

The Impact of Formal and Informal Institutions on ART Drug Adherence

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Abstract

A successful antiretroviral therapy (ART) drug adherence is achieved when patients follow their prescribed regimen. This is determined by patient's motivation that is influenced by resources associated with the patient, society, and relevant institutions. The aim of this study is to assess the impact of formal and informal actors on patients' ART drug adherence. A qualitative study approach was conducted through face-to-face in-depth interviews of HIV-infected patients and key informants. The analysis was guided by a salutogenic model focusing on generalized resistance resources and a sense of coherence. The finding shows that 76% of the study participants achieved the recommended 95% adherence level. Several resources attributed to individuals, society, and public institutions influencing patients' day-to-day life and their drug adherence were identified. Patients who are able to use the available resources easily develop sense of coherence and follow their prescribed drug regimen. Therefore, encouraging HIV-infected patients through formal and informal actors can enhance ART drug adherence.

Keywords

HIV, ART, facilitators, adherence, formal, informal, Jimma

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What Do We Already Know About This Topic?

Prior studies have identified the effects of hindering factors on antiretroviral therapy (ART) drug adherence of HIV/AIDS-infected patients, including its impact on their livelihood.

How Does Your Research Contribute to the Field?

This study identified facilitating resources or factors at formal and informal institutions helping HIV-infected patients to develop sense of coherence and positive view about their life, which encourage them to adhere to their prescribed drug regimen.

What Are Your Research's Implications toward Theory, Practice, or Policy?

The findings of this study may contribute to policy reform toward ART and integrated involvement of formal and informal institutions toward patient care and support and ART follow-up.

Background

The epidemic of HIV is one of the biggest global public health challenges, particularly in low-income countries. Globally, about 37 million people were estimated to be living with HIV in 2015.¹ In the last 3 decades, HIV has rapidly spread across all sectors of society mainly in sub-Saharan Africa.² Ethiopia is among the most affected countries with an estimated adult prevalence rate of 1.5%.² The country has made a lot of efforts to control the transmission of the disease and its psychosocial effects. A long-term commitment has been made at a global scale to end the AIDS epidemic by 2030.¹ Antiretroviral therapy (ART) is one of the controlling methods with a treatment regimen containing different drug combinations intended to slow the progress of the disease and improve the health of the

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patients. Since the first global treatment target was set in 2003, annual AIDS-related deaths have decreased by 43%. In sub-Saharan Africa, the number of people on ART treatment has more than doubled since 2010, while AIDS-related deaths have decreased by 36%.^{1,3} However, still huge challenges are ahead due to new HIV infections. In 2015 alone, about 1 million new HIV infections occurred in eastern and southern African countries.¹

The ART program in Ethiopia started in 2003 on fee scheme and continued free since 2005 based on certain clinical eligibility criteria such as CD4 counts.⁴ The treatment regimen follows the clinical guideline adopted from the international standardized guidelines⁵ and provide free of payment to encourage involvement of HIV-infected patients in ART program. Along with this, a decentralized system of treatment was developed to increase its accessibility and to reduce related costs.⁴ As a result, the number of patients covered by the treatment and the number of people for voluntary HIV test get increased.^{1,6} However, adherence to the drug regimen remains a concern due to lifelong treatment and AIDS-related issues. Adherence is the correct intake of the prescribed dose of the drug at a scheduled time followed by dietary instructions.⁷ To achieve the desired benefits of the treatment, moderate to higher adherence level is needed to suppress viral growth and development of viral drug resistance.⁸ Several studies conducted in Ethiopia reported an adherence level of 70% to 85%, which is relatively moderate adherence but less than the recommended level.⁹⁻¹¹ Most studies conducted in the country mainly focused on hindering factors for the low adherence levels.¹¹⁻¹³ These factors are important to point out negative influences attributed to the treatment, but addressing only hindrances may not improve the level of adherence. Facilitating factors can be strong and sustainable since it motivates patients to develop sense of coherence (SOC) and to have better adherence to their treatment. These factors are positive implications generated by patients or the society. Positive factors are naturally powerful to achieve continuous adherence and positive living behaviors by strengthening the individuals' self-perception for life. Both hindering and facilitating factors (resources) are equally important to achieve better adherence, but this study gives more emphasis to the facilitating resources. Therefore, the aim of this study is to assess personal and institutional resources and activities that can enhance ART adherence.

