A qualitative inquiry

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Original Article

A Qualitative Inquiry of Adherence to Antiretroviral Therapy and Its Associated Factors: A Study with Transgender Women Living with HIV in Indonesia

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Abstract

Background: Successful antiretroviral therapy (ART) mainly depends on sustaining high rates of adherence. In the context of Indonesia, none of the previous studies have looked at determinants of HIV adherence among transgender populations. **Objectives:** This study aimed to explore factors associated with the adherence to ART among HIV-positive transgender women in Yogyakarta, Indonesia. **Methods:** Face-to-face in-depth interviews with 29 transgender women, also known as *Waria,* living with HIV were conducted from December 2017 to February 2018. Participants were recruited using purposive and snowball sampling techniques. Data were analyzed thematically using a qualitative data analysis framework. **Results:** Factors associated with ART adherence among transgender participants were divided into three major levels as follows: (i) individual factors, (ii) social factors, and (iii) structural factors. Feeling tired and lazy due to work, falling asleep before taking medicine, schedule to take the medicine, healthy physical condition of other HIV-positive friends who did not take antiretrovirals, and the lack of finances to travel to health facilities were the influencers of the participants' ART adherence. **Conclusion:** These findings indicate the need for the development of HIV/AIDS-related health service supporting system in health-care facilities and the dissemination of knowledge and information of HIV/AIDS and its related service for HIV-positive transgender women and other people living with HIV and general populations in other parts of the country and other similar settings globally.

Key words: Antiretroviral therapy adherence, HIV-positive transgender women, Indonesia, *Waria*, Yogyakarta

Introduction

Antiretroviral therapy (ART) is essential for people living with HIV/AIDS (PLWHA). The availability and accessibility of ART for PLWHA within and across societies and countries are effective in reducing AIDS-related deaths and HIV infections.[1-3] This is indicated in the current UNAIDS report that the global reduction of 32% AIDS-related deaths and 16% HIV infections during the period from 2010 to 2016 is a reflection of the effectiveness of ART.[2] In contrast to the global data, HIV/AIDS problem in the context of Indonesia seems to be getting worse as the data from the same report show an increase of 68% AIDS-related deaths and 316% HIV cases during the same period.[2]

The significant increase of AIDS-related deaths in Indonesia might be an indication of limited availability or accessibility of ART and/or lack of adherence to ART among HIV/AIDS-positive people. Globally, studies in different settings or countries have reported various barriers to ART adherence among transgender persons and other PLWHA. Factors including depression, low self-efficacy, less confidence in abilities to integrate treatment regimens into daily life, adverse side effects of ART, alcohol use

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disorders or alcohol dependence, and other substance use disorders are individual barriers reported to influence ART adherence among transgender persons living with HIV/AIDS and other PLWHA.[4-9] HIV-related stigma, experiences of transphobic violence, low social support and health literacy, and food insecurity are the social issues associated with nonadherence of PLWHA to ART.[7,9-13] Structural barriers supportive of ART nonadherence include prioritization of gender-affirming medical care, clinic and provider characteristics, costs and availability of ART, and other health-care delivery considerations.[9,14-17]

Despite the significant annual increase of AIDS cases and AIDS-related deaths, and HIV infection incidences in Indonesia for the past few years, evidence on factors associated with adherence and nonadherence to ART is still scarce. To our knowledge, none of the previous studies on HIV/AIDS topic in the context of Indonesia was focused on ART or medication adherence among transgender populations living with HIV. This study, therefore, aimed to understand facilitators of ART adherence among transgender women living with HIV in Yogyakarta, Indonesia.

Materials and Methods

Theoretical framework

The COREQ checklist for reporting qualitative studies by Tong *et al*. was applied as a guide for methodological report of this study.[18] Conceptualisation and discussion of the study results were guided by theoretical assumptions including the social support framework and access to health-care framework. Social support framework suggests social support among individuals as underpinning for sustained social relationships. It is often expressed through empathy, love, trust, caring (emotional support), the act of helping (instrumental support), the provision of advice, suggestions, and information (informational support), and feedback and affirmation (appraisal support).[19,20] These various forms of support also function to assist individuals to make decision or take necessary actions to address issues or problems facing them. Access to health-care framework suggests that individuals' access to health services is determined by several elements including approachability, acceptability, availability, affordability and appropriateness of health services, and the ability of each individual to perceive, seek, reach, pay, and engage in the services available from them.[21] These elements and individual abilities are intertwined with each other and could influence or support accessibility of health services among people in need.

