

Original Article

Satisfaction of HIV patients with task-shifted primary care service versus routine hospital service in northern Thailand

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Abstract

Introduction: Shifting the task of HIV care to primary care providers is an important strategy to sustain expanding access to antiretroviral therapy (ART) in high HIV burden countries like Thailand. In a pilot project, the task of following up ART-receiving patients was shifted from a physician-led HIV clinic team based at district level community hospital, to a nurse-led primary healthcare team of seven primary care centers, based at sub-district level in a district of Chiang Mai in northern Thailand. This study aimed to evaluate the task-shifted ART service in a patient-centered approach.

Methodology: Patients' satisfaction level was assessed cross-sectionally in a sample of 198 patients, which included 66 people living with HIV (PLHIV) receiving task-shifted ART service and matched controls in a ratio of 1:2. HIV immunological outcome was compared in a retrospective cohort of a year follow-up. Transculturally translated patient satisfaction questionnaire short form (PSQ-18) was used. Multivariate analysis of variance compared seven domains of patients' satisfaction levels.

Results: Community hospital patients expressed significantly higher levels of satisfaction with the technical quality, communication, and time spent by the service provider, whereas the task-shifted model patients experienced significantly better accessibility and convenience of the service. At the one-year follow up, CD4 counts of the two groups were not significantly different.

Conclusion: Future research and training programs should aim to improve the technical quality and communication skills of nurse-led ART service teams to shift the task of HIV care and sustain expansion of ART access in primary care settings.

Key words: task shifting; ART; HIV; Thailand; patient satisfaction.

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Introduction

Task shifting is a globally recommended strategy that aims to promote antiretroviral therapy (ART) service provision in response to the shortages of healthcare professionals in developing countries. It represents a breakthrough process that seeks to expand healthcare service delivery by making efficient use of less specialized healthcare professionals in the most needed places [1]. In countries where a critical shortage of healthcare workers coexists with a huge HIV burden, task shifting is a way to expand and sustain ART services at the community level [2]. One such country with a critical shortage of healthcare workers, given that it is home to more than 400,000 people living with HIV (PLHIV), is Thailand [3-5].

Thailand is the most highly HIV-prevalent country in Southeast Asia [6,7]. All citizens have free ART access within the Thai health system [3]. ART previously covered 80% of PLHIV according to the criteria for treatment initiation set at 350 CD4 cells/mm³. Newer ART guidelines, effective in Thailand since 1 October 2014, now propose starting ART in every HIV-infected individual regardless of CD4 count [8,9]. Adhering to these new guidelines, the number of PLHIV now requiring ART in Thailand has increased by 26% [3,9]. This demands greater financial support, a faster logistic supply chain, and a larger number of health professionals trained to deliver ART. Producing health professionals is the hardest and most time-consuming part of health system

adjustment. Hence, the task shifting of ART services to primary care centers represents a feasible option in addition to the physician-centered healthcare model [10]. A research study assessing the benefit of a task shifting model of ART services has not yet been undertaken in Thailand, and is therefore highly necessary.

ART is evidence-based life-saving treatment for PLHIV [7,11]. ART delivery methods are to be compared in a patient-centered approach, accounting for different contexts of the countries [12]. Patient satisfaction is a commonly used epidemiological outcome of healthcare service provision [13,14]. It results from the interaction between the healthcare system, the service provider, and the customer [15]. Existing literature shows that patient satisfaction was an important indicator in evaluating healthcare service delivery or intervention [14]. Researchers in the United States, Vietnam, Ethiopia, and India reported the impact of task-shifted ART service, applying patient satisfaction as the study outcome [13,16-18].

Research conducted in other international settings has reported the clinical efficacy of task shifting ART services to the primary care setting [2,13]. The present study sought to emphasize the patients’ perspective by investigating satisfaction of PLHIV with task-shifted ART services provided in the primary healthcare setting of northern Thailand.

The primary objective of the current study was to compare the satisfaction levels of two groups of patients receiving ART, one at primary care units via a task-shifted model, and the other at the community hospital via the routine service treatment. The study also sought to compare HIV treatment outcomes of those two groups of the PLHIV in terms of CD4 counts and AIDS events.

