Health care providers' perspectives of antiretroviral therapy adherence in Western Highland Province, Papua New Guinea

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Abstract

Adherence to anti-retroviral therapy (ART) is important for suppressing HIV and attaining health benefits. Through ART adherence, viral load is suppressed and the chances of HIV transmission are minimized. Retaining clients to ART adherence as a life-long treatment remains a challenge. The provision of ART services is conditioned by health care workers working conditions and environment as they act as street level bureaucrats.

This study investigated the perspectives of health care workers for good practice to ART adherence and changes to improve clients' ART adherence in Western Highlands Province (WHP), Papua New Guinea (PNG).

Twelve face to face interviews and two focus group discussions were conducted with twelve health care workers from five HIV clinics. The purposive sample included nursing officers, community health workers and HIV counsellors. Qualitative analysis identified key factors impacting the adherence to ART of clients. As street level bureaucrats, health care workers have to deal with high workloads, limited number of staff and shortage of ART drugs, they create own policies to provide ART to clients. Health care workers recognize the pluralistic therapeutic culture of clients who cross borders by combining biomedicine with vernacular therapy. Other factors contributing to lower ART adherence include blaming clients and stigma and discrimination towards vulnerable population due to structural problems in health facilities. The study identified ways to improve service provision to sustain ART adherence of clients. These findings provide implications for strengthening the health system that includes investment in human resources for health and developing policies and implementing strategies to improve ART adherence of clients.

Key words: ART adherence, street level bureaucracy, Papua New Guinea.

Background

Adherence to antiretroviral therapy (ART) has become the most effective HIV treatment-and prevention strategy to suppress viral load with good health outcome for people living with HIV (Robbins et.al., 2014; Lokpo et al, 2020; Puskas et al., 2011). Optimal adherence not only suppresses viral replication but also reduces the chances of HIV transmission to uninfected partners (Robbins et al., 2014). Conversely, poor adherence also increases the chance of viral mutation, progression of the disease and resistance to first line ART drugs (Rougemont et al., 2009). Although access to ART therapy has improved significantly in low-and middle income countries, high adherence remains a challenge (Brinkhof et al., 2008). Health systems factors influence ART adherence such as shortage of healthcare workers and overwhelming daily number of clients, which limits the time spent with individual clients as well as drug shortages (McKinney et al., 2014).

In Papua New Guinea (PNG), about 52,000 people are living with HIV - 48,000 adults (aged 15 years and over), and 3,200 children (0 to 14 years) out of which 32,000 received ART in 2019 (UNAIDS, 2020). Studies explored ART adherence and found self-reported adherence of 78.9% by participants who fully adhered in the last seven days (Gare et al., 2015; Kelly et al., 2010; Kelly et al., 2011). However, Gare et al. (2015) noted a significant difference to pill-count adherence pointing out that self-reported adherence often results in overestimation. A study conducted by Lavu et al. (2017) found an alarming prevalence rate of ART drug resistance for nucleotide and non-nucleotide reverse transcriptase inhibitors (first line ART) in two HIV/STI clinics in Port Moresby and two STI/HIV clinics in Mount Hagen of 16.1% and 8.2% respectively. The prevalence in Port Moresby is amongst the highest reported globally (Lavu et al., 2017).

There are severe health resource limitations in terms of infrastructure and the capacity of healthcare workers to provide HIV services in the Highlands of PNG (Das et al., 2014). These factors undermine interventions to improve ART adherence. The street-level bureaucracy theory (SLBT) provides a framework to explore the ways in which bureaucrats such as the frontline healthcare workers construct how ART services are offered to clients (Cooper, 2015). Street-level bureaucrats deal with barriers and enablers, the demands from clients and struggle with limited resources in providing ART treatment (Erasmus, 2014; Cooper, 2015). The SLBT is used to examine the relationship between the clients and healthcare workers in providing services based on policies and guidelines, how the complexity of work

is reduced to manage stress and gain control over the work. (Erasmus, 2014). Cooper (2015) shows that frontline health workers use extensive personal discretion to deal with excessive workload, complicated cases and performance targets. They may compromise quality service provision to all clients and give preference to those who are likely to have good outcomes (Cooper, 2015).