Methods

A Theoretical Model Used for the Study

This research uses a salutogenic approach as a guiding principle. The salutogenic approach focuses on what creates health and well-being than looking for defects.¹⁴ The term describes an approach focusing on factors that support human health and well-being, rather than on factors that cause disease (pathogenesis). It focuses on the relationship between diseases, related stress, and coping mechanisms. Salutogenic has 2 core

concepts which is a generalized resistance resources (GRRs) and an SOC. Generalized resistance resources are any resources and opportunities that are available at individuals and their environment. Sense of coherence is life orientation or the person's view of life and capacity to respond to stressful situation by using GRRs. The SOC is the extent to which one can endure challenges, feel confidence and optimism, and have ability to control life situations. Thus, salutogenesis is the processes of enabling individuals' ability, resources, capacities, competences, strengths, and forces in order to create an SOC and thus perceive life as comprehensible, manageable, and meaningful.¹⁵ The GRRs can be identified at individuals, society, and from the physical environment, which this study focuses on to identify. Individuals, who have developed the skills of using the available resources, focus on problem solving, and positive outcomes tend to cope up with the negative life situations. Dealing with stressful situation using the available resources can help the patients in mastering their life situation and adapting to their drugs (ie, manageability of life). Patients with strong SOC continue to use their ART drugs as prescribed, despite the challenges they face in their life. In this study, an AIDS patient's view of life and capacity to use the available resources in a difficult situation were assessed based on their drug adherence self-report in triangulation with the patients' drug records and medication diaries. In addition, the support from the society and activities of different organizations working on HIV/AIDS prevention and control affecting patients view and perception for life have been given due attention and analyzed. The explanatory theoretical model used for this study is shown in Figure 1.

Study Area and Population

The study was conducted at Jimma University Specialized Hospital (JUSH) which is located in southwest of Addis Ababa at 352 km. It is the only teaching and referral hospital serving about 15 million people in the catchment with its 15 clinics. This study considered all HIV-infected patients visiting the ART clinic for drug refill or any other related medications. However, HIV patients who initiated ART less than 6 months, age less than 18 years, and unwilling to participate in the study were not included. The study participants were selected based on a convenient sampling technique due to varying patients' date of appointment. The sample size for the study was determined by considering data saturation. Data saturation was reached after enough information was obtained and additional new information with further coding was not possible. Accordingly, the study considered 25 HIV-infected patients attending ART and 10 pre-ART HIV-infected patients on follow-up. Patients on pre-ART were included to make some livelihood change in comparison with the patients on the ART. These patients were contacted at ART clinic of JUSH, requested for their volunteer participation, and selected for the study. Selection of the participants were continued until information saturation was achieved. Prior to that, verbal and written consents were obtained from the patients after informing them that their