Data collection

A qualitative inquiry with male-to-female transgender populations or commonly known as *Waria* was conducted from December 2017 to February 2018 in the city of Yogyakarta, Indonesia. The selection of the participants and the study setting was based on the researchers' observation and professional experiences prior to this study, which showed that transgender or *Waria* populations in city of Yogyakarta seemed to have regular access to antiretroviral (ARV) and were on HIV/AIDS medication and ART.

The purposive and snowball sampling techniques were employed to recruit the study participants (n = 29). The researchers enlisted with the help of the head of a transgender nongovernmental organization (NGO) in the study setting to disseminate the study information to potential participants who included friends and colleagues. The information sheet asked the potential participants who were interested to participate to contact the researchers. The initials interviewees were also asked to distribute the information sheet about the study to friends and colleagues who were transgenders. Of the 32 potential participants who agreed for the interview, three did not attend interviews due to various reasons. The inclusion criteria were being an HIV-positive transgender woman, currently on ART, aged 18 years or above, and volunteered to be interviewed. None of the participants was known to the researchers of this study.

Face-to-face in-depth interviews were conducted at participant–researcher mutually agreed convenient times and places which were participants' houses and a private room at the shelter for *Waria*, which belonged to an NGO. The interviews were conducted by the first (NKF/male) and second author (MSM/female) who are experienced researchers, well trained in qualitative methods, and have educational background in public health including HIV/AIDS. The range duration of each interview was 45–90 min. No repeat interviews were conducted with any of the participants.

Ethical consideration

The ethics approval was obtained from the Medicine Research Ethics Committee, Duta Wacana Christian University, Indonesia, on 3 November 2017 (Ref No. 558/C.16/FK/2017). The participants signed and returned written informed consent, declaring that they were 18 years old or above, agreed to participate in this study voluntarily, had read and understood the study information provided, agreed to be audio recorded during the interview, would not have direct benefit from their participation in this study, and could withdraw their participation at any time during the interview without any consequences.

Data analysis

The transcription and translation into English of the recorded interviews were performed by the first two initial authors. To maintain data quality and validity, cross checks and comparisons of the data were carried out during the transcription and translation process. After the transcription and translation, all authors checked data for accuracy, clarity, and meaning. Braun and Clarke's qualitative data analysis framework was used to analyze the data.[22] Six steps of this framework included (i) familiarization with the data, (ii) generating initial codes, (iii) searching for candidate themes, (iv) reviewing and refining the candidate themes, (v) defining and naming the themes, and (vi) producing the report.

Results

Profile of the respondents

The mean age of the study participants was 44 years. All the participants were sex workers and HIV positive. Several of them had also been infected with other sexually transmitted infections such as syphilis, gonorrhea, and genital warts [Table 1].

Individual factors

Knowledge of antiretroviral therapy

Information about HIV/AIDS treatment or ART seemed to be widespread among transgender populations in the study setting. Knowledge of the benefits of ART was indicated to be a supporting factor to participants' adherence to the therapy. All the participants expressed that they had been exposed to information related to the treatment and were aware of the benefits adherence to ART:

"I do the ART. I take ARVs regularly because I know the medicine functions to suppress the virus so that it doesn't get active and my body immune system can get better again" (R12).

Fear of the consequences of nonadherence to ART was another supporting factor for the transgender women's adherence to HIV/AIDS treatment. The participants showed a good understanding of the negative impacts of the failure to adherence which seemed to motivate them to adhere to the therapy:

Table 1: The participants' socio-demographic characteristics (*n*=29)

Characteristics	*n* (%)
Age (years)	
30-39	9 (31)
40-49	11 (38)
50-59	9 (31)
Province of origin	
Special region of Yogyakarta	11 (38)
Central Java	6 (21)
West Java	4 (14)
North Sumatera	2 (7)
South Sumatera	2 (7)
East Java	2 (7)
Riau Islands	1 (3)
Bengkulu	1 (3)
Education	
Senior High school graduates	9 (31)
Junior High school graduates	9 (31)
Elementary school graduates	6 (21)
Elementary school drop outs	5 (17)
Occupation	
Makeup stylists	8 (28)
NGO workers (volunteers)	6 (21)
Food stalls' assistants	5 (17)
Street singers (ngamen)	4 (14)
Angkringan, chicken, and coconuts sellers	3 (10)
Housekeeper, online motor-taxi driver and staff at a spa company	3 (10)

NGO: Nongovernmental organization

"I know about the possibilities that can happen to me if I do not adhere to HIV medication. It could be death or resistance to ARVs. That is why I always take the medicine on time as scheduled even though I am busy with cooking. I set up the alarm to remind me" (R29).

