

## ORIGINAL ARTICLE

**EFFECT OF ACCESS TO ANTIRETROVIRAL THERAPY ON STIGMA, JIMMA UNIVERSITY HOSPITAL, SOUTHWEST ETHIOPIA****Theodros Solomon<sup>1</sup>, MD, Abraham Haileamlak<sup>2</sup>, MD, Belayneh Girma<sup>3</sup>, MD, MPH****ABSTRACT**

**BACKGROUND:** *People living with HIV/AIDS have been stigmatized since the beginning of the epidemic leading to severe social consequences related to their rights, health care services, freedom, self-identity and social interactions. Provision of antiretroviral drugs is believed to contribute in lessening the effect of stigma and discrimination in those who are enrolled in care and treatment. The objective of this study was to determine the level of stigma faced by people living with HIV/AIDS and to explore the effect of access to antiretroviral therapy on stigma against people living with HIV/AIDS.*

**METHODS:** *A cross-sectional study was conducted from August 7 to September 1, 2007 in Jimma University Hospital antiretroviral therapy clinic. A sample of 270 patients attending the antiretroviral therapy during the study period was included in the study. An Amharic version of structured questionnaire containing a 40-point HIV stigma scale was to collect the data. Data were coded, entered in to a computer and analyzed using SPSS for windows 12.0.1.*

**RESULTS:** *Of the total 270 respondents, 149 (55.2%) were on antiretroviral therapy while 121 (44.8%) were treatment naïve but were having follow up in the antiretroviral clinic based on the national antiretroviral therapy guideline. Females comprised 148 (54.2%) of the respondents. Majority of the respondents 208 (77.0%) were in the age group 25-49. The prevalence of actual stigma in people living with HIV/AIDS was low 45 (16.6%) when compared with the fear of being stigmatized (perceived stigma) which was 195 (72.2%). The prevalence of disclosure concern and internalized stigma were 231 (86.3%) and 232 (85.9%), respectively. However, 245(90.7%) of the respondents reported a favorable attitudinal change on stigma with access to antiretroviral treatment. There was a statistically significant association between duration of antiretroviral therapy and favorable effect of access to antiretroviral therapy on stigma reduction ( $p < 0.005$ ).*

**CONCLUSION:** *This study revealed that the fear of being stigmatized in people living with HIV/AIDS is much higher than the actual stigma. Access to antiretroviral drugs has a stigma alleviating effect on people living with HIV/AIDS. Apart from pretest and posttest counseling, psychosocial support and follow-up for PLWHA has to be strengthened, as this would help them to cope up with the internalized and perceived stigmata, which were higher in this study.*

**KEY WORDS:** *Stigma, discrimination, PLWHA, Antiretroviral therapy, Jimma*

**INTRODUCTION**

Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) has become the most deadly epidemic disease in history. Around 40.3 million people are living with HIV/AIDS and of which two third are living in Sub-Saharan Africa (1). Ethiopia, being one of the highly affected countries, HIV/AIDS is the leading cause of morbidity and mortality (2-5). Many people living with HIV/AIDS (PLWHA) have a better quality life as the result of increasing availability of antiretroviral therapy (ART). Nevertheless, many patients in sub Saharan Africa the devastating physical effects have been replaced by psychological conditions including social isolation, condemnation of their

family, friends and society indicating high level of stigma and discrimination) (6, 7).

Stigma is a common human reaction to disease throughout history. Many diseases have carried considerable stigma including leprosy, tuberculosis, mental illnesses and many sexually transmitted diseases (STDS). HIV/AIDS is only the latest disease to be stigmatized (8, 9).

Factors that contributed to stigma include the fact that HIV/AIDS is considered as an incurable disease and people are scared of contracting HIV (9, 10). Besides, PLWHA are often thought as being responsible for getting infected. Religious or moral beliefs lead some people to believe that having HIV/AIDS is the results moral fault such as promiscuity that is sin which deserves to be punished (9-11).

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Stigma is of utmost concern because as it is both the cause and effect of secrecy and denial, which are major catalysts for fueling HIV pandemic. In some places although the advent of free and accessible ART has offered hope and encouraged people to go for testing, stigma remains a barrier to testing (11). Without testing, which is an essential first step to ART people who are infected remain transmitting the virus to others. When individuals seek for care, ART has lost much of its potential effectiveness as a prevention strategy (12, 13).

