

Is Community Conversation Associated with Human Immunodeficiency Virus Voluntary Counseling and Testing Service Uptake in Rural Communities in Ethiopia? A Comparative Cross-sectional Study

Emebet Tekletsadik¹, Mesganaw Fantahun², Debebe Shaweno³

¹Reproductive Health and Nutrition Module, School of Public and Environmental Health, Hawassa University, Hawassa, Ethiopia, ²Professor of Reproductive Health, School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia, ³Health Systems Research and Application Module, School of Public and Environmental Health, Hawassa University, Hawassa, Ethiopia

Abstract

Background: Voluntary counseling and testing (VCT) is a cost-effective tool to prevent and control human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome. Community conversation (CC) is a community-based strategy meant to enhance the community utilization of VCT. However, the role of CC in VCT service uptake has not yet been evaluated. **Aims:** This study was conducted to compare VCT service utilization between rural communities with well CC performance and rural communities with poor CC performance in Shebedino *woreda*. **Materials and Methods:** A cross-sectional comparative community-based study was conducted in 2010 among 462 selected adults in the age bracket of 15-59 years. VCT service uptake was compared between well CC performing communities and poor CC performing communities using two sample test of proportion. Predictors of VCT service uptake were determined using logistic regression model. **Results:** Uptake of VCT service and the related VCT knowledge were statistically higher in well CC performing communities than poor CC performing communities; [73.0% vs. 54.1%, $P < 0.001$] vs. 97.8% vs. 93.8%, $P = 0.034$]. CC, VCT knowledge, and knowledge on HIV transmission were independent predictors of VCT service utilization. **Conclusion:** Uptake of VCT service is higher in well CC performing communities. Emphasis should be given to strengthen CC performance.

Keywords: Community conversation, HIV/AIDS, Voluntary counseling and testing, Ethiopia

Address for correspondence: Debebe Shaweno, Lecturer of Epidemiology, School of Public and Environmental Health, Hawassa University, P.O. Box 1560, Hawassa, Ethiopia. E-mail: debebish@gmail.com

Introduction

Voluntary counseling and testing (VCT) is a cost-effective tool to prevent and control human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS). It encourages people to know their HIV status, thus helping to break the chain of transmission of the

infection. VCT is also a key entry point to care and support services for people living with HIV/AIDS.^[1]

VCT service utilization is low in Ethiopia, only 20% of women and 21% of men have been tested for HIV and received the results in 2005 indicating that many people living with HIV/AIDS in Ethiopia do not know their HIV status.^[2] However, to foster attitudes and behaviors that promote counseling and testing among community leaders and in communities, a community-based strategy called "community conversation" (CC) was introduced in Ethiopia in 2002.^[1,3]

CC is a facilitated interactive process which brings people together and engages them to explore the underlying causes fuelling the HIV/AIDS epidemics

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in their environment.^[3] It focuses on generating action plans. It has explicit problem solving agenda, aiming to incite critical thinking that enables people to formulate solutions to local issues.^[4,5] CC is a process for dialogue and decision-making-for communities to investigate into the deep causes of the epidemic in their lives and generate their own solutions.^[6] CC is one of the nation's strategies to increase VCT service utilization.^[1] Its main purpose is empowerment of communities and individuals to identify and address issues that are important to them.^[3,7]

The facilitators of CC in Ethiopia are Health Extension Workers (HEWs) who shared the ethnicity, home language, and had grown up in the same district of the CC participants. HEWs were trained on the facilitation skills and CC methodology frame work. They conduct CC every 2 weeks for a cross section of 36-40 people from the community-men and women, old and young, people living with HIV/AIDS and those who are not infected, religious, community and traditional leaders, and members of the community at large.^[6] A CC participant graduates after completing 24 CC sessions.^[8]

Aided by skilled facilitators from their own communities, people openly talk to each other and explore the implications of HIV/AIDS, identify their own cultural norms and values that are fuelling the epidemic and the social capital within the community to overcome them.^[5,6]

During CC session, the facilitator poses questions related to HIV including but not limited to driving factors for HIV transmission in the community, health, social, economical, and psychological impacts of HIV/AIDS and role of VCT in HIV care and prevention.^[6,8]

As problems and solutions are discussed, the facilitator guides the participants to develop concrete action plans. The facilitator convenes additional conversations on an on-going basis to discuss how implementing the action plans is going.