This paper reports on research exploring health care workers' accounts of good practice in relation to ART adherence. The main aims were: to examine factors for good practice to ART adherence and to understand healthcare workers' accounts of change processes to improve ART adherence.

Study context

Western Highlands Province (WHP) is known as a high HIV prevalence province with poor adherence to ART (Gare et al., 2015). The Tininga STI and HIV Clinic at Mount Hagen Hospital in WHP is the second largest government-run adult HIV clinic in the country and runs eight sub clinics. Nine healthcare workers, one health extension officer, three nursing officers (NO), four community health workers (CHWs) and two counsellors work in the Tininga STI and HIV clinic. In January 2020, the clinic had about 6,200 clients registered in its database of whom approximately 5,400 were receiving ART (internal document).

Study design and methods

This study applied a constructivist approach to understand the health workers lived experiences in the way they deal with the issue of ART adherence in their daily practice as health service providers (Crotty, 1998). A constructivist position allows researchers to understand and interpret in which healthcare workers construct meaning of enablers and barriers that influences practice to ART adherence (Crotty, 1998).

The sampling for the in-depth interviews and focus group discussions (FDG) was purposive with the aim to ensure variation in terms of geographical location, health worker category as well as health workers with more than six months' experience in prescribing ART and counselling (Liamputtong, 2013).

The first author conducted semi-structured interviews with 12 healthcare workers and two FDGs. Two FGDs and eight individual interviews were conducted at the main STI/HIV clinic at Mount Hagen hospital and four interviews at four district sub-clinics. 16 women and eight men were included from a variety of settings.

Participants included in the sample have been assigned pseudonyms to protect their identity and details are summarized in Table 1.

Table 1: Participants details

		Pseudonyms	**Profession**	**Sex**	**Participants locality**
FGD 1	1	Agnes	Community Health Worker CHW)	Female	Sub Clinic
	2	Alice	Nursing Officer (NO)	Female	Main Clinic
	3	Cathy	Nursing Officer	Female	Sub Clinic
	4	Florence	Counsellor	Female	Main Clinic
	5	Jacklyn	CHW	Female	Main Clinic
	6	Jonah	Nursing Officer	Male	Sub Clinic
	7	Naomi	Nursing Officer	Female	Main Clinic
	8	Pera	CHW	Male	Main Clinic
FGD 2	1	Alice	Nursing Officer	Female	Main Clinic
	2	Alike	Nursing Officer	Male	Sub Clinic
	3	Freda	CHW	Female	Main Clinic
	4	Pera	CHW	Male	Main Clinic

Individual interviews	1	Agnes	CHW	Female	Sub Clinic
	2	Alice	Nursing Officer	Female	Main Clinic
	3	Amos	CHW	Male	Main Clinic
	4	Anita	CHW	Female	Sub Clinic
	5	Cathy	Nursing Officer	Female	Sub Clinic
	6	Ekep	Nursing Officer	Male	Main Clinic
	7	Florence	Counsellor	Female	Main Clinic
	8	Freda	CHW	Female	Main Clinic
	9	Jonah	Nursing Officer	Male	Sub Clinic
	10	Monica	CHW	Female	Main Clinic
	11	Naomi	Nursing Officer	Female	Main Clinic
	12	Pera	CHW	Male	Main Clinic

A semi-structured interview and FDG guide was designed to ensure questions were open-ended reflecting on the research questions. The interviews and FDGs lasted 45 to one-hour and 20 minutes. Data was collected between July 2020 and September 2020. The principal investigator collected data at his own work place. To ensure transparency, he made his role known to the participants as a researcher and not as a colleague (Orb et al., 2001).