Information about the benefits of adherence and drawbacks for nonadherence to ART seemed to be disseminated among the participants by their fellow transgender women and health professionals. Some participants stated: "I get information about the ARV treatment through the focus group discussions with health care professionals" (R15), "We (transgender women) share information among us, including about our HIV treatment, especially in our regular meetings" (R 19).

Self-perceptions of good health and previous illnesses

Positive self-perceptions about health and life seemed to play a role in influencing the decision of the study participants to adhere to ART. Participants had self-perceptions of good health status and were willing to live longer. All the participants commented that they wanted to get better and did not want to get sick again and die. These feelings seemed to provide positively self-encouragement to adherence to ART:

"I have been on ART for a few years and always try to take the medicine on time because I want to be healthy and live longer. I want to help my friends [transgenders], if nobody cares for them, then who else? (R5).

Experience of previous illnesses, dire health conditions, and seeing negative conditions of others due to nonadherence to ART was denoted to be a significant motivation for ART adherence. The desire to avoiding similar experience or disadvantaged health conditions was reported to motivate the participants' medication adherence:

"I am glad that I adhere to the treatment, I don't miss a day to take ARV. I learn from my previous experiences and I don't want to get the same experiences. The last time I got sick and was admitted to the hospital, a doctor told me that my life remained 1 week. That was because I was physically very weak" (R17).

Good health conditions and longevity were reported to provide participants the motivation and encouragement to overcome the side effects of the medication. Nearly a half of the participants commented to have experienced ART side effects including feeling itchy, nausea, and dizzy. However, such experiences did not influence their ART adherence due to being motivated for better health and life:

"Initially, I experienced nausea and threw up due to the medicine [ARV] but I didn't stop taking the medicine because I want to be healthier and live longer" (R11).

Social factors

Transgender peers' support

The support from fellow transgender women was indicated to play an important role in adherence to ART among transgender populations in the study setting. A number of participants lived together which enabled them to support each other especially

regular reminding each about the time to take medicines. For those transgender women who did not live with similar people, they received such support during regular focus group discussions. This social support seemed to help them adhere to the therapy:

"All friends [transgender women] here [in the shelter] always remind each other. There are a few friends who just started ARV therapy, so we remind each other because the time to take the medicine is different" (R5).

"During focus group discussion we often ask each other: 'how is your treatment? Do you take the medicine regularly?' We encourage each other to the medicine on time and not to stop" (R3).

The support among the transgender peers was also expressed through the help to collect ARVs at hospitals or community health centers. Several participants commented that sometimes they were unable to hospitals or community health centers to collect their medication due to time constraints. When these happened, they enlisted the help of other friends (transgender women) for such service. This seemed to also help them to adhere to the ARV therapy:

"Sometimes I finish my medicine and get no time to go to the hospital, then I ask a friend of mine [companion, a transgender woman] to take it from the hospital…." (R29).

Support from family

Support from family members was also found to play a role in the ART adherence among transgender populations participated in the study. A few participants whose HIV status was known to their family members expressed that they got encouraged by their parents and siblings to continue with HIV medication:

"My mom always reminds to take the medicine, not to be late or forget to take it. So, I always remember and take the medicine regularly" (R18).

Structural factors

Availability and accessibility of antiretrovirals

The availability of ARVs in hospitals and community health centers appeared to be another important facilitator of the participants' adherence to the therapy. All the participants acknowledged that ARVs and other HIV/AIDS-related services were available at several community health centers and hospitals. This seemed to help them adhere to ART:

"The medicine is available at hospitals and community health centres. I just need to go the community health centre, meet the doctor and get the medicine. This is helpful" (R18).

Free access to ARVs was indicated to be an important supporting factor for the adherence to ART among transgender populations in Yogyakarta. The interviews discovered that ARVs were free of charges for people living with HIV and they were encouraged to access the medicine. All the study participants stated that they did not need to pay for ARVs and any other HIV/AIDS-related health services. This was because they held Indonesian Health Card or Community Health Insurance and the HIV/AIDS-related services were made free of charges for HIV-positive people:

"ARVs are free for us, no charges, and also other health services including HIV and CD4 testing are free. At the Gedongtengen community health centre, the health services for people living with HIV are free even though they do not have Indonesian Health Card or Community Health Insurance. I experience that and still do the therapy" (P21).