Though studies that related CC with HIV or VCT are scarce, the role of CC in increasing HIV-related competence has been demonstrated in one qualitative study conducted in Zimbabwe.^[4] Also as a result of CC in Ethiopia, it is reported that CC participants have travelled long distance to the nearest health facility to get tested for HIV and convinced their partner to get tested. Moreover, CC is said to bring positive change with regard to receiving HIV test before marriage.^[6] It also is a powerful tool to reduce risk behavior toward HIV and promotes HIV prevention and stigma reduction.^[3,9]

However, the role of CC on VCT service uptake has not yet been evaluated using sound scientific methods

in Ethiopia. This study was designed to compare VCT service utilization between rural communities with well CC performance and rural communities with poor CC performance in Shebedino *woreda*, South Ethiopia.

Materials and Methods

The study was conducted in Shebedino *woreda*, Sidamo zone, Southern Nations Nationalities and Peoples Region, Ethiopia in November 2010. Sidamo zone is situated 274 km south of Addis Ababa. The *woreda* comprises of 35 *kebeles* (3 urban *kebeles* and 32 rural *kebeles*).

A cross-sectional comparative study was conducted among adult population who were in the age range; 15-59 years in the selected six *kebeles* (*kebele* is the smallest administrative unit) of the *Woreda*. The study protocol was approved by Research Ethical Committee of the School of Public Health, Addis Ababa University. Data were collected after securing informed consent.

Sample size and sampling

Sample size was calculated using Epi Info sample size calculator (Epi Info 3.3.2, CDC) for two population proportion by taking proportion of VCT service utilization of 20.1% among communities with well CC performance.^[10] A 10% difference was assumed between well and poor CC *kebeles* so that the proportion of VCT service utilization among poor CC communities was set at 10.1%. Other assumptions considered were: 95% confidence level, 80% power, 5% level of significance, and the ratio of well to poor CC(r) = 1. The final sample size was 321 for each group. The source population was 15-59 years old population residing in rural *kebeles* implementing CC in Shebedino *woreda*.

Rural *kebeles* were classified into well and poor CC groups based on their major activities on CC performance. Four major criteria (CC methodology frame work, number of participants, number of CC groups, number of decisions undertaken, document handling, and reporting) were considered to classify the study *kebeles* into well and poor CC groups. The CC performance of each *kebele* was evaluated by giving weights to each criterion. Accordingly, all *kebeles* were evaluated out of 10 (the sum of scores to each activity under the four criteria). A *kebele* was labeled as well performing CC group if its CC score was equal to or greater than the median value of 4.75; otherwise, it was labeled as a poor CC performing *kebele*. Detail descriptions on the criteria used to score CC is annexed [Table 1].

Out of 35 rural *kebeles* in the *Woreda*, 25 qualified to be sampled (seven *kebeles* had stopped CC). The 25 rural *kebeles* were stratified by their CC status into

Table 1: List of criteria and weight used to classify kebeles into poor and well CC groups

