited third-line cART options to all individuals regardless of CD4 cell count [3]. HIV-RNA testing 6 months after cART initiation and yearly thereafter, along with biannual CD4 cell count monitoring and other monitoring for drug toxicity are also provided.

First-line regimens are typically nevirapine or efavirenz combined with two nucleoside reverse transcriptase inhibitors. Second-line regimens are ritonavir-boosted lopinavir or atazanavir in combination with lamivudine and tenofovir or zidovudine; darunavir is available on a limited basis as a third-line option. There is an additional cost burden associated with moving from a first-line regimen to subsequent treatment regimens. Since poor adherence is the single most important predictor of first-line regimen failure [4], maintaining high levels of adherence is essential to the longevity and sustainability of the National Treatment Program.

The way patients use medication is a complex phenomenon shaped by influences at the level of the household, healthcare setting and community [5]. Barriers and facilitators to cART adherence have been extensively studied in high-income countries, and low or middle-income African contexts [6], but to a lesser extent in lower-middle income countries in Asia. Barriers reported in Asia by other analyses include fear of stigmatisation, a need to travel long distances to a clinic, lack of family support and financial difficulties [7–9].

In two Thai clinics, one in Bangkok and another in Khon Kaen, we previously reported adherence rates ≥95% and viral load undetectability (as defined by <50 copies/mL) in 94% and 95% of subjects, respectively. At a third clinic in Bangkok, only 80% of patients reported adherence ≥95%, and plasma HIV-RNA was undetectable in only 79% of subjects [10]. In this study, we sought to understand factors associated with the high adherence rates (and subsequently high virological suppression rates) at the former two clinics.

Methods

Ethical clearance for the study protocol was given by the Institutional Review Boards of both Chulalongkorn and Khon Kaen Universities. In-depth, semi-structured interviews were conducted with a convenience sample of 21 patients and two spouses attending routine clinic visits at Srinagarind Hospital, Khon Kaen, or HIV-NAT, the Thai Red Cross AIDS Research Centre in Bangkok. Patients provided written informed consent, and were informed that their interview content was strictly confidential, and that only de-identified subject information would be shared with clinic and research staff. Subjects were eligible for inclusion if they had

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documented evidence of HIV infection, were aged ≥18 years, had been taking cART for ≥1 year prior to the interview and were initially treated with a non-nucleoside reverse transcriptase inhibitor-based regimen.

Interviews were conducted in Thai and audio recorded. All interviews were conducted by the same investigator (MR) for consistency. Participants were asked about their experiences living with HIV and taking cART, including about periods when taking cART was difficult, and about factors that facilitated taking cART (see Appendix). Recordings were de-identified and transcribed, then subsequently translated from Thai into English. Content and discourse analysis techniques were applied to the data, using NVivo version 9 (QSR International, Doncaster, VIC, Australia). Coding was carried out independently by two investigators, beginning after the first interview, and interviews continued until no new themes emerged (i.e. saturation). The content of the analyses was refined through an iterative process until consensus was reached through collaborative discussion (between MP and SK) of the transcripts and context.

Results

Interviews were conducted during June 2008 with 11 patients in Khon Kaen (two interviews were conducted jointly with partners) and in May 2009 with 10 patients in Bangkok. Of the 22 patients approached to participate, one declined due to time constraints. Median informant age was 43 years (interquartile range [IQR] 34.5–48, range 27–60 years) and 43% were female. The median duration on cART was 1 (IQR 0.5–1.75) year. Two subjects were men reporting sex with men (MSM), and the remaining subjects self-identified as heterosexual. Only one informant reported adherence <95% at the same clinic visit, due to running out of medication during a work trip that was longer than expected.

Barriers and facilitators to adherence could be grouped into three main domains: those at a patient level, a health system level, and a medication level (Figure 1).

Barriers to good adherence

Stigma

Fear of other people knowing one's HIV status was a prime concern arising in interviews, with perceived consequences impacting on patients' sense of self and mental health. Although most patients in this study had high levels of adherence, they were concerned that if others could see them taking medications outside the home and suspected they were living with HIV, they would be treated differently by those around them. Some patients, often from rural provinces, who lived in close-knit communities, travelled long distances to attend clinics in other provinces in order to avoid disclosure of their HIV status within their own community.