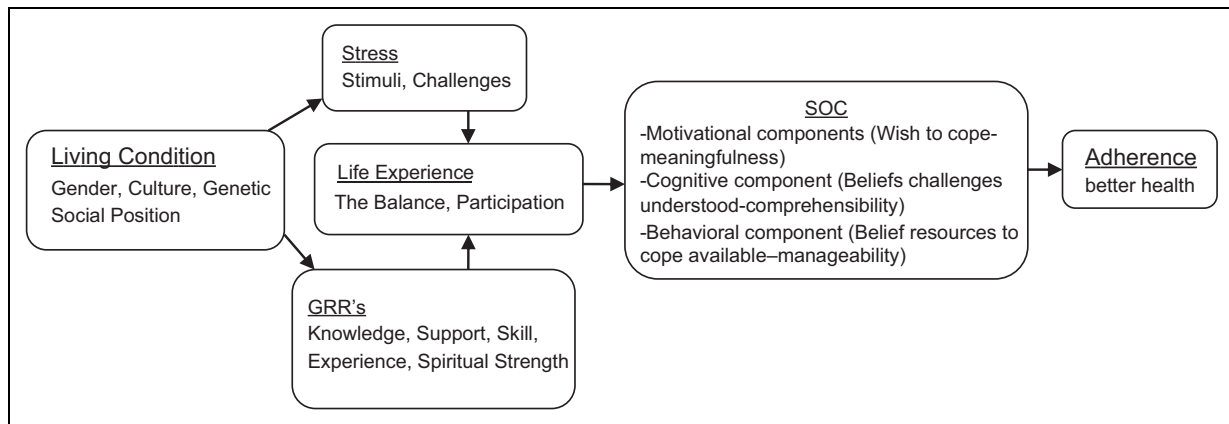


Figure 1. Salutogenic explanatory model based on the study by Midtbø¹⁶ and Mittelmark.^{17,18}

information will not be used except for the proposed study. Moreover, the participants were given the chance of leaving the study at any time if they are not interested. In addition, 8 key informants working on ART-related services were interviewed to reflect on patient's life experiences and treatment follow-up.

Study Design and Data Collection

A descriptive qualitative study was conducted from September to November 2016 using both primary and secondary data sources. The primary data were obtained through face-to-face in-depth interview of individuals and key informants and through observation. The in-depth interviews were conducted using an interview guideline consisting of open-ended questions focusing on individuals' life and ART drug use experiences. The guideline was pretested on 5 individuals outside the study participants. Data on ART drug use were obtained based on the individuals self-report of drug recall for a week before the interview and written medical records. Interviews were conducted in local language probing to get deep understanding of the patient's drug use and life experiences. During interviews, voice recordings were made for willing individuals in addition to notes taking. Similar procedures were used to interview key informants to reflect on patients' livelihood change in their course of ART clinic visits and social supports provided through different organizations. Organizations such as Organization for Social Service for AIDS (OSSA), Faith-Based Organization, Fayyaa Integrated Development Organization (FIDO), World Food Program (WFP), Family Guidance Association (FGA), Mekdim National Association, and JUSH ART clinic were considered for the interviews. Data obtained through observation focus on structural outline of the clinic, privacy of the patients, and availability of the drug and patients' drug use experiences. Secondary data were obtained from patients' medical records and checkups based on written permission and verbal consents taken from the study participants.

Data Analysis

This study used patients' self-report and pill count in triangulation with the patient's drug records and observations to measure their ART drug adherence. Biological marker and electronic device can be used alternatively, but they are expensive; measuring blood drug level is also another option but is not reliable.¹⁹ The patients' ART drug adherence level was calculated from the patients' self-reports for 7 days of ART use recall and missed drug in the preceding month of the interviews. The combined self-reported adherence and pill count measurements are object indicator to monitor patients' level of drug adherence and success of ART program.

The data from in-depth interview were analyzed using a content analysis. Content analysis is a technique or approach used to make replicable and valid inferences from texts to the contexts of their use. It is an inductive approach followed by open-ended questions. It is a systematic and replicable technique of compressing many texts into fewer content categories based on certain coding of phrases. Hence, the audio records and notes taken in local language were translated into English and transcribed into word document. Coding of similar phrases have been made, their frequencies tallied, and categorized into themes (contents). Giving meaning was made as distinguished from their manifest contents. Manifest content analysis is more visible, reliable, and analogous to a standardized questionnaire relative to latent analysis and then considered for this study. Themes derived from the individual patient's manifest were considered as new insights and interpreted based on the aim of the study. These themes were content triangulated with the information from the key informant's focus group discussion. The information from the key informants focus group discussion was analyzed using similar approaches (content analysis). Contents significant for the study were identified, interpreted, and discussed in line with the study objectives and relevant literature. The identified themes are resources influencing patients positively or negatively on the use of their prescribed drug regimen (adherence of their drug according to its prescriptions). These resources can be any materials and nonmaterials

Table 1. Demographic Characteristics of the Study Participants.

