

## Assessment of knowledge, attitude and practice regarding water, sanitation and hygiene for people living with HIV/AIDS

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### ABSTRACT

A cross-sectional study was conducted to assess the water, sanitation, and hygiene status and the knowledge, attitude and practice of home-based care clients of People Living with HIV/AIDS (PLWHA) regarding water, sanitation and hygiene (WSH). Interviews and observation of WSH facilities were carried out on 331 randomly selected PLWHA in Hawassa City, Southern Ethiopia. Though the latrine coverage was high, 43% use latrines not easily accessible, 31% use contaminated latrines and 73.4% of the latrines lacked hand-washing facilities. Thirty-four per cent did not have a reliable source of water and 196 (59%) of the households stored water at home for more than one day. Women were more likely to practice personal hygiene as compared to their men counterparts. Although a good level of knowledge and favourable attitudes about WSH related health problems were observed, two-thirds of the participants believed that diarrhoeal infection is not preventable. HIV/AIDS and WSH programmes need to be integrated for better intervention activities in Ethiopia.

**Key words** | attitude, HIV/AIDS, knowledge, PLWHA, practice, WSH

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### INTRODUCTION

Many of the infections which negatively impact People Living with HIV/AIDS (PLWHA)'s quality of life are transmitted through contaminated water and unsanitary living conditions (Kamminga & Wegelin-Schuringa 2003). Provision of adequate water, sanitation and hygiene (WSH) services for PLWHA and their care-givers is vital to improve their hygienic practices to reduce AIDS related morbidity since PLWHA require more water than healthy people need (Ngwenya & Kgathi 2006). Presence of a latrine in a compound has been associated with fewer episodes and days of diarrhoea (the passage of three or more unformed or watery stools during the past 24 hours) among PLWHA (Lule *et al.* 2005).

Various studies have reported the existence of poor hygienic practices among the general population and PLWHA. In Zambia only 55% of home-based clients used narrow neck storage vessels and 12% reported dipping from the container (Kangamba *et al.* 2006). Similarly, in

some Sub-Saharan African countries, only 17% of participants washed their hands with soap after using the toilet, while 45% used only water (Curtis *et al.* 2009). A similar study in Malawi showed that 26.7% used narrow neck storage vessels while 83.3% reported dipping a cup into the storage (Lockwood *et al.* 2006). In India, 95% of PLWHA put their hands inside the water container to take out water (Prüss-Üstun *et al.* 2004).

Economic and time constraints, lack of individual household toilets, lack of fuel for boiling water and water scarcity were reported as problems in transforming knowledge into good WSH practices (Jani 2007). In some African countries the water price in urban areas and distance of water sources in rural areas were barriers for accessibility to safe water (Kangamba *et al.* 2006).

Sixty-two per cent of Africans do not have access to an improved sanitation facility (WHO/UNICEF 2008). Three-quarters of the latrines were pit latrines, which may be

difficult to keep clean (Kangamba *et al.* 2006). In Addis Ababa, Ethiopia 78% of households used pit latrines, of which 23.6% lacked convenience of use (Ngwenya & Kgathi 2006). Lack of convenience of use refers to factors that limit freedom of using the latrines. These problems are critical to PLWHA particularly when they get diarrhoeal diseases.

Access to water supply and sanitation in Ethiopia is amongst the lowest in sub-Saharan Africa and the entire world, where the coverage was 38% and 12% for water supply and sanitation respectively (WHO/UNICEF 2008). Owing to this, it is estimated that over half a million children under the age of five die every year from diarrhoeal diseases (Ethiopia Sanitation Updates 2009). There are also few studies that have examined knowledge, attitudes and practices (KAP) of WSH specifically among PLWHA. Therefore, the objectives of this study were to assess the water, sanitation, and hygiene status of home-based care clients and their KAP regarding WSH in Southern Ethiopia. Information from this study will serve as baseline data for future hygiene intervention programmes integrating with other HIV/AIDS activities in Ethiopia.

## METHODOLOGY

A descriptive cross-sectional study was conducted from December 1–28, 2009 on 331 participants randomly selected from 2209 registered PLWHA in Hawassa City, Southern Ethiopia. The PLWHA in the study area are registered members of 10 different Associations of PLWHA such as Medan Acts, Tesfa Goh, Tilla, Faris and Merry Joy.