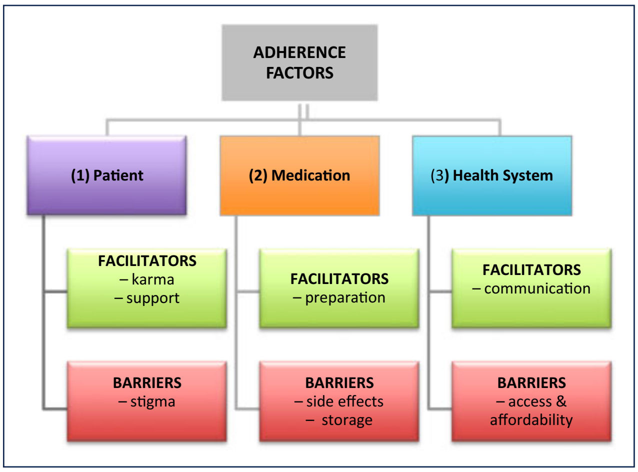

Figure 1. Framework of adherence factors

> *'In my province I can't really talk to anyone. People there don't accept something like this yet. But in the city they don't really care, because each of them just wants to live their own lives.'* (HN5)

> *'Sometimes we have to be careful if we are infected – some places don't allow people infected with this to work with them. People ask "Why do you have to take medicine the whole year?" They need to get away from everyone to take their medicine.'* (HN4)

Previous negative experiences with friends and family, or sometimes at hospitals where HIV clinics were isolated from other patients, reinforced this fear.

> *'When we went to the other hospital, it was not good. The doctors and nurses were not polite.'* (KK10)

> *'I told one of my close friends about it, and she told me to leave. My very close friend: we slept, ate and lived together. After I told her, she gave me some money and told me to leave, even though it was 11pm. I thought "Why does she have to be that scared of me?" She was very direct. She told me her sister was very scared. I haven't talked to them or visited them since.'* (HN3)

Fear that participants relayed from others primarily stemmed from misconceptions about acquiring HIV, but nevertheless had negative consequences on the affect and self-efficacy of patients, leading to anxiety and emotional stress and fear of being ostracised, which reinforced stigma. This was particularly emphasised in the context of extended families living together, a common practice in Asian cultures. A number of patients had therefore told no one about their HIV status.

> *'My girlfriend was afraid to eat with me at the same table. Even my sister, in the beginning, was afraid that she would get infected; she looked scared when she visited me; I would tell her that I was full or maybe use a separate spoon to take out the food and put it on to my plate.'* (HN9)

> *'Some people even though they are relatives, are still afraid of each other. They don't let their children play with them. They have to eat and drink separately. Although they know you can only be infected by sex, they are still afraid of them. They die before their time because of something like this – because their relatives and society are scared of them, so that makes them feel very depressed. They don't really know what to live for, and that's how they die.'* (HN4)

Some took great care to hide their medicine, and ensure that others could not find evidence that could lead other people to believe they were living with HIV.

> *'I keep it in hidden places, where only I can see. I take the medicine out of the box and then burn it … otherwise maybe other people will see. Maybe if other people know they will ignore me, or act badly. So I have to be safe.'* (KK1)

Patients were acutely aware of the stigma surrounding HIV, and yearned for a change in community perception through education and media campaigns.

> *'I want the doctors to publish more articles to show that people with this disease can still live a normal life with this disease, and still live a normal life with their husband/wife, no segregation or hate within the family. I think that these articles will help clarify that the disease is not transmitted just by living under the same roof. I would like society to be more open minded, and they should stop thinking this disease is deadly dangerous, and we should separate those who are infected. I don't support this. It's real life: you can eat and live together. There should be more media and press explaining this to those who still don't understand.'* (HN9)

Factors relating to medication

Adverse effects of cART on one's physical appearance also reinforced stigma fears. Patients were fearful that physical side effects would inadvertently disclose their seropositive status. Sometimes this fear delayed a person's willingness to be tested for HIV and start treatment.

> *'I was afraid to see the doctor because I heard that you get thinner and lose your hair.'* (KK4)

Medications requiring refrigeration in a tropical climate could also cause others to ask questions, and increase the risk of disclosing one's HIV status. This was problematic for patients when out of their homes, and for those who had unpredictable work schedules, and might need to accompany business partners or clients for dinner following a meeting.

> *'I had a problem because my medicine needed to be refrigerated. It was difficult to take with me. It was not about forgetting, but about convenience. It was weird to take an ice bucket with us everywhere, and try to conceal this from others. I didn't want to answer questions about why I had to carry medicine in an ice bucket.'* (HN2)

Medication access and affordability

Universal coverage for HIV care in Thailand through the National Health Security Office was implemented in 2007. Prior to this, a small pilot programme provided cART to some patients, and alternative sources of drug were by self-payment or enrolment in clinical trials. Economic hardship and medication costs could influence a person's ability to adhere to treatment.