Category	Characteristics	On ART Treatment, n = 25	Pre-ART Follow-up, n = 10
Gender	Male	11	2
	Female	14	8
Age in years	18-30	5	6
	31-40	11	3
	41-50	8	0
	51 and above	1	1
Marital status	Single	3	4
	Married	13	4
	Divorced	4	1
	Widowed	5	1
Religion	Orthodox	14	7
	Muslims	7	2
	Protestant	2	1
	Other	2	0
Education	Unattended	3	1
	1-7	7	6
	8-12	9	3
	Diploma and above	6	0
Level of income	No income	0	2
	<500	11	4
	500-1000	4	4
	1001-1500	3	0
	1501 & above	7	0

Abbreviation: ART, antiretroviral therapy.

such as knowledge, experience, encouragement, psychological support, counseling, responsibility feeling, and any conditions motivating patients for better life.

Ethical Approval and Informed Consent

Our study was approved by Jimma University College of Public Health and Medical Sciences research ethics review board (ERB; approval no: RPGC/219/2015). All patients provided written informed consent prior to enrollment in the study and repeated verbal consent prior to interviews and focus groups.

Results and Discussion

Sociodemographic Characteristics of the Study Participants

This study uses a qualitative method based on convenient sampling with first-come-first-respond approach. However, presenting their sociodemographic characteristic may provide some information about the participants. As shown in the data (Table 1), the number of female participants is higher than their male counterparts due to higher number of female ART attendants (as checked from patient record). The largest ART attendant is between the age of 31 and 40 years. Most of the study participants have received the ART drug for more than 4 years. Married individuals account for the largest share of the study

participants. About two-thirds of the study participants of all categories are Christian. Most of the patients are from low educational levels and lower income groups working as daily laborers, guards, and cleaners. The sociodemographic and economic characteristics of the patients provide information on the resources these people need to adhere to their ART drug.

Patients' Level of ART Drug Adherence

The results show that 15 of the ART participants reported that they use their ART drugs according to the prescription, 4 of them delayed a single dose for about 30 to 60 minutes, and the remaining 6 reported that they delayed for 2 consecutive days. Nineteen of them have achieved more than 95% adherence. The medical record results match the patients' self-report in many aspects. Seventy-six percent of the patients have achieved the desired adherence level, 88% have shown increased CD4 count, and 72% have gained weight. The drug counts at the clinic and during home visit also coincided with the self-report results. The proportion of adherence in this study (76%) is comparable to other literature in Ethiopia (74%),^{9,12} but higher than the level of adherence in other developing countries.^{20,21} The variation might be attributed to the difference in factors contributing to the level of adherence.²²

Factors Affecting the Level of ART Drug Adherence

This study identified factors affecting the level of ART drug adherence in HIV-infected patients. The factors are identified at individual, family, community, and institutional levels. These formal and informal institutions have their detrimental role in affecting the patient's decision and ability to accept positive living and continuous use of their drug. The roles of these actors are presented as facilitating and hindering factors. Facilitating factors are potentially considered as resources at the disposal of patients and society contributing to the development of patient's SOC. Patients with strong SOC easily tend to manage the available resources, comprehensively understand their situations, and give meaning to their life. Some of the factors can be negative and will have debilitating effect on the patients' self-confidence and ability to cope with the challenges associated with the disease. Both facilitating and hindering factors have equal importance in affecting the patient's level of drug adherence. Nevertheless, focusing on factors enhancing the patients' SOC will have strong and sustainable effects than focusing only on addressing negative (hindrance) factors. Hereafter, factors and resources are used interchangeably. These factors are presented in Figure 2.

Personal Factors Contributing to ART Drug Adherence. Personal factors are attributed to the individual's specific character and experience in a day-to-day life. These can be personal judgment, feeling of responsibility, and feeling wellness after treatment and experiences of coping with challenges.