Methodology

Ethics

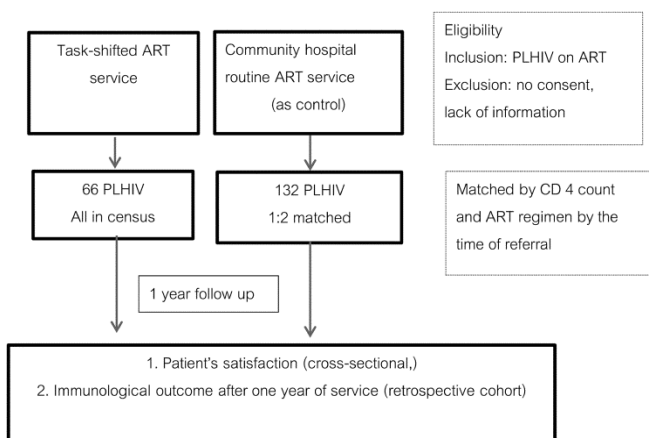
The study was conducted with participants’ informed consent, after approval from the ethical committees of Chiang Mai Provincial Health Office IRB (EC-CMPHO 05/57), Thailand, and Kyorin University IRB, Japan (Approval number 4)

Setting

The study was conducted from April 2013 to August 2014 at a district in Chiang Mai province in northern Thailand. Primary healthcare units are located at sub-districts, and the community hospital is located at the district level. The task shifting of ART services started in 2004 at seven primary healthcare units. There are no physicians in those primary care units. In the task-shifted service, ART is initiated by a medical doctor (MD) at the community hospital. PLHIV who become stable on first-line ART regimen and who are willing to receive ART service at the primary care centers are referred to the primary care units. Afterwards, the patient attends a primary care unit for monthly follow-ups, monitored by a nurse. So far, 66 patients have been receiving such this service. Such patients are still required to attend the community hospital every six months to have their CD4 counts checked. Hereafter, this group will be referred to as the task-shifted ART service group.

The community hospital service comprises ART initiation by a MD at the community hospital. Afterwards, the patient attends the same community hospital for two monthly follow-ups and a six-month CD4 checks, monitored by the same physician-led HIV clinic team. Community hospital service is currently the routine service that the majority of the PLHIV receive. Hereafter, this group will be referred to as the routine ART service group.

Figure 1. Study flow chart



Study design, study population, and sample

The patients’ satisfaction levels and treatment outcomes were assessed cross-sectionally and compared between the two groups. By the time of assessment, every participant in task- shifted service groups had experienced the service for more than a year. The sampling approach is shown in Figure 1. The task-shifted service group was taken in census. All PLHIV who had been receiving ART services at primary care units were included in the study. Matched controls were randomly selected. PLHIV receiving ART service at the community hospital were selected in a matched cohort of 1:2, having applied the eligibility criteria. A total of 198 participants were

recruited, according to a 1:2 ratio, to the task-shifted service group (66 PLHIV) and the routine service group (132 PLHIV) (Figure 1).