> *'At first I had to pay 4,800 Baht by myself* [approximately US$120–140]*, but later on the doctor put me on a project. Later, the medicine was approved by the social security system. If I had to pay for it now, I couldn't afford it.'* (KK2)

> *'In the beginning I was paying for the drugs myself. I paid until I had nothing left … I sold everything that was valuable … If I had to pay for the medication myself [in the future] I don't think I could manage it. I would just let destiny take its course because the drugs are really expensive.'* (HN5)

Facilitators of good adherence

Karma, family responsibilities and Buddhist beliefs

Buddhism is Thailand's primary religion (approximately 94% of the population), which teaches karma as a fundamental doctrine to explain that every action, good or bad, has 'appropriate' consequences. Illness is often attributed to an individual's karma in a past or current life [11]. Such beliefs featured prominently in our study among patients' understanding of their situations, crediting karma as both a reason for HIV acquisition and a stimulus for having safer sex. Karmic views engendered a feeling of responsibility to care for family members, including children or ageing parents. Patients therefore believed it was morally irresponsible to skip doses of medication, since they had a duty to remain healthy and fulfil their family duties, and in doing so, repay their bad karma. This factor promoted good cART adherence.

> Informant:*'In the whole of last year, the latest I ever took my medicine (from the scheduled time) was half an hour … I have to be here for (my grandchild) because he has no parents now. I think maybe it's my karma …'*
>
> Interviewer: *'So he inspires you to take medicine?'*
>
> Informant: *'Yes, I had to take care of his mom, and now I have to take care of him. It's just my karmic debt. Maybe I did something in a past life, and have to pay it off now.'* (HN4)

Social support systems and relationships

Although a minority of patients had told none of their family or friends they were living with HIV, others considered social support was as essential to fighting HIV infection as good adherence. Social support came from family members who reminded patients to take their medication, and provided physical, emotional and/or financial support so patients could better care for themselves.

> *'Sometimes my husband will remind me because he's afraid that I would fall asleep. If I forget to take the medicine it will be bad for my body's response to that medicine, so he reminds me to take it. I remind him too, because he has to take it twice a day.'* (HN1)

> *'The most important thing that people like me need is good courage and support.'* (HN7)

Other patients attending clinic visits on the same days could serve as an important source of support for those who hadn't disclosed their HIV status to family and friends. Internet chat rooms also provided moral support, while maintaining anonymity.

> *'In the chat room, we always give advice to each other and cheer each other up. If there's any interesting news, they will send it by email. On one website (my own doctor) answers the questions.'* (KK1)

Support was also evident from the health system domain. The patient–healthcare team relationship, when dominated by trust, confidence and support, helped overcome stigma and promote cART adherence. Physicians and nurses who did not fear physical contact, remembered informant names and faces, were contactable between clinic appointments and willing to answer questions were key to empowering this relationship.

> *'My doctor (advises me about taking cART). I always had questions when I first started taking it, and she gave me good and clear answers. She didn't mind. She even touched the patients! That made me feel better, and not scared.'* (KK10)

> *'The nurses gave me advice on how to take the medicine at first. They even gave me their name cards and phone numbers to call them if I had problems.'* (KK4)

The education offered by healthcare providers also helped to promote cART adherence. Pharmacists performed pill counts before each refill to verify adherence, although most patients knew they had not missed any doses. Patience and sincerity on the part of the clinic team were helpful in promoting adherence.

> *'I told them I can't read and they tutored me. Yes, they tutored me about the names of the medicine, for example this medicine I have to take is called 3TC, and they explain things to me.'* (HN4)

> *'The doctors and nurses always repeat (to take the medicines at the same time every day) again and again, every time I come here. Sometimes they call to ask about symptoms and if I am taking care of myself. So I feel inspired, and that I'm well taken care of. I always see the CD4 counts in the graph, and if I am getting better then I am happy … I think it's the best place for me to be now. I can talk closely with the doctor, and I'm very confident with what they are doing here.'* (HN2)

Advanced planning

Being prepared so that medications were available was an important facilitator of adherence. Patients prepared medications in dosette boxes or separate containers and kept emergency supplies of cART in their wallet or pocket when going out of the home. Mobile phone alarms set at the time cART was due to be taken was the most commonly used reminder prompt.

> *'I set the alarm on the phone – 8 in the morning and 8 in the evening, it always alarms at those times. And I separate the medicine in three places, at home, at the factory, and keep some with myself. If I go to work, then I will take it here. If I'm home, then take it at home … If it is emergency, then I have some medicine in my wallet.'* (KK1)

Mental preparation and determination to take cART regularly for the rest of one's life were also important considerations.