Participation was voluntary and written informed consent provided at the time of the interview and FDG. Participants were promised strict confidentiality and made aware of their rights to withdraw from participation at any time during the study. They were assured that they could request for the data already collected not to be used for the study.

Ethical approval was obtained by the Divine Word University (DWU) Faculty of Medicine and Health Sciences (FMHS) Research Committee (FRC/FMHS/05-20). The Western Highlands Provincial Health Authority (WHPHA) Research Committee approved the study and authorized its employees to be interviewed.

Data analysis

The interviews and FDGs were transcribed verbatim and the ten interviews conducted in Tok Pisin were translated into English. Data analysis started during data collection using content analysis (Erlingsson & Brysiewicz, 2017; Liamputtong, 2013). The analysis method was to understand the meaning embedded within the data. There was a continuous process of coding and categorizing which resulted in the development of themes. The SLBT was applied to the data analysis to explore how healthcare workers give meanings to enablers and barriers for practice to ART adherence and changes process to improve adherence.

Results and discussion

Work environment: dealing with high workload and staff shortage

The street level bureaucracy theory suggests that frontline workers develop their own strategies to manage their workload. Frontline workers use extensive personal discretion to deal with excessive workload, complicated cases and performance targets (Cooper et al., 2015). The application of such discretion is sharing workload. There are two discretionary roles taken by the participants to manage workload which include sharing tasks and scheduling clinic days. All eight participants from the main hospital clinic mentioned that sharing responsibility helped them to manage their workload. Naomi, a nursing officer explained how they delegate tasks and responsibilities to manage the high workload.

> There're lots of clients registered to our care and the work load is there. But firstly, delegation of responsibility is very important…We delegate tasks to each individual staff who are skilled in each of their respective areas and by sharing the responsibilities; we handle the workload.

Participants at the main clinic enjoy the company of peer educators who are people living with HIV and trained to counsel clients on ART. They are employed by the Igat Hope organization, a NGO group funded by the government to allow the people living with HIV to have a voice in the affairs and governance in the country. Alice highly appreciated their assistance since "my work is made easy by the helping hands that we have, the staff from Igat Hope make our work much easier."

Increased workload can be attributed to the government's policy of 'test and treat'. Participants agreed that this policy contributed significantly to the limited time they are able to spend with each client.

> Now, things have changed, and the government is telling us to test and treat immediately. We are not spending quality time in counselling clients like we did in the past. Now, you can even test and start a patient on ART because it is a government policy. Increased testing means increased client registration and workload (Freda).

Participants working in the districts reported due to staff shortage only one health worker is allocated to manage ART and HIV care services and the tuberculosis (TB) program. Anita, a CHW, mentioned that if she is not available clients have no other health worker to turn to.

> If I go on leave or if someone dies and I attend a funeral, I'm the only person seeing HIV patients so that would be hard for my patients.

The four participants from the district explained the need to manage the workload. Agnes is a CHW said that she has to plan to see clients at specific days, "that reduces my workload in a week."

In addition to dealing with the workload all participants addressed staff shortage as major constraining factor for ART adherence by clients. Agnes stated the difficulties she faced in following up clients who do not adhere to treatment since she was the only health worker at a district ART clinic.

> I'm the only person working..., and if I go (tracing missing clients), who will come and look after this (clinic) if clients come here (to collect their treatment)?

In PNG, health worker shortage has been a challenge for many years and while the number of HIV increased the number of staff remains static or decreases (Rule et al., 2012). All participants from the main clinic mentioned managing over 6,000 clients. Although more clients were registered additional staff was not assigned to the clinic. Participants felt overwhelmed by the growing numbers of clients. Similar findings were reported by Marchal et al., (2005) who found that the problem of maintaining adequate distribution and retaining professionals are continuing to undermine health services in many countries.

Use of discretionary power practices

All participants in the interviews and one in the FDG mentioned making their own rules to control the growing amount of workload they are facing. Amos is aware that he is not allowed to administer drugs cataloged for doctors. However, since there are no medical doctors available to treat clients with complicated medical issues, he stated that he treated those clients. He explained that he is doing it for the clients since some clients live in far places and need to return home before dark. In the absence of doctors, he has to decide to either treat the client or send the person home without treatment.