In many African societies, PLWHA and their family members visit traditional healers before seeking modern health care. In fact, some may not want to be seen near an organization working on HIV/AIDS for the fear of being stigmatized (7, 14). In areas of considerable poverty, expending resources on PLWHA may be thought as wasteful since they will die anyway (14).

Disclosing HIV sero-status can be a double-edged sword. On the one hand, disclosure alleviates the stressful burden of concealment by providing emotional support from others, on the other disclosure exposes PLWHA to stigma and discrimination from others (15). Stigma, by any form creates an emotional burden that has a direct negative impact on disease progression in PLWHA and could also affect adherence to ART (14, 15).

Tackling stigma poses challenges, since it is often based in deeply entrenched social and cultural beliefs. Although stigma is not likely to be eradicated totally, it can be managed somehow (9, 10, 16) and cannot flourish when silence, shame, secrecy and denial are weakened or absent all together (17).

ART drugs have not only improved the life of PLWHA in terms of delaying disease progression and improving quality of life but also seem also to have an effect on stigma (18). The more accessible ART became, the more it is expected that people would feel to know their sero-status using voluntary counseling and testing (VCT) or provider initiated counseling and testing (PICH) (19,20). ART has the capacity to transform HIV infection from an incurable "death sentence" into a treatable "chronic illness", reducing the stigma of the disease and stimulating people's willingness to be tested and disclose their sero-status (18,19,20). It has been documented that access to HAART was a powerful mechanism to reduce HIV related stigma (18).

There is paucity of information concerning the level of stigma and discrimination of PLWHA in sub-Saharan African countries including Ethiopia. In one study done in Jimma on the extent and determining factors for HIV/AIDS

related stigma, 33.4% of those who had not been tested for HIV reported fear of being discriminated by the public if they were found to be positive for HIV (21).

Studies on HIV stigma so far assessed attitudes of the non-infected people about those who are infected to understand why HIV itself is so stigmatized. HIV stigmata in the context of ART have not been explored in previous researches. The increased access to ART in developing countries and its possible mitigating effects on stigma has been suggested as a topic of research priority by different authors (6, 7, 9, 10,16). Therefore, the objective of this study was to estimate the level of different types of stigma and discrimination faced by PLWHA attending ART clinic its association with access to ART.

## MATERIALS AND METHODS

This cross-sectional study was conducted from August 7<sup>th</sup> to September 1<sup>st</sup>, 2006 in Jimma University Specialized Hospital (JUSH) ART clinic, Jimma town. Jimma is located in Oromia region, 335 kms southwest of Addis Ababa. The ART clinic of JUH provides free ART drugs to eligible PLWHA. There is a regular follow up for all registered PLWHA attending the ART clinic and medical evaluation is done by one physician and four nurses who had a special training on ART and HIV care. One senior specialist is available for consultations.

A sample of 287 PLWHA were taken with by assuming estimated prevalence of stigma of 50% , margin of sampling error tolerated to be 0.05 at 95% confidence level. The final sample size was calculated using finite population correction. An estimate was made for the study period with the assumption that on average 15 patients would come to the ART clinic. A clinic based convenient sampling technique was employed where all PLWHA who happened to come to JUH, ART clinic during the study period were included in the study. Subjects with documented HIV positive sero-status in the ART clinic, age 18 years and above and willing to respond to the questionnaire with an informed consent were included in the study.

The variables collected include socio-demographic characteristics; duration of seropositivity; duration of ART for those on treatment and duration of follow-up for those who were treatment naive; attitudinal effects of access to ART on stigma against PLWHA; and variables of stigma types: Internalized stigma, Perceived stigma, Actual stigma and Disclosure concerns.

A 40-point HIV-Stigma scale questionnaire was used to measure the level of stigma and discrimination felt by PLWHA. A structured questionnaire was used to assess if there were

attitudinal changes by access to ART on the stigma and discrimination. After adequate training on the objective of the study and data collection techniques, nurses working at JUH, ART clinic collected the data. The questionnaire was interpreted into Amharic language and retranslated back to English and standardized to have same meaning by all the data collectors. Pretest was done on 10 subjects before the data collection to check the reproducibility of the data collected and an ongoing supervision was made by the principal investigator during the data collection to ensure the quality of data.