Support from nurses and medical doctors

Support from health professionals seemed to be another factor that supported transgender women to adhere to ART. The interviewees asserted that they received positive support from nurses and medical doctors with whom they consulted their health conditions. The support was reflected in advices, warning, reminder, change of schedule to take medicine, and social relationship and partnership between study participants and medical doctors. These were indicated to be supportive of their adherence to the therapy:

"I take the medicine everyday as I have been advised by the doctor. The doctor advised me to continue taking ARVs regularly and on time. He said, 'if you want to be healthy then don't forget to take your medicine everyday'. We know each other very well since I was diagnosed so I listen to his advice, I trust what he said. He also said that if I do not adhere to the medication then I could also get opportunistic infections" (R9).

Barriers to adherence to antiretroviral therapy

Although the participants reported adherence to ART at the time of this study, they also reported previous experiences of nonadherence to ART. Several of them commented that they had previously been late or forgot to take the medicine. Reasons including falling asleep, feeling tired and lazy due to work, the physical condition of other friends, poor scheduling, and lack of money to cover transportation cost were articulated to previously influence their poor ART adherence:

"I once missed to take the medicine, only once. That was because I fell asleep, my own negligence. I was so scared at the next day because I was aware that the medicine is to suppress the virus, if I don't take it then that means the virus will get active again…" (R12).

"A few times I came back from work and felt so tired and lazy, so I just laid down on my bed and fell asleep. So even though I had prepared the medicine, but I didn't take it" (R12) [Table 2].

Discussion

Availability of and adherence to ART have been reported to have significantly contributed to reduction of AIDs-related deaths.[2,3] This study explored factors associated with ART adherence among transgender women living with HIV in Yogyakarta, Indonesia. The findings suggest that participants were aware of the HIV/AIDS medication or ART availability in health-care facilities in the study setting and had been on ART for several years. Participants were also knowledgeable of

Table 2: Participants' explanation of factors associated with adherence to antiretroviral therapy