Improvement after treatment, going back to work, and becoming a productive person were mentioned as encouraging

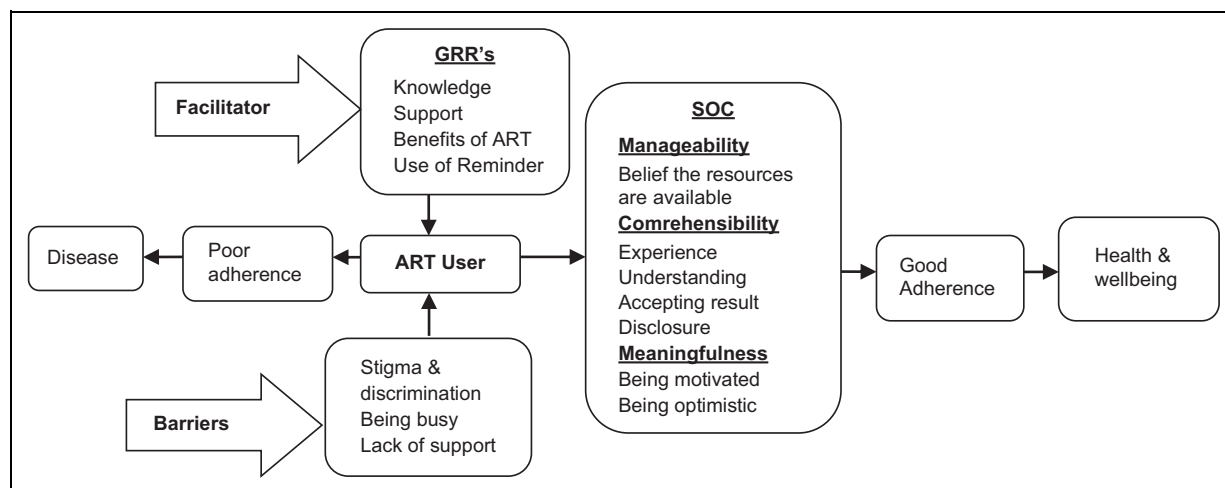


Figure 2. Salutogenic explanatory model based on the results.

experiences by 16 patients attending ART. Previous experience of serious illness due to missing or delaying drug dose was mentioned by 13 study participants; thus, previous condition of illness has been taken as an alarm for the current use of the drug. A 40-year-old ART user mentioned his experience of discontinuing his drug because of side effects and became admitted to hospital, which he now uses as an alarm. Some of them use their friend's health condition as an alarm. A 31-year-old female patient on ART witnessed that some of her friends have died because of inability to use their drug as prescribed. Literatures reported the perceived benefits of ART and consequences of poor adherence as facilitators.²³ People feel motivated to take their drug when they go back to work after treatment.²⁴ In particular, married individuals have better motivation to live and take care of their families. "I have to take my drug to live for my son and take care of him" (a 25-year-old female ART user). Correct intake of the drug is also partly associated with the individual's past experience on drug use. It was observed that patients having good pattern of previous drug use on timing and dosing have better tendency to follow their prescribed ART drug regimen. This is in line with their self-reported experience on ART drug use. In addition, 7 patients with past incorrect drug use experience mentioned that the past negative health consequences helped them improve their current drug use pattern. Good counseling and follow-up would be recommended to develop patients' habit of taking drug as prescribed.

Patients convinced to consider HIV/AIDS just as one of the chronic diseases are more likely to avoid behaviors affecting their drug intake.²⁵ For instances, some of them are conscious about their nutrition and safety of the food and drink they consume. Seventeen of the patients on ART reported that they do not eat uncooked food and drink untreated water. These measures are important to prevent opportunistic communicable diseases. They also reported their eating patterns are regular and time-specific. The results show more regularity of eating patterns among patients on ART than pre-ART patients.

Majority of the ART attendants witnessed that they stopped drinking alcohol and use of addictive substances after starting ART. Improving nutritional condition and avoiding addictive behavior help the patients to improve their body defense mechanisms and health condition.