The collected data were cleaned, coded, entered and analyzed using SPSS for windows 12.0.1. Pearson's Chi-square tests with Yates correction was performed whenever necessary. P values less than 0.05 were considered as statistically significant.

A very reliable and valid 40-point HIV stigma psychometric assessment scale employed elsewhere was used (22,23). The 40-point HIV stigma scale with its subscales was calculated to quantify the types of stigma. A score of 0 was given for those who answered strongly disagree and disagree. A score of 1 was given for those who chose agree and strongly agree. The scores were summated and a total score greater or equal to 50% was considered as having a stigma. A total score less than 50% was considered as not having a stigma.

For the attitudinal effect of access to ART on stigma, similar scoring was used. Accordingly 1 point was given for those who chose agree and 0 point for those who chose neutral or disagree. The total scores were summated and score greater than or equal to 50% were considered to have favorable effect of access to ART on stigma while those who had a percentage score of less than 50% were considered to have no favorable effect of ART on stigma.

The proposal was approved by the Student research program and permission was obtained from the medical director of JUSH. A verbal informed consent was obtained before interviewing each PLWHA. Confidentiality of the information collected from each respondent was ensured. The objective of the study was explained to the participants.

The following operational definitions were used:

*Overall Stigma:* any measure entailing distinction among persons depending on their confirmed or suspected HIV status. The overall 40 questions of the HIV stigma scale, includes the four types of stigmata.

*Actual stigma (personalized stigma):* is the actual stigma that PLWHA experienced in a real event also called enacted stigma.

*Disclosure concerns:* factors that relate to PLWHA, their worries whether to disclose HIV status or keep it secret.

*Negative self-image (internalized stigma):* the internal feelings of shame and guilt because one has HIV.

*Perceived stigma (public attitude):* the concern of PLWHA with public attitude, the fear of being stigmatized.

## RESULTS

A total of 270 PLWHA participated in the study from a sample size of 287 PLWHA with a response rate of 94%. The non-responses were a few PLWHA who were not willing to respond the interview.

Among the 270 respondents, 122 (45.2%) were males and 148 (54.2%) females. Two hundred eight (77%) were in the age group of 25-49 and 55 (20.4%) were less than 25 years of age and only 7 (2.6%) were the age group 50 years and above. Christians comprised 170 (63.0%), Oromo 139 (51.5 %) and larger proportion 96 (35.5%) attended elementary and 97 (35.9%) for secondary education. One hundred fifty one (55.9 %) were married and 73 (27%) were unemployed (Table 1).

The reason for knowing sero-status or first HIV diagnosis differed among the study participants. The vast majority of the respondents, 183 (67.8%) knew their sero-status for the first time when they got sick, followed by VCT, which accounted for 68 (25.2%). Of the total respondents, 149 (55.2%) were started on ART based on the national ART eligibility guideline and 121 (44.8%) were not started on ART but were having follow-up in ART clinic. For those on ART, a combination of 2 Nucleoside Reverse Transcriptase Inhibitors (NRTI) and 1 Non-Nucleoside Reverse Transcriptase inhibitor (NNRTI) were the regimens that were administered as a HAART. With regards to overall stigma, 231 (85.6%) of the study population had been stigmatized, of which 126 (46.7%) were females and 105 (38.9%) were males. Concerning the different types of stigma, 45 (16.6%) of the total respondents experienced actual stigma, 195 (72.2%) a perceived stigma, 233 (86.3%) had a disclosure concern and 232 (85.9%) had an internalized stigma (Table 1).

Reason for knowing sero-status showed a statistically significant association with internal stigma, disclosure concern and overall stigmata of HIV/AIDS ( $P < 0.05$ ). In those who were on ART, actual stigma and overall stigma were higher than for those who were treatment naïve. In contrast, disclosure concern was shown to be significantly higher among treatment naïve cases than those taking ART ( $P < 0.001$ ) (Table 1).