Emerging themes	Selected quotes
Individual factors	
Knowledge of ART	
Knowledge of the functions and benefits of ART	"I have often got information about HIV medication and know about the benefits of taking ARVs. So, I regularly take ARVs every day and never missed. I previously accessed the medicine [ARVs] at *Sardjito* hospital but it is a bit far from my place so now I take the medicine from *Kedongtengen* community health centre" (R29)
	"I know the benefit ARV therapy and I myself feel it, and because of that I regularly take ARV and luckily I am now healthy like this and can work every day" (R4)
Knowledge of the consequence of nonadherence on ART	"I will take the medicine for the entire of my life, so I must adhere to it, don't want to miss it. The consequence could be death. For example, my friends who did not adhere to the ARV therapy died. ." (R3)
	"I adhere to ARV therapy because I fear that the virus can get active again in the body, and I don't want to suffer a relapse" (R7)
Self-perceptions of good health and previous illnesses	
Positive self-perceptions about health and life	"I do the treatment because of my own awareness to live longer, which means I have to adhere to ARV therapy, I am aware of that. I still want to see the sun rises, still want to be with my nephews and siblings, continue my career ." (R25)
	"I undergo the ART and adhere to it because I still want to live. This disease is now a part of my life and I need to deal with it and manage myself to be healthy." (R15)
Experience of previous illnesses	"I have relapsed twice, and I don't want to experience it for the third time. It was because I discontinued taking ARV therapy. I could hardly move. It was five years ago, and from that moment up to now I do adhere to the medication" (R9)
	"I have seen the physical conditions of my friends who ceased taking ARV and realised that I could experience the same condition if I do not adhere to ARV treatment. This encouraged me to continue take the medicine regularly" (R10)
Good health conditions and longevity: motivation to overcome ART side effect	"The side effect was more on my psych. I felt so scared once I firstly started ARV therapy. I asked my sister (who is also a transgender) to accompany me for three nights. I didn't know why I was so scared, but I continued with the medication because I didn't want to die, and now I am not scared anymore" (R14)
	"When I started taking ARV I threw up every day for two months, but I didn't stop because I want to be healthier. I consulted a doctor and I was given medicine me for nausea." (R16)
Social factors	
Transgender peers' support	
Reminding each about the time to take medicines	"Here (in the shelter) we support each other to adhere to ARV therapy because all of us are on ARV treatment. We remind each other to take the medicine. Most of us take the medicine at 8pm so when it is 8pm, some will remind us saying: 'It is 8, don't forget to take you medicine' ." (R2)
Collect ARVs at hospitals or community health centers	"We have peer (transgender women) support groups so if any of us cannot go to community health centre to take the medicine then a companion (a transgender woman who is known to the doctors) can help take it. It often happens ." (R23)
	"I work so sometimes I am so busy and cannot collect my medicine from the community health centre, but my friends (companions, transgender women) always help take it for me" (R22)
Support from family	"My parents support me not to stop my HIV medication, they often call me and ask whether or not I still take it regularly" (R24)
Structural factors	
Availability and accessibility of ARVs	
Availability of ARVs	"Based on my experience, ARVs are always available and everybody, I mean HIV positive people, can access. I access the medicine every month, and it is not difficult ." (R27)
	"The medicine is available. The real problem is whether or not the (HIV) positive people want to access it. I am still on ARV because I access it regularly" (R7)
Free access to ARVs	"Now it is very easy to access ARVs and free. I feel this very much supports me to continue the therapy. I just need to spend a few thousand rupiahs for the transport, but it is not a problem, it is affordable" (R29)
	"The medicine is free, every month I just need to go to the community health centre and collect it without paying. This helps me to continue the therapy because if I have to pay then I would not have done it regularly like this" (R27)
Support from nurses and medical doctors	"My doctor always reminds me every time we meet. I am also advised to have self-discipline in taking the medicine because it will have positive impact on my body. . Nurses and doctors also explain such information to us during focus group discussions, they have known us (transgender women) very well for years so they talk with us openly about HIV/AIDS and the treatment" (R15)
Barriers to adherence to ART	
Reasons for nonadherence	"Now I regularly take the medicine. But I was late a few times in taking the medicine, I had waited for the time but missed it because I fell asleep" (R8)
	"I once stopped taking medicine before because of the schedule to take medicine, and I saw that a friend of mine who didn't take the medicine but looked health and could work well even though she is older than me" (R9)

ART: Antiretroviral therapy, ARV: Antiretroviral

the benefits of adherence and the drawbacks of nonadherence to the therapy. These could be attributed to the information of ART which was disseminated among them through various activities including transgenders' informal monthly meetings and information sessions on HIV/AIDS held by health professional. These findings support the construct of social support framework that shows the importance of information dissemination (informational support) which helps individuals to make decision or take necessary actions to address issues or problems facing them.[19,20] The findings are also in line with the results of previous studies,[23,24] reporting higher levels of HIV/AIDS treatment information and knowledge of the benefits of ARVs as the facilitators of patients' ART adherence. Drawing from the findings of previous studies[25-27] and the concept associated with perceived threat of a health condition from the Health Belief Model,[28] it is plausible to suggest that the current study affirms that being aware of benefits of adherence, experiences of previous illnesses, and/or dire health conditions encouraged transgender women in this study to adhere to medication. In line with the previous studies' results reported elsewhere,[24,29] participants' desire to have a better health and quality longevity and positive self-perception of good health status were the underlying reasons that motivated their ART adherence. These reasons were also motivating factors for the participants to overcome negative ART side effects which have previously been reported as inhibitors of adherence to ART.[26,29]

Conforming to the previous studies[30,31] and the construct of instrumental support proposed in the social support framework,[19,20] the current study findings reported the availability of social support (e.g., in relation to medication collection and uptake reminders) from transgender peers and family members as supporting factor for the ART adherence among participants. Such social support seemed to be effective among transgender women due to the caring attitudes from family of participants whose HIV status was known to their family members and from other fellow transgender women. As indicated in the social support framework,[19,20] individuals' supportive behavior of emotional support expressed through the act of caring led to improved adherence which is beneficial to their health.