About 18 patients described the benefits of accepting test results and disclosure of their HIV/AIDS status as stimulation to get benefits of available resources. "I am in good condition after I am convinced to accept my test result and started taking care of myself..." (50-year-old ART user). Disclosing HIV status can be considered as a symbol of self-acceptance and coping resources.²⁶ Patients with such confidence are easily accessible to social support and relevant services. A 41-year-old ART user mentioned that "We have a monthly meeting for sharing experience and to contribute money for others through our association." HIV-infected patients in the association are more likely accessible to care and support through their referral networks. Encouraging patients to disclose themselves and to join the association can be helpful to develop self-confidence, sense of belongingness, and positive living.

Some patients on ART drug mentioned that they use mobile phone alarm, radio news, and mosque's prayer time as reminders. "My mobile phone is always with me to alarm me the time of my drug" (A 43-year-old ART user). A 31-year-old female ART user also mentioned that she uses radio news for the morning dose and mosques prayer time for the evening dose. This means that those patients using memory aid better adhere to their drugs than nonusers. Most people attending ART are from the low-income group striving for subsistent daily life with stressful situation. Hence, memory aids can be helpful to alert them in any situation. Literature also reported memory aids as important alarming tool for ART drug adherence.^{12,27} In particular, use of phone alarm was found to be vital and effective since patients keep their phone with them any time.²⁸

However, a lot of challenges were reported to hinder patients with HIV/AIDS from taking their drug according to its prescribed regimen. Some of the study participants

discussed that they do not have interest of disclosing their HIV status due to fear of stigma and discrimination.^{29,30} Hence, they tend to delay in timing or miss their drug dose. In this study, 8 of the study participants attending ART come from other areas to hide their HIV status. As a consequence, they spend a lot of money on transportation during drug refill. This imposes them to delay visiting of the clinic or missing the appointment when they are unable to pay for their transportation.²² A 30-year-old woman mentioned that she attended ART drug appointment for 6 years, but she has skipped several doses due to lack of enough money for transportation. Lack of disclosure because of fear of stigma and discrimination was also reported in several studies as a significant barrier for ART drug adherence.^{25,31} The effects of lack of disclosure is very high in a community where awareness about HIV/AIDS is low.^{29,32} Availability of free ART contributed to decreasing trends of stigma and discrimination, but a lot of awareness creation works are needed to achieve better adherence.

Some HIV-infected patients claim their working condition as a reason for failing to follow their prescribed drug regimen. This problem is mostly prevalent among patients who are running their own business, "I delay the time of my drug from minutes to an hour when I am busy with customers" (a 35-year-old ART user). People in tight working conditions tend to forget their drug's time or miss their dose. It was reported that forgetting and tight working conditions are some of the reasons for missing ART drug dose or delay in timing.

Family and Societal Resources. Having support from family members encourages the patients to use their drug as prescribed. The situation of the family is also vital for the patient's drug adherence. It was indicated that patient in a well-integrated family tends to adhere better than patients from families in conflict.^{33,34} Shouldering family responsibility could be an impetus to have a courage of following the right treatment in any circumstances. In contrast, lack of family or children increases the feeling of loneliness and loss of hope, thus less likely to follow the right drug prescription. A 31-year-old single woman on ART shared her experience that she spends much of her time out of home and delays her drug for 2 to 4 hours for a duration of at least 5 to 6 days. Her medical record also indicates her deteriorating health condition, reduction in CD4 count, and weight loss, which could be associated with poor drug adherence. This implies that strong family support could contribute to the patient's ability to cope with the situation and continuous use of the drugs.

Neighborhoods and friends are another social environment in addition to the family support. The influence of this social group is strong since it includes extended family members. Participants mentioned that supports from the neighbors and friends make them feel and connected to member of the community. Visits from their friends and neighborhoods especially during their illness provided them strength and renews their hope. They mentioned as they feel and need physical, psychosocial, or spiritual support. A 40-year-old ART user shared his experience on the importance of neighborhoods' and friends'

visit during his time of illness. Another 31-year-old ART user mentioned how his neighbor is important for him in encouraging and reminding him to take his drug. Majority of the study participants presumably with good adherence mentioned that they have good relationship with their families, neighborhoods, and their communities including the work mates. Nevertheless, this depends on the ability of the patients to be convinced, accept, and disclose their HIV status.