Of 149 cases on ART, 50(33.6%) had been taking ART for less than 6 months, 49 (32.9%) were taking for a period ranging 6 months to 1 year and 21(14.1%) reported to had been taking

for more than 2 years. On the other hand, of 121 treatment naïve cases 58 (47.9%) had follow up in the ART clinic for less than 6 months, 53 (43.8%) for 6 months –1 year and only 3 (2.5%) for greater the 2 years (Table 1).

One hundred forty four (53.3%) knew their sero-status in the 6month to 3-year period while

89 (33.0 %) for less than six months and only 37 (13.7%) knew since 3 years. There was a statistically significant ( $P < 0.005$ ) association between duration of knowing sero-status and disclosure (Table 2).

**Table 1.** Relation between socio-demographic and other characteristics with the different stigmata types in PLWHA attending JUH, ART clinic, Jimma, South Western Ethiopia, August 2006.

Socio demographic characteristics (n = 270)	Total No (%)	Actual stigma No (%)	Perceived stigma No (%)	Internal stigma No (%)	Disclosure Concern No (%)	Overall stigma No (%)
<b>Sex</b>						
Male	122 (45.2)	16 (5.9)	88 (32.6)	101 (37.4)	105 (38.9)	105 (38.9)
Female	148 (54.8)	29 (10.7)	107 (39.6)	131 (48.5)	128 (47.4)	126 (46.7)
<b>Age</b>						
< 25	55 (20.4)	10 (3.7)	38 (14.1)	48 (17.8)	49 (18.1)	47 (17.4)
25-49	208 (77.0)	35 (13.0)	152 (56.3)	178 (65.9)	178 (65.9)	178 (65.9)
≥ 50	7 (2.6)	0 (0.0)	5 (1.9)	6 (2.2)	6 (2.2)	6 (2.2)
<b>Religion</b>						
Christian	170 (63.0)	30 (11.1)	124 (45.9)	144 (53.3)	147 (54.4)	148 (54.8)
Muslim	93 (34.4)	14 (5.2)	68 (25.2)	83 (30.7)	80 (29.6)	79 (29.3)
Others†	7 (2.6)	1 (0.4)	3 (1.1)	5 (1.9)	6 (2.2)	4 (1.5)
<b>Ethnicity</b>						
Oromo	139 (51.5)	22 (8.1)	99 (36.7)	119 (44.1)	120 (44.4)	119 (44.1)
Amhara	81 (30.0)	14 (5.2)	58 (21.5)	70 (25.9)	72 (26.7)	71 (26.3)
Gurage	13 (4.8)	1 (0.4)	11 (4.1)	11 (4.1)	13 (4.8)	12 (4.4)
Kaffa	20 (7.4)	4 (1.5)	16 (5.9)	16 (5.9)	16 (5.9)	15 (5.6)
Others ∞	17 (6.3)	4 (1.5)	11 (4.1)	16 (5.9)	12 (4.4)	14 (5.2)
<b>Educational status:</b>						
Illiterate	20 (7.4)	2 (0.7)	16 (5.9)	16 (5.9)	15 (5.6)	16 (5.9)
Read & write	46 (17.0)	4 (1.5)	30 (11.1)	41 (15.2)	42 (15.6)	39 (14.4)
Grade 1-6	96 (35.6)	12 (4.4)	71 (26.3)	87 (32.2)	88 (32.6)	89 (33.0)
Grade 7-12	97 (35.9)	26 (9.6)	68 (25.2)	78 (28.9)	78 (28.9)	77 (28.5)
12+	11 (4.1)	1 (0.4)	10 (3.7)	10 (3.7)	10 (3.7)	10 (3.7)
<b>Marital status:</b>						
Single	42 (15.6)	8 (3.0)	31 (11.5)	35 (13.0)	37 (13.7)	34(12.6)
Married	151 (55.9)	22 (8.1)	111 (41.1)	130 (48.1)	131 (48.5)	133(49.3)
Divorced	46 (17.0)	5 (1.9)	32 (11.9)	41 (15.2)	40 (14.8)	39 (14.4)
Widowed	31 (11.5)	10 (3.7)	21 (7.8)	26 (9.6)	25 (9.3)	25 (9.3)
<b>Occupational status</b>						
Unemployed	73 (27.0)	8 (3.0)	54 (20.0)	67 (24.8)	63 (23.3)	64 (23.7)
House wife	69 (25.6)	10 (3.7)	50 (18.5)	61 (22.6)	63 (23.3)	60 (22.2)
Self employed	63 (23.3)	13 (4.8)	44 (16.3)	49 (18.1)	52 (19.3)	53 (19.6)
Gov. employed	22 (8.1)	4 (1.5)	15 (5.6)	19 (7.0)	19 (7.0)	17 (6.3)
Farmer	21 (7.8)	2 (0.7)	13 (4.8)	16 (5.9)	18 (6.7)	18 (6.7)
Local trader	10 (3.7)	3 (1.1)	8 (3.0)	9 (3.3)	6 (2.2)	8 (3.0)
Students	9 (3.3)	3 (1.1)	9 (3.3)	8 (3.0)	9 (3.3)	8 (3.0)
Others ¥	3 (1.1)	2 (0.7)	2 (0.7)	3 (1.1)	3 (1.1)	3 (1.1)
<b>Reason for Knowing sero-status</b>						
Premarital preparation	4 (1.5)	1 (0.4)	4 (1.5)	4 (1.5)	4 (1.5)	4 (1.5)
Death/illness of partner	13 (4.8)	2 (0.7)	9 (3.3)	12 (4.4)	12 (4.4)	12 (4.4)
Travel/visa	2 (0.7)	0 (0.0)	1 (0.4)	1 (0.4)	1 (0.4)	1 (0.4)
When get sick	183 (67.8)	25 (9.3)	134 (49.6)	163 (60.4)	165 (61.1)	164 (60.7)
VCT	68 (25.2)	17 (6.3)	47 (17.4)	52 (19.3)	51 (18.9)	50 (18.5)
<b>Treatment status</b>						
Started on ART	149 (55.2)	31 (11.5)	109 (40.4)	125 (46.3)	115 (42.6)	118 (43.7)
Treatment naïve §	121 (44.8)	14 (5.2)	86 (31.9)	107 (39.6)	118 (43.7)	113 (41.9)