> *'I don't forget it: I have to take it every day as part of my daily routine. The doctor said I have to take it continuously, and not forget it. I want to be healthy and live with my kids longer, so I have to force myself to take it every day.'* (KK7)

Discussion

Good adherence to cART is the most important predictor of long-term treatment success [4] because it prolongs the efficacy of first-line regimens, making it essential to the Thai National ART Program's eventual sustainability. Studies have suggested that optimising adherence behaviours early after treatment initiation is important, but maintaining high levels of adherence over time is challenging for some patients [12]. Via qualitative interviews, we were able to identify key facilitators and barriers to adherence among HIV-infected Thai patients along three major themes (patient-related, health system-related and medication-related). We identified stigma as the greatest social challenge to achieving adherence in this setting, as has been described in other settings [13]. We also gained an understanding of how HIV-related stigma impacts health and wellbeing, and how tangible social support provided by friends, family, community members and healthcare providers can mitigate the negative health effects associated with stigma.

In many societies, including Thailand, stigma surrounding HIV in the community is high [14,15]. This is largely due to misconceptions surrounding risk factors for HIV transmission and acquisition, and the lack of knowledge that advances in treatment over the past three decades have both changed HIV into a chronic infection and substantially lowered the risk of treated individuals transmitting HIV [16]. Although the Thai National Treatment Guidelines now recommend treatment at any CD4 cell count [3], late diagnosis is a problem, with more than 50% of patients initiating treatment when their CD4 cell counts are <200 cells/mm^3 [17]. Much of the fear around HIV testing relates to stigma. Our interview findings confirmed that patients feared being ostracised by their friends, family and community, and that the general public commonly lacked knowledge about how the virus is transmitted, a finding that ultimately calls for more public education campaigns.

Stigma is also rooted in the high value Thai society places on physical and moral appearance, and the tendency to ascribe health conditions, such as HIV, to the consequences of accumulated karma [18], a tenet of Thailand's predominant religion (Buddhism). For example, many patients believe their HIV status is a result of their own *wen kam* (karma), referring to a bad deed that the patient committed, thereby leading to negative consequences. These religious and cultural values may induce feelings of shame for Thai people living with HIV.

Studies in sub-Saharan Africa and Haiti have found that universal access to cART may reduce negative perceptions regarding the consequences of HIV infection, thereby reducing its stigma [19–21]. In our study, by contrast, HIV infection was shown to still be highly stigmatised in the Thai setting and failure to disclose serostatus may hinder people living with HIV from accessing the social support that is beneficial to maintaining medication adherence.

Social support as a solution to stigma

In a mixed-methods study from Nepal, stigma was a factor associated with non-adherence in univariate analysis, but was not significant in a multivariate analysis [22]. This suggests that although stigma is an important factor impacting the lives of people living with HIV, given appropriate support networks, high levels of adherence can be achieved and maintained. In agreement with this, most participants in this study reported good adherence and maintained virological suppression, despite their experiences and beliefs about stigma. The social support provided by friends, family members and healthcare providers offered an alternative to the perceived stigma of the broader community, and acted as key facilitators to medication adherence. The significant role social support plays in the psychosocial management of HIV has been well documented in Western countries [23,24]. Our findings would seem to confirm, along with other recent studies in Thailand and sub-Saharan Africa, that the benefits of social support are even more important in resource-limited settings where people rely heavily on social ties to overcome resource scarcity and maintain HIV treatment adherence [9,25–27].

In particular, our results highlight the importance of the patient–healthcare provider relationship in supporting adherence. In a previous Thai study conducted in a set of clinics, including the two featured in this current study, the most significant predictor of poor adherence in multivariate models was attending a clinic where staff did not have specialist HIV training [10]. Doctors, nurses and members of the healthcare team are highly respected members of Thai society and hold great authority. Patients often spoke of the acceptance they experienced after a physician was not afraid to physically touch them. By treating patients with dignity and respect, and having information explained in a way that could be understood, patients felt less stigmatised and more empowered to take medications.

Good adherence, good karma

Additionally, our interviews revealed that spiritual beliefs facilitated medication adherence, unlike a Ugandan study, which concluded that belief in divine healing was a barrier to ART adherence [28]. Patients in our study often perceived high levels of medication adherence as a way of 'paying off their bad karma'. Previous studies have also reported that Thai Buddhists view HIV infection and the subsequent suffering a consequence of their own karma [18,29]. This belief invokes a sense of responsibility in some people to take their medicines and look after their health for the sake of their family (as a way to generate good karma). Unfortunately, as previously noted, this belief can also be interpreted to place the responsibility and blame for HIV infection on the individual.