In contrast to previous studies representing costs and lack of availability of ART and other health-care delivery considerations as structural barriers to transgender persons' ART adherence,[9,14-16] the present study suggests that ART was available, accessible, and free of charges for transgender women living with HIV in the study setting. These seemed to be possible due to the majority of the study participants holding either the Indonesia Health Card (*Kartu Indonesia Sehat*) or Community Health Insurance (*Jaminan Kesehatan Masyarakat*) provided by the local government, and the government of Indonesia subsidizes the ART for HIV-positive people. These findings are supportive of the access to health-care framework,[21] which suggests availability and affordability of health services as some of the key elements that enhance health-care accessibility. Likewise, the findings also indicate that "ability to pay" was not an issue for the participants as the HIV/AIDS-related health services including ART were free of charges.[21] This study's findings also suggest the role of medical doctors in changing schedule, advising, reminding, and warning the transgender participants to take medicine on time and regularly as positive structural support for ART adherence among them. This may reflect the approachability and acceptability of the health services, as suggested in the framework,[21] which were also found to be an important supporting factor for the ART adherence among the study participants. Moreover, this may also be a reflection of constructive relationship and partnership between transgender populations and health professionals in the study setting, which contrast previous studies with transgender populations and injecting drug users,[9,14,16] reporting inadequate patient-health staff communication or relationship as barrier to ART adherence.

Despite the positive attributes reported by participants, previous experiences of nonadherence to ART medication which was related to tiredness and laziness due to work, falling asleep before taking medicine, and schedule to take the medicine were also reported. These negative attributes provide some learnings as well as they could be an indication of inabilities of the study participants to engage in the treatment or to integrate treatment regimens into their daily life, as previously reported in a study by Sevelius *et al*.[9] and the health-care access framework.[21] Other individual-related barriers including depression, low self-efficacy, alcohol use disorders or alcohol dependence, and other substance use disorders previously reported to hamper ART adherence among transgender populations and other PLWHA were not the case of the participants of this study.[4-9] The absence of these barriers among the participants in the current study may be the results of the positive social support received from peers, family members, and health professionals and their knowledge of the benefits and drawbacks of adherence and nonadherence to ART. Social issues such as HIV-related stigma, experiences of transphobic violence, and food insecurity which have been associated with nonadherence to ART among transgender persons living with HIV and other PLWHA elsewhere[7,9-12] were not diagnosed among the participants in this study. These may be due to the fact that health service system and health professionals in several hospitals and community health centers in the study setting were supportive of ART adherence for PLWHA, and the communities in Yogyakarta are not judgmental against PLWHA, men who have sex with men, and transgender persons.[32-34] In addition, the study participants had incomes which helped to fulfill their daily needs.

The study findings should be interpreted with caution due to several limitations. Nearly a half of the participants lived together in a shelter for transgender women, and the majority of the others lived in proximity to each other in their communities. This provided constructive and supportive environment for

the dissemination of HIV/AIDS-related information and for social support which were positive attributes to ART adherence among participants. Besides, all the participants were from the settings where free HIV/AIDS-related health services were available. It is plausible to suggest that these settings are not similar to other settings in Indonesia. Due to this dissimilarity, these findings may portray incomplete overview of facilitators as well as barriers to ART adherence when compared to the experiences and perceptions of the ones from the settings with limited HIV/AIDS services. Hence, the results of this study reflect the situation of the participants with available HIV/AIDS-related health services and social support and might not be transferable to other settings with limited or no HIV/AIDS-related health services and social support.

Despite these limitations, this study represents initial findings of this topic with this population in the context of Indonesia. The findings can be useful information for government and health-care facilities to develop HIV/AIDS-related health service supporting system for ART adherence among transgender women living with HIV and other PLWHA. They are also necessary to develop strategies and interventions that take into account social support for ART adherence among HIV-positive transgender populations and other PLWHA.

Conclusion

This study reports several factors supportive of ART adherence among transgender participants, which are grouped into individual, social, and structural factors. It also reports a few barriers to ART adherence among the participants including feeling tired and lazy, falling asleep before taking medicine, schedule to take the medicine, and poor finances. The findings of this study indicate the importance of HIV/AIDS-related health service supporting system developed in health-care facilities in Yogyakarta that has improved ART adherence and call for similar system to be developed in other settings in Indonesia to improve health outcomes of transgender populations. The dissemination of knowledge and information of HIV/AIDS and its related service for transgender persons living with HIV and other PLWHA and general populations in other parts of the country and other similar settings globally is also necessary if the health of these population was to be improved through ART adherence.

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Conflicts of interest

There are no conflicts of interest.

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Sd/- Dr Sanghamitra Ghosh
Secretary General, IPHA

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