† Traditional beliefs and no religion

¥ House renters

∞ All other ethnicities and nationalities

§ PLWHA on follow up but not started on ART

**Table 2.** Duration after knowing self sero-status knowledge versus disclosure concern in PLWHA attending JUH, ART clinic, Jimma, South Western Ethiopia, August 2006.

Duration after knowing self sero-status	Disclosure concern			P- value
	No No (%)	Yes No (%)	Total No (%)	
<6 months	6 (6.7)	83 (93.3)	89 (33.0)	< 0.005
6 month-3 year	19 (13.2)	125 (86.8)	144 (53.3)	
>3 years	12 (32.4)	25 (67.6)	37 (13.7)	
Total	37 (13.7)	233 (86.3)	270 (100)	

For the questions on stigma in the context of ART which were used to assess the attitude of PLWHA on stigma with access to ART, 268 (99.3%) of the study population agreed that they considered HIV/AIDS as a treatable disease. Most of the respondents 232 (85.9%) considered diseases from opportunistic infections such as chronic diarrhea; tuberculosis and paresis are treatable in HIV

patients. The same proportion of the study participants agreed that they no more fear disclosing their sero-status since there is a treatment for HIV. However, 56 (20.7%) and 55 (20.4%) of the respondents said that they would feel ashamed of visiting ART clinic taking ART drugs, respectively (Table 3).

**Table 3.** Frequency distribution of responses to attitudinal questions on stigma and discrimination in relation to ART in PLWHA attending JUH, ART clinic, Jimma, Southwestern Ethiopia, August 2006.

Attitudinal questions on ART in relation to stigma(n=270)	Agree No (%)	Disagree No (%)	Neutral No (%)
Because ART drugs are available, I consider HIV/AIDS as any treatable Disease.	268 (99.3)	2 (0.7)	0
I believe that ART drugs improve the health of PLWHA.	253 (93.7)	16 (5.9)	1 (0.4)
I consider disease like (TB, chronic diarrhea, paresis) could also be treated in PLWHA.	232 (85.9)	38 (14.1)	0
Because there is a treatment for HIV by ART drugs, I no more fear disclosing my status to friends or any other person I know.	232 (85.9)	37 (13.7)	1 (0.4)
I have seen my friends, family members or persons I know have changed their negative views on me since I started attending ART clinic.	213 (78.9)	54 (20.0)	3 (1.1)
I do not feel ashamed or afraid to visit the ART clinic	208 (77.0)	56 (20.7)	6 (2.2)
I do not feel ashamed or afraid to take ART drugs.	209 (77.4)	55 (20.4)	6 (2.2)