> If there are very sick ones, I'd call on doctors to attend to them… But, if they (doctors) aren't around, I find it difficult to manage them and send them away.

Erasmus (2014) explained that street level bureaucrats such as nurses have some discretion over which services are offered and how they are offered. They use their discretion to choose what they deem best for the clients.

Policies were created without being informed by the supervisors. Anita explained that "I'd simply put them on Bactrim™ and convince them that it is a HIV drug so they have to live on it." She justified this action and pointed to lack of supervision and receiving updates on new ART drug regimens. Amos, a CHW admitted that he described drugs which are not in line with the ART treatment protocol.

> I prescribe medications that were not in line with my learning, but to help clients. I know, I'm doing stuff I'm not supposed to be doing.

Participants were under no instructions to disregard policies from the National Department of Health (NDoH) that they were tasked to implement. Naomi talked about how she deals with policy and guidelines changes because she believed these changes do not work for her.

> There're some things (policies & concepts) that the department is changing…some changes take place within a month or a year..., the outcomes of these changes are not being seen…, so at the clinic level, it is sometimes confusing us. At our level, these (policies) don't work well for us... We do things differently. Things that work out for us and our clients.

Freda revealed that she would punish clients who were not serious about taking ART. Normally, health workers would dispense three to four months of ART supplies to clients from distant places. When Freda noticed clients' did not strictly adhere to ART, she imposed her own policy and punished the clients, irrespective of where the clients were coming from.

> If I notice poor adherence in some people who have the privileges that would enable them to be adherent, I'd punish them by increasing their visit frequency.

Amos also admitted that at times staff are the cause for clients not returning to the clinic.

> If you say something bad, you are hurting their feelings so they won't turn up at the clinic again.

Participants as street level bureaucrats, gave their accounts about using their discretion by applying their own guidelines to manage their workload in settings were high client demands outweigh scarce resources. Implementation failure of new drug regimens is attributed to feelings of being ignored by the supervisors. Maynar-Moody and Portillo (2010) described street level bureaucrats as ultimate policy makers who use discretionary powers to implement, disregard or create new policies. Participants also use their power to allocate sanctions to clients, while being aware their own behavior contributes to poor adherence of ART. This can be viewed as noncompliance with ethical obligations of health care worker through discriminatory behavior and attitudes towards clients (Reis et. al., 2005).

Availability of ART

Access to medical products is one of the six WHO health systems building blocks and defined as the continuous availability of medicines at health facilities (WHO, 2007). 13 participants from the main hospital clinic and three participants from the district clinics mentioned the difficulties faced when dealing with shortage of ART drugs and medical equipment. Alice complained that because of a shortage of ART drugs, clients have to come to pick up the drugs every week or fortnight instead of 6 months. This situation has financial implications for clients as the cost for transportation to the clinic is already a barrier for some clients to adhere to treatment. Agnes pointed out this factor and said, "they come here if they have bus fares, otherwise, they will miss medications".

The shortage of ART has a negative health effect on staff and increased stress and pressure. While Alice explained that she and her colleagues got sick when the workload increased, two other participants mentioned drug shortage as an ordeal that pressurized them since they are in direct contact with the clients.

> Since we are at the facility level, we're in direct contact with the clients, so we get pressurized (Naomi).

Naomi added that staff do not only borrow from other clinics but follow up and pressure the suppliers to receive the needed ART drugs. She attributed the unavailability of ART drugs and medical consumables to the government, to bureaucracy at the headquarters and said:

> We even argue with the people at the headquarters.