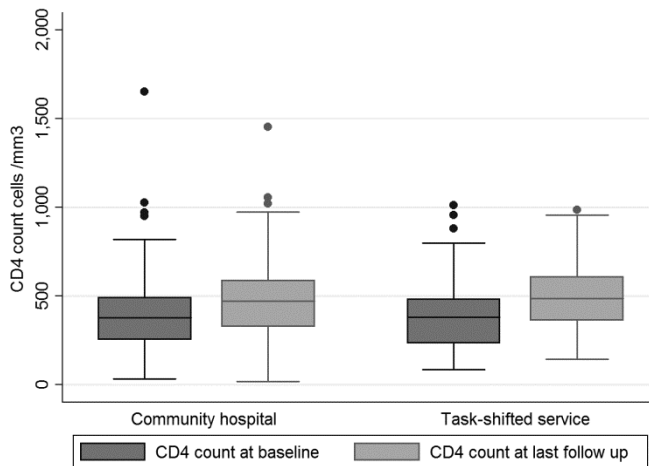
Measurement

Patients’ satisfaction was measured using the patient satisfaction questionnaire short form (PSQ-18), a five-level Likert scale [8,19]. It consists of seven constructs: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent by service provider, and accessibility and convenience [19]. It was transculturally translated into Thai following a process of translation, back translation, cognitive interviewing, and pilot study [20,21]. The Thai version of the internationally validated PSQ-18 applied in the current study retained a reliability coefficient of 0.78 [21]. Well-trained research assistants delivered interviewer-administered questionnaires. A pilot study preceded actual data collection. HIV treatment outcome of the ART service was assessed by means of the CD4 count, as well as AIDS-defining events after one year of receiving the service. CD4 counts and AIDS diagnoses were reviewed in medical records [22].

Analysis

Descriptive analysis applied the median and interquartile range since the data was not in the normal distribution. The two-sample Wilcoxon rank-sum test was used to compare the average level of constructs between two groups. Multivariate analysis of variance (MANOVA) was applied to analyze the outcome of more than one dependent variables and to adjust for possible confounding independent variables. Data analysis was carried out using STATA version 11. Significance was decided upon p value of less than 0.05 and 95% confidence interval (CI).

Figure 2. CD4 count at the start of (black) and a year after follow-up (grey) in community hospital clients receiving the routine ART service and primary healthcare unit clients receiving task-shifted ART service



Results

The response rate for the PSQ-18 was 96%. The median age of the cohort was 46 years (interquartile range [IQR] 42–51). The median CD4 count was 377 (IQR 253–492) cells/mm³. The two groups of PLHIV were not different in age and CD4 count status at the start of the follow-up. The proportion of females was higher in the task-shifted ART service group. No patients in either group had any AIDS defining events (Table 1).

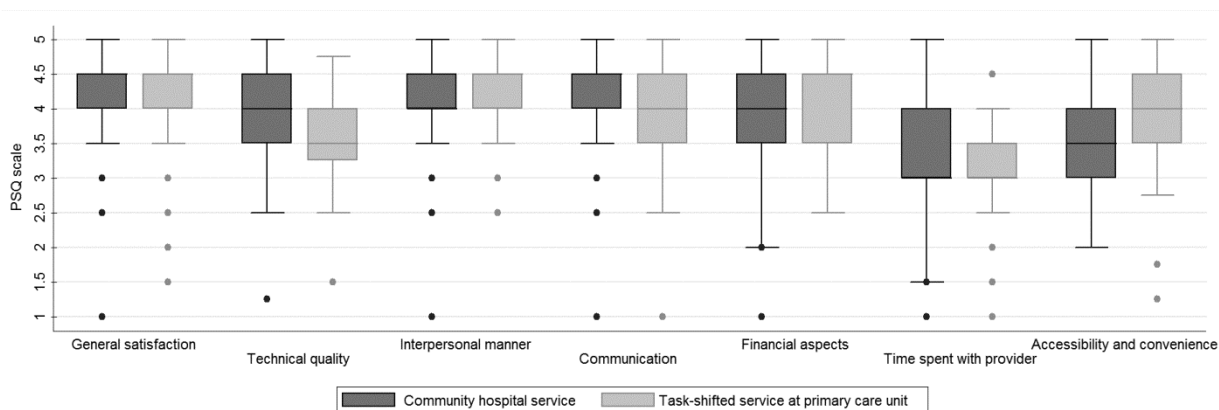
After the one-year follow-up, the median CD4 count of PLHIV attending the primary healthcare units was 470 cells/mm³ (IQR 329–588), whilst that of those who attended the community hospital was 486.5 (IQR 363–608). The difference was not significant (Wilcoxon rank-sum test, p = 0.57). There was significant improvement in the immunological status according to the CD4 count in both groups after the one-year follow-up (Wilcoxon signed-rank tests, p < 0.001). No AIDS-defining event was reported in either group (Figures 2 and 3).