The overall assessment of attitudinal effect of access to ART on the stigma reduction revealed that of the total respondents, 245 (90.7%) of the study participants reported favorable effect of ART on the stigma reduction while the rest 25 (9.3%) said unfavorable effect on stigma. Of the total respondents, 111 (41.1%) males and 134 (49.6%)

of females reported a favorable effect of access to ART on stigma reduction. A

statistically significant( $P < 0.005$ ,) association was observed between duration of ART therapy and effect of access to ART on stigma, the longer the duration on ART, the more favorable effect ART has on stigma reduction (Table 4).

**Table 4.** Attitudinal effect of access to ART on stigma by sex, duration of treatment and duration after knowing self sero-status in PLWHA attending JUH, ART clinic, Jimma, South Western Ethiopia, August 2006.

Variables	Effect of access to ART on stigma and discrimination			P - value
	Unfavorable No (%)	Favorable No (%)	Total No (%)	
<b>Sex</b>				
Male	11 (4.1)	111 (41.1)	122 (45.2)	P > 0.05
Female	14 (5.2)	134 (49.6)	148 (54.8)	
Total	25 (9.3)	245 (90.7)	270 (100.0)	
<b>Duration of ART</b>				
<6 months	15 (10.1)	35 (23.5)	50 (33.6)	P < 0.005
6 month-1 year	7 (4.7)	42 (28.2)	49 (32.9)	
1-2 year	3 (2.0)	26 (17.4)	29 (19.5)	
>2 years	0 (0.0)	21 (14.1)	21 (14.1)	
Total	25 (16.8)	124 (83.2)	149 (100.0)	
<b>Duration after knowing sero-status</b>				
<6 months	10 (3.7)	79 (29.3)	9 (33.0)	P > 0.05
6 month-3 year	13 (4.8)	131 (48.5)	144 (53.3)	
>3 years	2 (0.7)	35 (13.0)	37 (13.7)	
Total	25 (9.3)	245 (90.7)	270 (100.0)	

## DISCUSSION

The study was based on a one-time interview that may not allow to fully explore the stigma and discrimination felt by PLWHA. The complexity of HIV related stigma and discrimination issues might also limit PLWHA from responding confidently to questions related personal experiences. Some of the questions on stigma could be subject to recall bias. A two year experience may not be adequate to determine the interventional outcome of access to ART on stigma which could not be captured from the current data as the Ethiopian experience with ART introduction has not yet reached five years. The study involved only those PLWHA attending the ART clinic of JUSH that came during the study period; those who did not come to ART clinic might have different characteristics. Nevertheless, it has tried to assess the magnitude of stigmata and discrimination faced by PLWHA using a standard HIV stigma scale (22,23). This study has also opened an eye for exploring the effects of access to ART on stigma and discrimination.

HIV/AIDS has increasingly been not merely a medical problem but also a social problem. The social consequences of HIV/AIDS-stigma and discrimination have made the third phase of the epidemic (7, 8, 10, 12). The population of this study is believed to represent those who had challenged the effect of stigma and discrimination and have accessed the benefits of antiretroviral therapy. Although the prevalence of stigma among this population is expected to be lower than the others, its extent reported by this study is alarming. The

overall stigma (85.6%) in PLWHA was higher probably because it comprised the four interdependent subscales of the HIV stigma types. However, such a result is indicative of the magnitude of stigma among PLWHA which calls for an effort to avert stigma and discrimination (9,10).

Regarding the different types of stigma, only 16.6% of the total respondents had an actual stigma which is a discrimination that was experienced at some point in the real life of PLWHA. A study in India using the same stigma scale showed an actual stigma prevalence of 26% in PLWHA (23). Though the figures are comparable, the percentage of actual stigma in this study is quite low. This may be explained by the fact that actual stigma could be underreported since subjects were questioned to report real occasions where they had been stigmatized in their life which might make them uncomfortable. Partly it might also be due to failure to remember past events.