These findings reveal a weak equity orientation in the health care system (Ward, 2009). Since participants are unable to give everyone the usual quantity of ART supplies, but serve everyone with the same quantity, they are forced to inequitably distribute ART. Inequity of access to ART affects clients from distance settings who are forced to visit the clinics more frequently (Aday & Andersen, 1981). Geography as a cause of inequity influences adherence to ART (Goddard & Smith, 2001). These conclusions suggest the 'advocating' element of street level bureaucracy theory. Cooper et al. (2015) stated that frontline workers act as advocate for clients who are regarded as being on the verge of social vulnerability. Participants experience some level of stress in having to advocate for the drugs to be made available quickly.

Healthcare workers' beliefs and values

Culture and health seeking behavior of clients

All 20 participants described the powerful influence of how clients' health seeking behavior was influenced by a pluralist medical culture. Their narratives explained what Eves and Kelly-Hanku (2020) called border crossing when clients combining vernacular therapies, Christian forms of healing and biomedicine. Some clients seek healing and go to "their pastors for health" (FGD 2). Other clients may follow the advice of traditional healers. Participants in one

FGD discussed the issues concerning herbal treatment which is believed to cure HIV, for example marijuana. As a result, clients believe in this alternative treatment and stop taking ART.

> I went to a village and met one client… who was taking marihuana regularly. He was advised by some people that marihuana could (cure) HIV (FGD 1).

Two participants described many clients being receptive to their cultural beliefs and perceived their HIV status as a curse. Clients also attribute the good health status not to taking ART regularly but other sources such as herbal medicine and quit treatment.

> Some believe in herbs while others believe that their illness is due to a curse in the family or some kind of sorcery (Jonah).

While cultural understanding of HIV is shaped by social and religious factors including biomedicine and traditional understanding of healing (Kelly-Hanku et al., 2014), participants perceived border crossing by clients as a constraining factor to ART adherence. Despite the advancement of biomedicine, the persistence of traditional healing practices reflects the past practices being adapted to current reality (Gewehr et al., 2017).

Blaming clients

Eight participants stated that clients had developed a poor attitude towards their treatment. Monica, blamed clients and described them as "they are thoughtless, a lot of them seem to have problems with their attitudes. They come whenever they just feel like coming to the clinic".

Most participants attributed the issue of clients' non-adherence to ART as an 'attitude problem'. By contrast, two participants believed that just a handful of clients behaved irresponsible to treatment. Ekep said "most clients' adherence is good. It's only less than, maybe 25 percent."

Two participants blamed clients living within close proximity to the clinic as 'ignorant' shown by their attitude in not attending the clinic on their review days. Those from distant places who have to deal with transportation issues to attend the clinic were described as 'genuine' clients.

> These are… people… who live in distant places but make sacrifices to come to the clinic. I see them as genuine people who could do well on ART if their problems are addressed. Whereas the others are… ignorant clients who live… close to the clinic but don't come merely because of ignorance. These are the very lot that give us a lot of headaches (Freda).

The notion of blame is directed towards clients who are perceived to willfully infect others with the virus. While Alice believed that health workers do their best in advising clients, they reject the advice and purposefully spread HIV.

> Clients are pretending to be people without HIV and are silently infecting others…The attitude of these clients is just not right. They care less about infecting someone else…, they don't even care about themselves.

In the data, the phenomenon of blaming the 'other' the client was prominent. Stereotyping and scapegoating the 'client' allocated responsibility for risk by using cultural frames that are moral and political (Lupton, 1999). The participants stated that despite numerous health education and counselling sessions offered to them, clients are blamed for their ignorant behaviors. The tendency for blaming the 'bad client' for their action receives cultural attention and connected with moral principles (Lupton, 1999). The finding of Cobb and Chabert (2008) is echoed here, where health service providers stigmatize and blame those affected by HIV. Clients are easily blamed for contracting and transmitting the HI-virus.

Stigma and discrimination in healthcare facilities

Stigma and discrimination can appear as big barriers for people living with HIV and restrain them from accessing essential medical care services (Saki et al., 2014). Participants were concerned about vulnerable people accessing HIV care. Seven participants in interviews and FDG explained that vulnerable people were missing out on services because of fear of stigma and discrimination. Florence assumed that the kind of stigma clients experience is based on their own perception and labelled it 'self-stigmatization'.