Table 1. Characteristics of people living with HIV receiving task-shifted ART service and community hospital routine service at the start of follow-up

	Task-shifted service	Community hospital service	P value
Number	66 (33.33)	132 (66.66)	
Age (med, IQR)	47.5 (43–53)	46 (41–50)	0.07 ^W
Female gender (n, %)	43 (65.15)	57 (43.18)	0.01 ^C
CD4 count cells/mm ³ at referral (med, IQR)	379 (233–483)	377 (255–492)	0.82 ^W
Monthly income in Thai baht (med, IQR)	4000 (2500–6000)	6000 (4000-9000)	< 0.01 ^W
ART regimen (n,%)			0.46 ^C
First-line ART regimen	64 (96.97)	125 (94.70)	
Other regimens	2(3.03)	7 (5.30)	
Member of HIV club (n,%)	50 (76)	61 (46)	< 0.01 ^C
Time to travel to facility (min) (med, IQR)	10 (5–15)	20 (10–30)	

ART: antiretroviral therapy; med: median; IQR: interquartile range; W: Wilcoxon rank-sum test, C: Chi-squared test

Figure 3. Satisfaction of PLHIV with ART services among patients attending primary care unit versus a community hospital (Cronbach’s α of PSQ-18 = 0.78, MANOVA $p < 0.001$)



Results showed that the highest PSQ score within the routine ART service group was for communication, whilst the lowest score was for time spent by healthcare service provider. In the task-shifted ART service group, the highest PSQ score was for the financial aspect of the care, whereas the lowest score was for time spent by healthcare service provider. A comparison of the PSQ score for general satisfaction using univariate analysis showed that there was no significant difference (Wilcoxon rank-sum test, $p = 0.33$). However, a multivariate analysis of variance model, treating all PSQ constructs and CD4 count after one-year follow-up as dependent variables and the type of health service as the independent variable, adjusted by gender, revealed a significant difference in patients’ satisfaction among the two groups (MANOVA $p < 0.001$) (Table 2). Furthermore, a multivariate regression analysis following the MANOVA model found that the routine ART service group expressed significantly higher levels of satisfaction with the technical quality, communication, and time spent by the service provider, whereas the task-shifted ART service group experienced

significantly better accessibility and convenience of the service.

Discussion

Patients’ satisfaction is a well-known indicator for quality of health service as well as a predictor of health-related behaviors [14,15,17]. We assessed the satisfaction of PLHIV for ART services applying the PSQ-18, a reliable, internationally validated tool [21]. The average PSQ score in the current study was 3.93 for the routine ART service group and 3.86 for the task-shifted ART service group. Those scores were acceptably high and comparatively higher than the PSQ scores reported in a similar recent study in another Asian setting [13]. This could be due to cultural factors influencing the differences in patients’ satisfaction levels [14].

Moreover, median PSQ scores of general satisfaction, interpersonal manner, and financial aspect in both groups were situated in the upper quartile zone (Table 2, Figure 3). High scores in the financial aspect construct indicated that the patients worried less about paying money or facing setbacks because of the cost

Table 2. Patients’ satisfaction and immunological outcome, one year after receiving task-shifted service.

Patient satisfaction scale constructs	Task-shifted service Med (IQR)	Community hospital Med (IQR)	P value	
			Univariate ^W	Multivariate ^M
Level of satisfaction Med, IQR	3.86 (3.53–4.14)	3.93 (3.68–4.14)	0.33	< 0.001 ^M
PSQ: General satisfaction	4.5 (4–4.5)	4.5 (4–4.5)	0.35	0.14
PSQ: Technical quality	3.5 (3.25–4)	4 (3.5–4.5)	< 0.001	< 0.001
PSQ: Interpersonal manner	4.5 (4–4.5)	4 (4–4.5)	0.54	0.57
PSQ: Communication	4 (3.5–4.5)	4.5 (4–4.5)	0.01	0.01
PSQ: Financial aspects	4.5 (3.5–4.5)	4 (3.5–4.5)	0.30	0.36
PSQ: Time spent by service provider	3 (3–3.5)	3 (3–4)	0.01	0.02
PSQ: Accessibility and convenience	4 (3.5–4.5)	3.5 (3–4)	< 0.001	0.001
CD4 med, IQR	470 (329–588)	486.5 (363–608)	0.57	0.83

^W: Wilcoxon rank-sum test; ^M: MANOVA treating all constructs and CD4 count after follow up as dependent variables; CD4: CD4 count cells/mm³ at one year after referral cells/mm³; med: median; IQR: interquartile range; PSQ notes the subscale of PSQ

of medical care. High scores in the interpersonal manner construct showed that the patients were satisfied with the professional manner and empathy of the healthcare providers. Satisfaction in these two constructs might explain the correspondingly good levels of general satisfaction reported by the PLHIV clients [16].