Limitations

There are several limitations to our study. First, by interviewing patients at the two clinics with high overall virological suppression rates, we may not have captured all the barriers experienced by those unable to consistently adhere. Another limitation is the older age of the subjects who participated in the study. Adherence levels may be more difficult to maintain for youth and younger people, but the youngest subject in our study was 27 years old. This may limit the generalisability of our findings, since the majority of people who are newly infected in Thailand are young men who have sex with men [30]. Subjects at the tertiary referral centres where these interviews were conducted may not be representative of patients going to other hospitals in the National Treatment Program. In some regions of Thailand, the HIV epidemic disproportionately affects the unemployed and uneducated [9]; however, patients from these socioeconomic groups were not well represented in our study.

Additionally, the majority of patients in our study were from urban areas. Adherence issues among patients in remote and rural areas may be different. Furthermore, our interviews were conducted in 2008 and 2009, so issues such as refrigeration of cART are no longer a problem. However, stigma about HIV has recently been reported as a reason to avoid HIV testing by serodiscordant partners of patients at our clinics [31] and anecdotal evidence indicates high levels of stigma continue to the present day.

Future directions

Studies in resource-limited settings suggest that adherence interruptions will increase over time [12]. This anticipated behaviour will have serious consequences in settings where second- and third-line cART regimens are limited. Our study demonstrates convincingly that effective and culturally appropriate anti-stigma interventions still need to be developed and implemented in Southeast Asia. Thailand is facing a growing need for locally relevant solutions to improve patient adherence. Some potential, sustainable interventions include treatment partnering and community ART groups and community interventions to reduce stigma [32–35].

While publicly funded universal cART alleviates the individual economic burden of lifelong therapy, the lack of public knowledge and social ramifications of HIV still need to be addressed if Thailand is to achieve its aim of having zero new HIV infections, zero discrimination and zero AIDS-related deaths by 2030 [36]. Promoting awareness of HIV testing and treatment, and changing public perceptions to reduce stigma, so that HIV is regarded as a chronic disease with treatment reducing transmission rates are important steps. Furthermore, training of HIV clinic staff on the importance of trusting and supportive provider–patient relationships in promoting good health outcomes should be prioritised to ensure that culturally appropriate, effective interventions to minimise stigma, improve self-efficacy and promote adherence are implemented. These interventions are essential to maximise the individual and substantial public health benefits of universal ART, and ensure the long-term sustainability of Thailand's National HIV Treatment Program.

Acknowledgements

This project was funded by a University of New South Wales Faculty Research Grant. We are grateful to the participants in this study who shared their time and experiences with the study investigators. MP was supported by the UCSF Global Health Sciences Masters' program.

Conflicts of interest

All authors declared no conflicts of interest

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Appendix. Topic guide for in-depth interviews

You have been taking HIV medications that you get from this clinic for some time, and we're interested to find out more about your experiences taking these medicines in your daily life. Everything you say in this interview will be strictly confidential. With your permission we will record the interview so we can take detailed notes about what you say, and after that the recording will be destroyed. The only person who will listen to the recording is me (the interviewer). None of the answers you give here will be shared with your doctor or other clinic staff.

1. What antiretroviral medications are you currently taking?
2. How long have you been taking them?
3. What did the doctor or nurse or other clinic staff tell or explain to you about your antiretroviral medications?
   Prompts: How often should you taken them? Should you always take them at the same time?
4. What do the instructions on the bottle of tablets that you received from the pharmacy say about how to take them?
5. Are there times when it is difficult for you to take your HIV medications the way that you have been advised? What things have made it difficult?
   Prompts: Can you give me an example? How did you feel at the time? Are there any people in your life who made it difficult for you to take your medications?
6. What things make it easy for you to take your HIV medications?
   Prompts: Can you give me an example? Are there people in your life who made it easier for you to take your medications? Pill organisers, alarms, watches etc?
7. Has there ever been a time when you didn't want to take any HIV medications?
   If yes: What made you feel that way?
8. Since you first started taking your medications have you made any changes in the way that you take them? In what ways? (For each change mentioned the interviewer will ask Why?)
9. Do you get information about your HIV medicines from any place other than this clinic?
   Prompts: internet, patient-support organisations, etc.
10. Is there anything else you want to share with me about your experiences in taking HIV medicines?