> They were presuming that someone was watching them or people were talking about them when in actual fact, nobody was… Self-stigma is a concern for people living with HIV.

Participants explained that this group includes young adults, students, or people from the working class. It is very difficult for them to disclose their status due to their socio-economic positions. After a HIV positive test result they may not come for treatment.

> If the young adults come and check their bloods and if it turns out positive, they stop returning to the clinic (Anita).
>
> "The working class people and the business men and woman... These kind of people feel shy to come out publicly. They engage staff at the clinic to collect their medication…or sometimes they come for a check and go for good…These people are left out because of their level of education or wealth (Jacklyn).

Monica spoke of how she observed people coming into the clinic pretending to be a client, but actually checking out on their relatives or friends (wantok).

> I have observed that some people come in here pretending to do VCT or for one of these services provided. But they come to spy on their 'wantoks' who are taking HIV medication (Monica).

In addition, the lesbian, gay, bisexual, transgender (LGBT) community form another vulnerable group missing out on services. Participants are aware that they prefer to be served quickly and do not want to wait in the common waiting area because as Naomi stated:

> They find it hard to publically come in settings where a lot of people are attending….I think that they don't come fearing stigma and discrimination.

Monica admitted that "LGBTs would usually want us to serve them quickly and if we don't… they just sneak out and take off".

Although it seems participants are aware that vulnerable groups might miss out on services due to fear of stigma and discrimination, health workers do not change their daily routine in reducing their waiting time.

> We do triaging but see the sick ones first… and later attend to the stable ones…, that keeps them waiting (Naomi).

The trajectory of stigma is entwined with the disease course and tied to the response of the family, broader society and the identity of the individual (Alonzo & Reynolds, 1995). Participants referred to vulnerable groups as they have to deal with types of shame associated with loss of face, loss of social standing and transgression of one's own and community identity. These findings highlight the importance of discussing effective programming concerning ART adherence affecting different vulnerable groups. They also support the need to confront stigma and discrimination at the different settings to enhance the delivery of HIV and AIDS services for vulnerable groups (Woodgate et al., 2017). Participants as street level bureaucrats have the discretion to shape and decide how services are provided to vulnerable groups (Anasti, 2020). However, they experience conflict when attending to clients who seem to require immediate medical consultations and those whose waiting time should be reduced as a stigma reduction strategy. This situation increases psychological costs to vulnerable groups and decreases utilizing HIV services as well as adherence to ART (Anasti, 2020).

Connected to the fear of stigma and discrimination by vulnerable groups and subsequent loss to follow up of clients, privacy and confidentiality are ethical concepts to be considered. Six participants addressed the clinic environment as being unfriendly. They described the clinic as not constructed in a way to ensure privacy and confidentiality.

> We're chasing them off because of the environment itself... They're feeling that the fencing and building doesn't suit them… with an open space like this, they're not feeling comfortable to walk in (Florence).

Jacklyn explained that changes in the infrastructure were made and "all walls and screens have been removed. It is one of those things that is causing them not to come back" (FGD 1). In addition, one participant felt that because a lot of other clients are coming in for other services such as voluntary counselling and testing (VCT), some clients felt awkward waiting amongst others.

These findings relate to a study by Dappah and Senah (2016) in Ghana, that lack of privacy and confidentiality contributes to stigmatization, covertly and overtly in the healthcare facilities. Participants perceived clients' privacy was compromised due to the open construction of the facility. Structural interventions on the layout and space of the facilities can secure privacy, confidentially and reduce stigma as well as unwanted disclosure (Nyblade et al., 2019).

Change Process

Inclusion of treatment supporter

As a way forward to improving adherence at the ART facilities, six participants from interviews and FDGs suggested the involvement of treatment supporters to help and remind clients to take ART regularly and support follow up visits. Treatment supporters play support roles in helping and advising clients to stay healthy, adhere to treatment and pick up the medication when the clients are sick.