Criteria	Weight given
Implementing CC according to its methodological frame work.	3
<i>Establishing and strengthening relationship</i>	0.5
<i>Identification of concern</i>	0.33
<i>Exploration of concern</i>	0.5
<i>Identifying and organizing capacity and resources</i>	0.33
<i>Decision making and planning</i>	0.5
<i>Implementation/Action</i>	0.51
<i>Reflection and review</i>	0.33
The number of participant and groups.	2
<i>which started 4-6 CC groups</i>	0.5
<i>which had 240-360 participant at the beginning</i>	0.5
<i>which graduated 240-360 participants</i>	0.5
<i>which graduated 4-6 CC group</i>	0.5
The number of decisions undertaken during conversation and making them as part of <i>kebeles</i> development agenda and implementing them.	4
<i>Raised 4-5 topics for conversation.</i>	1
<i>4-5 agenda get decisions during conversation and made part of the kebeles development agenda.</i>	1.5
<i>Implementing 4-5 agenda which were taken as part of the kebeles development agenda</i>	1.5
For document handling and reporting	1
<i>With 14-20 discussion minutes</i>	0.34
<i>With 14-20 attendance list</i>	0.33
<i>With 7-10 monthly reports</i>	0.33
Total	10

CC = Community conversation

well ($n = 13$) and poor ($n = 12$). Then, *kebeles* under the two strata (well and poor) were further stratified into proximal (within 5 km), medium (5-10 km), and distal (more than 10 km) by their distance from the *Woreda* capital. One *kebele* was selected from each stratum by lottery method. From each selected *kebele*, proportional number individuals were included into the sample. Then households from the selected *kebeles* were selected using systematic random sampling technique through a door to door survey. From the selected households, data were collected from the selected adults in the age bracket of 15-59 years. When there were more than one eligible study participants, one was selected by lottery method. A structured questionnaire was used to collect the data. The tool was translated into local language (Sidamgna). Trained diploma nurses who are bilingual were recruited as data collectors. Same gender interviewers were used to decrease discomfort as some of the questions were about personal sexual lifestyle. Pretest was undertaken on 15% the sample before the actual data collection.

Data were entered into Epi Info 3.3.2 as part of data quality management and analyzed using SPSS version

16.0. Upon checking completeness and consistency of responses, 2.2% questionnaires were excluded from the analysis because they were partially filled.

Variables

The magnitude of VCT service uptake was determined by counting the number of study participants who underwent HIV test on voluntary basis. Risky sexual behavior was documented if the study participant had at least one of the following: Sex without condom, sex with multiple partners, inconsistent condom use, and sex after alcohol use. To measure knowledge, comprehensive set of knowledge questions was posed. Correct responses were given 1 and incorrect responses 0. The responses were summed for each study participant. Those who scored above the mean were considered as knowledgeable.

Statistical analysis

Percentages were used to determine the magnitude of knowledge and uptake of VCT service. A two sample proportion test was used to test the presence of statistical difference in the proportion of VCT service utilization between the two CC groups.

To determine the association between different predictors and VCT service utilization (dependent variable), a logistic regression model was employed. First, each predictor was entered into a separate binary logistic regression model to determine the crude effect of each variable on VCT uptake. Second, to account for the effect of confounders, a multiple logistic regression model was fitted with all predictors that have $P \leq 0.3$ in the bivariate model. Eventually, only those variables that remained significant at $P \leq 0.05$ in the final model were retained as independent predictors of VCT service uptake.

Results

Description of the study population

A total of 452 study participants completed the interview giving a response rate of 97.8%. The main reason for nonresponse was being busy in farming activities (60%). Nonresponse rate was not different by CC status.

Of the 452 who participated in the study, 226 (50.0%) were from well CC performing *kebeles* and 226 (50.0%) from poor CC performing *kebeles*. Female study participants constituted 53.5% in well and 50.0% in poor CC performing *kebeles*. Majority of the study participants; 119 (52.7%) in well and 109 (48.2%) in poor CC performing *kebeles* were in the age range of 15-24 years.

With respect to educational status, near to half of the study participants in well (44.7%) and in poor (46.9%)

CC groups had no formal education. Regarding religion, about [183 (81.0%) vs. 180 (79.6%)] of the study participants were protestant in poor and well CC groups. Almost all of the study participants; 218 (96.5%) in well and 216 (95.6%) in poor CC groups were Sidama in ethnicity. Married study participants were [141 (62.4%) vs. 121 (53.5%)] followed by single [84 (37.4%) vs. 102 (45.1%)] in poor and well CC groups, respectively. Of the study participants; (37.6% vs. 30.5%) were students in occupation, followed by housewives (27.0% vs. 26.5%) and farmers (23.0% vs. 23.7%) in well and poor CC groups, respectively.