A lot of study participants indicate the significance of support of community-based organizations. Nineteen participants of this study believe the absence of contradiction between ART drug use and religious practice. Many of the orthodox Christians participated in the study believe that holy water renews their hope and helps them to use their medication. A 30-year-old female ART user mentioned that she uses holy water every day. Similarly, protestant Christians in the study mentioned that they invite religious leaders to pray for them when they feel sick. "I attend church frequently and my friends visit me twice a week for praying" (a 40-year-old ART user). Use of religious practice is a common experience among all the 2 categories of patients (ART followers and pre-ART patients) included in the study. It was reported that individuals with dedicated religious practice are more likely to adhere to their drug.³⁵ Moreover, religious individuals have relatively high self-esteem, feel spiritual, and less alcohol consumer,³⁶ thus easily quit unnecessary behavior affecting their health conditions.³⁴

Institutional Resources. A lot of governmental and nongovernmental organizations are actively participating in HIV/AIDS care and support to prevent the transmission of the diseases and improve the livelihood of individuals affected by the disease. They provide financial, material, and psychosocial support. Organizations such as OSSA, Faith-Based Organization, FIDO, WFP, FGA, and Mekdim National Association are some of them providing different services. They provide various care and support services for HIV-infected patients and their affected families when they are willing to disclose themselves. These organizations use volunteer caregivers selected from HIV/AIDS-infected patients who are dedicated to give care and counseling to other HIV-infected patients in need of the services. They closely follow new patients, work on awareness creation, and distribute condom to them. The benefit is high especially for newly diagnosed HIV-infected patients on ART to disclose themselves and benefit from different social services.³⁷

"Presence of home-based care helped me to coping with the challenges, I disclosed myself, get training to volunteer, and give care at my spare time," said a 30-year-old ART user. He considers himself as a person survived from death and wants to dedicate himself to help others. Another 40-year-old ART user indicated that "home-based care helped me to be alive; OSSA helped my children to go to school and supported them uniform clothes and material needed for their schooling." Currently she disclosed herself and participating on HIV prevention activity at OSSA. Home-based care service providers are focusing on

ongoing counseling of positive living and ART drug use. Selecting HIV-infected patients on ART as a volunteer caregiver provides the chance of sharing their life experience on how to overcome challenges to their peers. In addition, they feel comfortable, confident, and courageous being in a group with similar background.

Through home-based care we organize HIV-infected patients to form support groups in which they share their experience on positive living and ART use. They socialize and get to know each other being in the group. They also conduct coffee ceremony and work on HIV prevention by creating awareness in the community on voluntary HIV counseling and testing—OSSA Jimma branch coordinator, key informant.

The OSSA provides training to HIV-infected patients on community self-saving groups and organize them to work and encourages saving as a sustainable livelihood maintain strategy. There are also organizations facilitating job opportunity for people living with HIV like Mekdim National Association.

There are micro-financing organizations that work with us to support the income of HIV-infected patients, they provide them loan for income-generating activities—OSSA branch coordinator, key informant.

Another key informant from Mekdim National Association branch coordinator stated that they have a project called “back to work” in which HIV-infected patients have given priority and being employed by establishing social networking with different organization. They also stated that they arrange an educational opportunity and vocational skill training for HIV victim orphan children. Arrangement of job opportunity empowers the patients to have hope for positive living and income to support themselves and their families.³⁸ Although majority of the participants are from low educational status, all of them have certain arranged work according to their education. Maintaining sustainable livelihood for HIV-infected patients strengthens their financial capacity and avoids economic dependence, which in turn increase adherence of the ART drugs.³⁹

Other organizations such as WFP, in partner with Jimma Medan Act project, provide nutritional support for patients on ART who are in need for food support. Medan Act is one of the faith-based organization working on HIV care and support. A key informant from WFP representative stated that their “organization work in partner with other organizations working on HIV care and support by providing nutritional support for patients whose body mass index (BMI) is less than 18.5, bed ridden, pregnant and nursing mothers positive for HIV.” Provision of nutritional support empowers patients’ internal ability and economic capacity to improve their livelihood.⁴⁰⁻⁴²

The organization also works in collaboration with local organization having direct contact with patients such as hospitals, health center, and community-based organizations. During this time WFP provides nutritional supply to prevent food insecurity and to encourage saving. When the patients improved, they provide them skill training and link to microfinance for loan. After saving for a year, micro-finance provides them initial capital to start their own small business.