> There are some people who're sick, but rely upon their guardians to assist them with their supplies. But in the absence of their guardians, they go without any medication… and stop treatment (Amos).

Clients and treatment supporters come together to the clinic and it is believed as Alice pointed out that "clients won't default on treatment because the treatment supporters will be there to encourage and help them to be adherent to treatment". Participants also mentioned the importance of contacting the treatment supporters in case clients miss their follow up visits.

> Before registering them, we should involve their treatment partners and contacts should be established to know the status of defaulters as to whether they've died or have transferred out or where they're accessing their treatment (Jacklyn).

Participants ardently stressed that without establishment of secondary contacts, it was extremely difficult for the participants to locate clients and return them to treatment. They attributed non-attendance of follow up visits by clients were mostly due to sickness as well as not understanding Tok Pidgin, the lingua franca mostly used by healthcare workers. Inclusion of a treatment supporters/partners is a proven strategy to improve and sustain clients' adherence to ART (Duwell et al., 2013). This includes that clients nominate their supporters who promote healthy behaviors and foster good communication with the health facility and reciprocity. This study affirms the finding of Nakamanya et al. (2018) which stated that the involvement of treatment supporters starting from the initial phase of treatment is important. As such, treatment supporters remain important to clients' adherence to long term ART. Participants pointed out the need to develop a policy that mandates the involvement of treatment supporters as a priority approach in addressing ART adherence.

Adherence counselling

Adherence counselling was a key strategy suggested by the participants to improve ART adherence. Freda explained the difference in the way adherence counselling was conducted in the past and present. She attributed the rise in non-adherence of clients to ART to the limited time spent on counselling and expressed her view as follows:

> We need to counsel our clients properly..., that will help us minimize the adherence issue. Now, clients no longer attend 1 hour of 3 Saturdays for adherence counselling. We just give them a minute or two and talk to them about adherence and that's it.

Naomi also described the current way of adherence to counselling as 'feeding pigs', or in other words "giving them any health related message to take without considering the content and its likely impact". She implied that the current practice is superficial and generalizing without an impact on clients.

> Sometimes the (adherence) counselling is very superficial. We are not giving in-depth information to our clients. Due to our aim of reducing the crowd, we just rush through, like feeding pigs; whoever gets served is lucky… We need to improve on these.

There is evidence that adherence counselling is a cornerstone for improved adherence and better health outcomes (Fox, et. al, 2016; Laxmeshwar et al., 2020). However, as the factors surrounding adherence are complex and influenced by culture and circumstance, it requires interventions tailored to the context of specific settings (Chaiyachati et al., 2014). UNAIDS identified counselling as a central element as to establish the communication process between clients and counsellors with the aim to solve personal, social psychological problems and difficulties (Musayon-Oblitas et al., 2019). Adherence counselling and treatment supporters are two important strategies to improve ART adherence of clients. Evidence supports the use of different strategies to improve adherence to ART since it a life-long requirement (Kanters et al., 2017; Chaiyachati et al., 2014). Kanters et al. (2017) recommend that instead of introducing new adherence interventions to concentrate on improving existing services and provide them in to a more holistic way to improve outcomes.

Community Awareness

Eight participants believed that carrying out HIV and AIDS awareness in communities could result in the general population being sensitized and informed about the importance to opt for a HIV test. This would reduce new infections. Participants in the interviews and focus groups alike told that many people in rural villages still lack knowledge concerning HIV infection, testing and treatment. Instead of waiting for people to come to the clinic, Alice suggested going to the people.

> We aren't doing home visits and testing the people in the villages… Some people are left out… We need to go right into their villages… and make HIV awareness, conduct free testing and talk to them. We're (only) helping those that are coming here. Some people are shy so they're aren't coming to the clinic.

Regarding low attendance of young adults for HIV testing at the clinic, Naomi, mentioned the need to focus on young people and by talking with them about HIV infection they might be willing to come for a test.