Majority of the study participants; [146 (64.6%) in well and 160 (70.6%)] in poor CC performing *kebeles* had started sexual intercourse by the time of data collection [Table 2].

To determine the comparability of the study participants between well and poor CC performing *kebeles*, two sample

test of proportion for major sociodemographic factors was computed. Accordingly, the study participants in well and poor CC performing *kebeles* were not statistically different ($P > 0.05$) by sex, age, religion, ethnicity, education, marital status, occupation, sexual practice, age at first sex, condom utilization, and risky behavior for HIV. Therefore, the study participants in well and poor CC performing *kebeles* were comparable [Table 2].

VCT Service utilization among the study participants

Significant number of study participants from well CC group compared with participants from poor CC group knew that VCT is important to break the chain of HIV spread (97.8% vs.93.8%, $P = 0.034$).

More study participants from well CC performing *kebeles* utilized HIV voluntary counseling and testing service than from poor CC performing *kebeles* (73.0% vs. 54.9%, $P < 0.001$). When the study was conducted, the operation period for CC was about 8 years. More than 97% of the study participants who utilized VCT did so with in 4 years before the survey which is 4 years well after the initiation of CC.

Predictors of VCT service uptake

The association of different predictors with VCT service uptake was assessed by fitting them into a logistic regression model. Accordingly, the odds of HIV test uptake for participants from well CC performing *kebeles* was found to be 2.5 times that for participants from poor CC performing *kebeles* [Adjusted Odds Ratio (AOR) (95% confidence interval (CI) = 2.51(1.63,3.86)]. And also those found in the age bracket of 15-24 years had the higher odds of HIV test uptake than those between 35 and 59 years [AOR (95% CI) = 3.14(1.37, 7.20)]. The odds of HIV test uptake was about three times higher in singles than in married [AOR (95% CI) = 2.55 (1.09, 5.99)]. Similarly, the odds of HIV test uptake was 3.36 times higher in traders than in farmers [AOR (95% CI) = 3.36 (1.03, 10.96)] [Table 3]. Also, the participants' knowledge about the benefits of VCT and the ways of HIV transmission were predictors of VCT service uptake with their corresponding estimates of [AOR (95% CI) = 3.51(1.15, 10.67)] and [AOR (95% CI) = 2.03(1.05, 3.91)], respectively [Table 3].

However sex, religion, occupational status other than trader, alcohol consumption, the preferred ways to get VCT result, attitude toward People Living with HIV/AIDS (PLWHAs) and knowledge about HIV prevention did not show statistically significant association with VCT uptake [Table 3].

Table2: The sociodemographic and sexual history of the study participants

Variables		Well CC N = 226 (%)	Poor CC N = 226 (%)	P value
Sex	Male	105 (46.5)	113 (50.0)	0.45
	Female	121 (53.5)	113 (50.0)	0.54
Age	15-24	119 (52.7)	109 (48.2)	0.34
	25-34	80 (35.4)	91 (40.3)	0.28
	35-59	27 (11.9)	26 (11.5)	0.88
Education	No education	101 (44.7)	106 (46.9)	0.64
	Primary	87 (38.5)	86 (38.1)	0.92
	Secondary and above	39 (16.8)	34 (15.0)	0.52
Religion	Protestant	183 (81.0)	180 (79.6)	0.72
	Catholic	17 (7.5)	11 (4.9)	0.24
	Orthodox	14 (6.2)	11 (4.9)	0.53
	Other	1 (0.4)	4 (1.8)	0.17
Ethnicity	Sidama	218 (96.5)	216 (95.6)	0.63
	Other	8 (3.5)	10 (4.4)	
Marital Status	Single	102 (45.1)	84 (37.2)	0.08
	Married	121 (53.5)	141 (62.4)	0.06
	Other	3 (1.3)	1 (0.4)	
Occupation	Farmer	52 (23.0)	58 (25.7)	0.51
	House wife	61 (27.0)	60 (26.5)	0.91
	Trader	15 (6.6)	16 (7.1)	0.85
	Student	85 (37.6)	69 (30.5)	0.11
	Other	13 (5.8)	23 (10.2)	0.08
Had sexual intercourse	Yes	146 (64.6)	160 (70.6)	0.15
	No	80 (35.4)	66 (29.4)	
Risky behavior for HIV	Yes	2 (0.8)	3 (1.3)	0.65
	No	224 (99.1)	223 (98.7)	