Treatment naïve individuals were found to have a statistically significant ( $p < 0.05$ ) prevalence of actual stigma and overall stigma compared to those on treatment. The difference could be attributed to the duration of exposure to such incidences. Those who were on treatment are expected to have been with the infection for longer time than treatment naïve individuals, thus may have a stigmatizing body appearance with AIDS defining illnesses. Side effects of NRTI's (Stavudine) causing lipodystrophy or rashes resulting in disfigurement can also add further stigma (20). This point needs further explorations in future researches.

Perceived stigma is a public concern or fear by PLWHA that they would be stigmatized. In this study, 72.2% of the study population had a perceived stigma compared to the Indian report where the prevalence was 97 % (23). The difference in the magnitude could be due to cultural differences regarding the fear of being stigmatized.

The disclosure concern (86.3%) in this study is comparable with that of Indian study (85%) (23). When compared with those taking ART, disclosure concern was found to be significantly higher in treatment naïve follow-ups ( $P < 0.001$ ). This shows that PLWHA taking ART might be more confident with the therapy they are taking and are less concerned disclosing their sero-status. This is consistent with the finding of a statistically significant association observed between duration of sero-status and disclosure concern in this study. This implies that longer stay with the virus, they may feel less pressured to disclose their sero-status, get confidence with the ART and the follow up. This is in contrary to a study in Jimma Town where 33.9% of the study subjects who did not know their sero-status reported not let any body know about their sero-status (21). There seems to be a higher disclosure concern in PLWHA than the general population indicating that disclosure concern is more of related to being HIV positive and personal experience of having HIV than merely being a personal choice by an individual.

The study showed a high percentage of internalized stigma (negative self image) compared to an Indian study (20). The disparity could be due to differences in living conditions, life style, cultural and social supports. In spite of this, the trends of the four types stigmata were comparable to the Indian study that used the same HIV stigma scale (23).

There were no statistically significant associations between many of the socio-demographic characteristics PLWHA and different types of stigmata; except for educational status and the actual stigma. With the higher educational status, there was lesser actual stigma experienced by PLWHA. This could be due to the better living and working conditions and social support in those with higher educational status ( $P < 0.05$ ).

All the four types of stigmata were higher in females though there was no statistically significant association. Most of the PLWHA knew their sero-status when they got sick implying that people are not using the VCT centers to know their sero-status. Because of this fact, overall stigma, disclosure concern, and internal stigma were significantly higher ( $p < 0.05$ ) than those whose reason for the first HIV diagnosis was sickness. This is substantiated by the fact that those who sought care when they were debilitated are likely to experience internal stigma and overall stigma. The number of people going to VCT could be more important than

the other reasons of knowing sero-status since it is an indirect indicator of HIV related stigma reduction (19, 24). There seems to be a tendency that with a growing VCT services, people will go forward to know their HIV sero-status.

Of all patients who were on ART, more than two-third had been on treatment for one year or less which can be explained by the late introduction of free ART in our country. However, despite recent introduction, this study has shown that access to ART can have a stigma reduction effect. More than 90% of the respondents had given a favorable response on stigma reduction with access to ART. There was also a statistical significant association between duration of ART and the favorable effect ART on stigma reduction ( $p < 0.005$ ) which is a very encouraging finding. With more duration of ART, the attitude of PLWHA, their relatives and friends towards the disease tends to change (18-20).

In conclusion, this study showed that the overall stigma felt by PLWHA was quite high. But the prevalence of actual stigma was very low when compared to other types of stigmata including disclosure concern, perceived stigma and internalized stigma. Since actual stigma is low compared to fear of being stigmatized, PLWHA should be encouraged to battle against their internal stigma and the fear that hold them from disclosing their sero-status.

Many of the disclosure concerns and stigmata felt by PLWHA could be ameliorated with access to ART and longer duration of treatment. Thus, in the long run, HIV/AIDS related stigma can be expected to decline as it has already become treatable.

Apart from pretest and posttest counseling, psychosocial support and follow-up for PLWHA has to be strengthened as this would help them to cope up with the internalized and perceived stigmata, which were higher in this study. Reinforcing the ways to provide continual psychosocial support and care for PLWHA will reduce stigma that results in worsening of the disease progression affecting drug adherence and by causing psychological problems.

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