Technical quality was perceived by the routine ART service group to be significantly better than that reported by the patients in the task-shifted service group (Table 2). This subscale is related to a number of factors: the availability of facilities such as laboratory and medicine, doubts about the ability of the care provider to perform, and doubts about the care provider's ability to treat [19]. Primary care centers still heavily rely on the community hospital for ART initiation, drug storage, and the supply chain, as well as the monitoring of the CD4 count and other HIV parameters. HIV care is new to primary care nurses in Thailand. Nevertheless, CD4 counts after the one-year follow-up were not significantly different among the two groups in the study (Table 2). This may, therefore, in the long run, serve to build patients' trust in the technical quality of the task-shifted ART service. Lessons from Burkina Faso have shown the importance of the logistical supply chain in maintaining the balance between supply and demand of ART medicine within a task-shifted service [23]. Furthermore, the technical training of primary healthcare professionals, after review of health system components via a stakeholder analysis, would ensure sustained technical quality improvement [24].

The PSQ score for communication of service providers was higher among the community hospital patients than among those attending the primary care units. This construct is related to whether patients received a good explanation about medical tests and whether the patients' questions were well addressed or ignored [19]. The ability of healthcare professionals to provide comprehensive explanations will depend on their communication skills and the extent of their knowledge of HIV management and care. Thus, there is a requirement for continued HIV/AIDS education and knowledge updating for nurses and primary healthcare providers [25].

Moreover, both at the community hospital and the primary healthcare units, the time spent with patients was the least satisfactory construct. This is an area of service that needs to be improved. However, with the low ratio of healthcare workers to patients, this problem is an inevitable one. Importantly, this may be an indicator of the increasing workload currently

experienced by primary healthcare providers [23]. It highlights the importance of safe staffing ratios at primary care units upon introducing task-shifting intervention, to prevent inadequate staffing which can cause burnout in nurses and negative patient outcomes [26].

The PSQ score for accessibility and convenience was significantly higher in the task-shifted service group. The reported time to travel from home to the facility was 5 to 15 minutes (Table 1). Perhaps those PLHIV patients receiving the task-shifted service lived within the geographical vicinity of the primary care facility [27]. Therefore, accessibility and convenience is one key factor in favor of the task-shifted ART service. This could represent a capital to be utilized for universal coverage of ART services.

The paradigm in HIV prevention has changed in recent years. Expanding access to ART in the community setting is a form of preventive strategy aimed at decreasing new infections and consequently reducing the population-wide HIV viral load to stop new infections [28]. ART coverage in Thailand will be only 54% once the new ART guideline is adopted [9]. The integration of ART services to routine primary healthcare may be a practical way to sustain the expansion of ART coverage [7,23,29]. Task shifting, the focus of the current study, may represent such an initiative. We believe that the findings of this study, highlighting the areas in need of improvement within the task shifting ART service, may be of significant benefit to a health system that is evolving towards universal coverage of ART services.

We compared two ART service delivery models in a patient-centered approach, addressing possible reasons for differences in satisfaction. Potential confounders were carefully controlled in the design phase (Figure 1) and analysis phase (Tables 1 and 2). Still, there can be limitations in identifying the details of health system components, the infrastructure, advanced technology, logistics, and policy commitments, which represent bigger circles of healthcare. Therefore, further study in qualitative approaches may be required.

Conclusions

Patient satisfaction is a multidimensional indicator of interaction among service providers, patients, and the health system. Although CD4 outcomes were comparable, the satisfaction of PLHIV with ART services were different between community hospital-based routine service and primary healthcare-based task-shifted service. Indicating the strengths and

weaknesses of ART services based on the patients' perspective, the findings of the current study may help to maximize the potential of task-shifted ART services within Thailand and other similar developing countries.

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