> There are lots of young people but a few of them are coming here to do VCT. I'm convinced that if we do awareness, they will come for VCT.

Participants realized the importance of providing awareness in the communities but explained they lack funds and logistic support. This issues affects participants in both the main clinic and in the districts.

> Financial problem and many other reasons are (always) given so we are just here like this…We need to do awareness … There're no vehicle and funding for us to do that here at our district (Cathy).

Literature shows that awareness is a key strategy for preventing HIV. A study in India using a mathematical modelling, reflected the effects of awareness and stated that awareness reduced infection rate, reduced the rate of transmission and cut down the scale of the disease (Roy et al., 2015). Participants identified the need to reach out to the young population who were reluctant or shy to attend clinic. Young people need to be informed and have the information to prevent HIV infection (Piot et al., 2008). They also addressed the need to provide awareness to rural villages and geographically remote places. The constraining factors are considered the lack of funds and transport. The concerns shown in this data support the conclusion of Piot et al. (2008) about HIV prevention programs not reaching maximum coverage due to lack of funding. HIV prevention requires a strategic analysis of its dynamics in local contexts. Funding has not been directed to the epidemic's location and drivers.

Separation of HIV care and treatment services

WHO recommends an integrated approach to HIV prevention, care and treatment (WHO, 2007, p. 5). This concept contains a range of HIV related prevention, care and treatment services to provide increased accessibility, efficiency and optimized point of care services for clients. Participants perceived that overcrowding, increased number of clients, and non-adherence to treatment as the result of this concept. When clients come to access various services offered at the same location, there is increased workload. Creating a standalone clinic for HIV care services was one of the suggestions proposed by ten participants.

> "Here at this clinic, we deliver many services at one point, thus keeping many clients together… We need to separate this facility (Jacklyn).

For Agnes, who is working in a clinic in the district as the only healthcare worker responsible for the HIV program, the integrated approach means performing many different duties like such as prescribing ART, conducting voluntary counselling and testing, treating clients with sexually transmitted infections (STI) and treatment of clients with Tuberculosis.

> I started as an ART prescriber, but in September of 2018, I was also told to take up TB treatment as well. HIV alone is a bit all right for me to manage…but I also deal with TB, STI and VCT.

Although literature confirms the integration of HIV and AIDS care services into the primary health services is beneficial, lack of human resources in many resource-limited settings, mostly in rural areas hamper integration of services (Fronczak et al., 2016). The process of integration requires functional health facilities with adequate infrastructure, equipment and human resources capable of providing services (Sibiya & Gwele, 2013). Participants in this study identified some important health systems issues in relation to effective service provision to be considered that influence adherence to ART.

Conclusion

This study clearly identified that staff shortage is a constraining issue for healthcare worker to have to deal with at a daily basis. Non-availability of medical doctors to manage complicated HIV related illness coupled with shortage of ART drugs complicates the situation and increases the workload.

Health care workers act as street level bureaucrats, use their discretionary power and develop their own methods, procedures and new policies to cope with the situation.

Medical pluralism is characterized by overlapping of borders of therapeutic repertoires and healthcare workers struggle understanding clients' health seeking behaviors that are beyond biomedical options for healing. Health care workers cast blames on clients for perceived bad attitude towards adherence to ART and overtly display some level of aggression towards their clients. Despite the evidence on the prevalence of stigma in the health facilities, health care workers, as street level bureaucrats have limited space to developed stigma reduction strategies.

The change process deemed necessary as best practice for good ART adherence by inclusion of treatment supporter, prolonged adherence counselling and separation of HIV care programs. Structural barriers can be addressed through increased funding to the health care system which includes employment of additional health care workers. Facility infrastructure requires improvement to ensure clients privacy and confidentiality and reduces societal stigma.
Further research is need to provide insight into the effectiveness of the 'test and treat' and integrated primary health service approach in PNG. An in depth understanding of structural barriers can assist policy makers and practitioners to develop policy and effective programs addressing ART adherence in the country.

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