Trained home-based care providers (nurses) collected the data using pre-tested and structured questionnaires. Face-to-face interviews and observation of WSH facilities were carried out at the residences of the participants with a focus on accessibility and cleanliness of the latrines and kitchens, accessibility to potable water supply, household water handling and hygiene practices of PLWHA. Data were analysed using SPSS version 12.0. Ethical clearance was obtained from the Regional Health Bureau and the Institutional Review Board of Hawassa University. The PLWHA Associations and Hawassa City Administration also provided permission letters. The data collectors

explained the study to all PLWHA who expressed their willingness and obtained their verbal consents.

## RESULTS AND DISCUSSION

Twenty-six percent ( $n = 85$ ) and 74% ( $n = 243$ ) of the participants were men and women, respectively. The mean age of the study participants was 32 ( $\pm 11.8$ ) years. All of them reported that the PLWHA associations provide their members fringes of benefits or assistances including life-skills training on safe WSH and other palliative services such as food, clothing and rental fees; and 86% of participants have started the antiretroviral therapy (ART).

In this study, 34% of the PLWHA did not have easy access to a safe and adequate source of water (Table 1). One hundred and thirty-seven (31.6%) had no direct source of income and thus, could not afford the cost of water which might force PLWHA to rely on their source of water or mixed sources which is likely to increase the risk of diseases associated with contaminated water.

Government- and self-employed PLWHA felt that their water supply was adequate ( $X^2 = 31.5$ ,  $P = 0.001$ ) as compared to other occupational categories and the unemployed. Government- and self-employed PLWHA, again, were less likely to face problems related to poor latrines (does not provide privacy, shared by several families, inaccessible) ( $X^2 = 26.2$ ,  $P = 0.001$ ). This demonstrates that PLWHA, who were less educated and had no reliable monthly income, have poor access to improved WSH facilities. The survey indicated that 12.1% of the observed 323 latrines were non-functional and 43% were not easily accessible to use by all family members and lacked privacy. Such problems were higher among those using communal latrines. Only 78 (23%) of the latrines had hand-washing facilities, posing a health risk to PLWHA.

One hundred and ninety-two (58.1%), 102 (33.4%) and 286 (86.7%) of the participants correctly mentioned types of water-borne diseases, how these diseases transmit and ways by which water gets contaminated at household level, respectively. Similarly, 309 (94.7%) of the respondents correctly mentioned types of excreta-borne diseases and 139 (42%) pointed out how these diseases proliferate. Furthermore, 262 (79.4%) correctly told the critical times (after

**Table 1** | The status of WSH Services among PLWHA ( $n = 330$ )

Facilities	Frequency, $n$ (%)
Source of water supply <sup>a</sup> :	
Public stand pipes	110 (33.3)
House connections	121 (36.6)
Protected well	19 (5.8)
Unprotected well	10 (3.0)
Purchase	104 (31.5)
Methods of drawing water ( $n = 327$ ):	
Dipping	24 (7.3)
Pouring	274 (83)
Both	29 (8.8)
Others, specify	-
Ownership of the latrine ( $n = 325$ )	
Private	200 (60.6)
Communal/shared	86 (26)
Public	39 (11.8)
Functionality of the latrine ( $n = 325$ ):	
Yes	285 (85.8)
No	40 (12.1)
Lack of accessibility and privacy of latrine ( $n = 323$ ):	
Yes	142 (43)
No	181 (54.8)
Hygiene condition of the latrine ( $n = 439$ ) <sup>a</sup> :	
Flies present	170 (51.5)
No faecal matter	148 (44.8)
Faecal matter present on the floor	102 (30.9)
Far fewer flies seen	17 (5.2)
Cannot access	2 (0.6)

<sup>a</sup>N.B: The total adds up to  $>n$ , as options are not mutually exclusive.

visiting latrines, before preparing foods, before serving foods and after cleaning the bottom of children) when hand-washing is crucially important to prevent WSH related disease. The data indicated that the participants had an adequate level of general awareness as to how water can get contaminated at the household level.

Regarding their attitude, 71% of respondents recognised WSH related diseases as one of the major health problems to PLWHA. However, mixed feelings were observed in terms of health problems arising from WSH. For instance,

19% did not believe that they are at risk of WSH-related diseases and 66.7% did not believe diarrhoea is preventable (Table 2).