For pregnant and nursing mother, nutrition support will be for 2 years, and after that, we encourage them to participate in income-generating activities by providing them training with other partner organization—WFP representative, key informant.

Provision of nutritional support for chronically ill and bed ridden patients helps the HIV-infected patients to continue using their ART drug. Providing nutritional support plays significant role in adhering to their drugs and thereby decreasing HIV transmission. When people adhere to their drug, they will have better clinical outcome. Further, the benefits of the nutritional support for pregnant and nursing mothers are huge in the prevention of mother to child transmission. It is obvious that good nutrition has significant impact on maintaining and strengthening patients’ immune system and ability to fight opportunistic infection (OI).

According to Ethiopian HIV treatment guideline, any HIV/AIDS-positive person has to enroll into care and support, pre-ART or during ART follow-up. Patients ineligible for ART will have to be followed at ART clinic every 3 to 6 months for health monitoring and psychosocial supports. During this time patients will be provided medical check-ups, CD4 counts, and counseling services and make decision on the onset of ART. Continuous visiting of the patients relies on the established relation between patients and the caregivers.⁴³ Most of the participants have acknowledged health-care providers working in the ART clinics and collaborators for their caring services.

Key informants at ART clinic stated that patients visiting ART clinic for drug refill are assessed in reference to their last month’s status of adherence and associated health conditions. The drug refilling will be determined based on the assessment finding; otherwise, they will be referred to counseling services or for further treatments.

Some patients follow their ART at another city because of fear of stigma and discrimination. As mentioned elsewhere in this study, most of the patients are from low socioeconomic conditions. Those patients unable to pay their transportation cost during hospital visit will be paid by the ART clinic. Patients consider the reimbursement as a motivation and follow their appointment. A 31-year-old ART user stated that covering her transportation cost helped her to stick to her drug refill appointments. In addition, provision of ART drug for free has been considered as an impetus by many of the patients. Besides to this, patients will be provided with a kit for prevention of OI, which is called preventive care package (PCP). The PCP kit includes water treatment kit, insecticide-treated bed net, deworming tablet, ORS, condom, and handwashing soaps.

Strength and Weakness of the Study Methods

This study used a qualitative research with salutogenic approach to guide the analysis. The study investigated the issues and subjects with limited number of in-depth interview questions being guided by the researcher in real time. This kind of investigation has a lot of advantages. The obtained data

depend on human experience and thus powerful than data gathered through quantitative research containing predetermined questions intending to answer questions what, when, and how much. With the qualitative research, the researcher has a clear vision on what to expect. Moreover, use of salutogenic model allows making in-depth investigations pertinent to the personal experiences of the patients and institutions involved in the provision of the services. Therefore, this approach makes the analysis stronger and related interpretations valid. As any other research methods, our approach can have some limitations since it includes limited number of participants to test statistical significance. The presence of researcher in the process of data collection is unavoidable and can affect the responses of participants. However, our finding is triangulated with written documents and focus group discussions which can clear out the expected biases.

Conclusion

This study shows a modest proportion of ART attendants achieving the required level of drug adherence. Patients able to develop the skills of using available resources can overcome life challenges and thereby adhere to their drugs. This study identified several factors or resources affecting or motivating the ART users to develop the skill of overcoming challenges associated with their disease and ART drug. These are resources attributed to individual patients, society, and the institutions providing the services. These resources can be any psychosocial, material, and health services contributing the patient's development of strong senses of coherence and positive view for life. Focusing on these resources and capacitating patients to use these resources can be more effective than alleviating hindering factors since individuals can develop positive view for life. These resources are available at formal and informal institutions and would be a better alternative to develop patient's self-confidence to accept positive living and thereby achieve better drug adherence.

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