The study further shows that 196 (59%) of the households store water for more than one day, 73 (22.1%) for three or even more days. This pattern of household water storage practices was related to the occurrence of diarrhoea. The episodes of diarrhoea were higher among those who stored water for three or more days ( $P = 0.032$ ). The present study indicated that 31% of the 323 latrines cause the greatest risk of contamination due to poor cleaning practices. This, combined with the fact which only 239 (72%) of the household reported to wash hands after using latrines (many of them, only with water), indicates the presence of the potential threat of a cycle of infections among PLWHA.

The daily per capita average water consumption rate was 2 to 8 l which was very low compared to the current national minimum per capita water consumption rate in the city (20 l per person per day); and the average monthly household expense for water was 19.5 Ethiopian Birr. Those who get water from outside of their yard on average travel 15( $\pm 7$ ) minutes to fetch water which is relatively shorter than reported by Siyoum (2009).

As compared to men, women were more likely to practise personal hygiene ( $P = 0.016$ ). PLWHA, who had a better educational background ( $P = 0.001$ ), had better monthly income ( $P = 0.000$ ) and those who were employed ( $P = 0.009$ ) practised good personal hygiene. Obviously,

**Table 2** | Attitudes of study participants towards WSH related diseases ( $n = 330$ )

Statements/Items	Disagree	Agree	Undecided
WSH related diseases are major health problems ( $n = 328$ )	46 (13.9%)	235 (71.2%)	47 (14.2%)
Poor personal hygiene increases risk of infection ( $n = 321$ )	23 (7%)	284 (86%)	14 (4.2%)
Diarrhoea is preventable ( $n = 326$ )	220 (66.7%)	79 (23.9%)	27 (7.3%)
I am at risk of getting WSH diseases ( $n = 326$ )	62 (18.8%)	252 (76.4%)	12 (3.6%)
Excreta-borne diseases are preventable ( $n = 321$ )	26 (7.9%)	275 (83.3%)	20 (6.1%)

women are engaged in almost all domestic activities many of which are related to washing and cleaning. This marks the women's suitability as potential candidates for the planning of hygiene promotion activities among PLWHA at the household level. People with better education had access to multiple sources of information and therefore, were aware of the importance of personal hygiene in general and for PLWHA in particular. This provides a useful insight to the planners, programme managers and implementers of WSH programmes in terms of identifying more appropriate target groups relating to different socio-demographic and economic variables for stimulating social participation in the control of HIV or disease of poverty.

The prevalence of diarrhoea as reported by the study participants was 26% ( $n = 85$ ) out of which the episode affected 46 (55%), 22 (25.8%) and 17 (20%) of the cases once, twice and three or more times per month, respectively. The episodes were related to variables such as storing water at home for more than one day ( $P = 0.035$ ), those who believed that diarrhoea is not preventable ( $P = 0.008$ ), lack of knowledge as to how water gets contaminated in the home ( $P = 0.004$ ) and none or rare cleaning of latrines ( $X^2 = 27$ ,  $P = 0.041$ ). Those who reported a high frequency of diarrhoea were also observed to lack important information needed to prevent the disease. Unfortunately, a significant number of households overlooked the importance of cleaning latrines on a daily basis. Floors of 31% of the latrines were contaminated with faecal matter. This increases the likelihood of contamination of the housing environment. Hence, it could be one of the possible reasons for the increased episodes of diarrhoea among those who did not clean their latrines on regular basis.

## CONCLUSIONS AND RECOMMENDATIONS

The sanitation and hygiene practices among the study population were insufficient, because about 142 (43%) and 102 (31%) of the participants use inconvenient and contaminated latrines, respectively; and 34% of the respondents did not have a reliable or consistent source of water supply. A significant number ( $n = 68$ ) of the respondents used only water to wash their hands after visiting the latrine. The participants demonstrated a good level of knowledge

and favourable attitudes about WSH related health problems, although many of these were not translated into practice. Two-thirds of the participants did not believe that diarrhoea is preventable.

HIV/AIDS and WSH programmes which have been undertaken by various organisations need to be integrated for better intervention activities. Focussed interventions targeting behavioural changes relevant to WSH among the PLWHA is required. Women can be trained and used as best agents for the promotion of WSH practice at household levels. Further studies employing a mixed method (quantitative and qualitative) are required to provide deep and rich understanding of how to improve the WSH situations for PLWHA.

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