HIV = Human immunodeficiency virus

Table 3: Factors associated with voluntary counseling and testing uptake (n = 452)

Covariates		Had VCT		COR (95% CI)	AOR (95% CI)
		Yes	NO		
Sex	Male	142	92	1	1
	Female	147	71	1.3 (0.91,1.93)	0.84 (0.40,1.74)
Age	15-24	152	76	1.51 (0.91,2.55)	3.14 (1.37,7.20)*
	25-34	92	53	1.31 (0.75,2.29)	1.44 (0.77,2.67)
	35-59	45	34	1	1
Religion	Orthodox	15	10	1	1
	Protestant	233	130	1.2 (0.52,2.74)	1.55 (0.63,3.86)
	Catholic	18	10	1.2 (0.39,3.65)	1.50 (0.43,5.19)
	Other	23	13	1.18 (0.41,3.37)	1.45 (0.44,4.75)
Marital status	Married	169	93	1	1
	Single	117	69	1.07 (0.73,1.58)	2.5 (1.09,5.99)*
	Other	3	1	1.77 (0.18,17.34)	4.81 (0.39,59.28)
Occupation	Farmer	72	38	1	1
	House wife	72	49	0.78 (0.45-1.32)	0.71 (0.35-1.45)
	Trader	27	4	3.56 (1.16,10.9)*	3.36 (1.03,10.96)*
	Student	97	57	0.9 (0.54,1.50)	0.87 (0.36,2.10)
	Other	21	15	0.79 (0.34,1.60)	0.66 (0.28,1.58)
CC	Well	165	61	2.23 (1.50-3.30)*	2.51 (1.63,3.86)*
	Poor	124	102	1	1
Source of information	Yes	107	62	0.23 (0.08,0.69)*	0.84 (0.52,1.4)
Media	No	177	90	1	1
Health Extension Workers	Yes	185	79	1.89 (1.28,2.79)*	2.2 (1.4,3.4)*
	No	104	84	1	1
Relative	Yes	10	3	0.25 (0.08,0.73)*	2.2 (0.54,8.8)
	No	274	149	1	1
Health institution	Yes	203	79	0.34 (0.12,0.99)*	2.4 (1.5,3.8)*
	No	81	71	1	1
Spouse	Yes	9	3	0.25 (0.08,0.72)*	2.2 (0.5,8.7)
	No	274	149	1	1
VCT Knowledge	Knowledgeable	166	99	1.15 (0.78,1.70)	1.38 (0.83,2.31)
	Not knowledgeable	123	64	1	1
HIV transmission Knowledge	Knowledgeable	226	137	2.20 (1.21,3.9)*	2.03 (1.05,3.9)*
	Not knowledgeable	23	26	1	1
VCT reduces the spread HIV virus	Agree	284	150	4.92 (1.77,14.)*	3.51 (1.2,10.7)*
	Disagree	5	13	1	1
Knowledge of HIV prevention	Knowledgeable	83	32	1.65 (1.04,2.6)*	1.76 (0.95,3.29)
	Not knowledgeable	206	131	1	1

*significant at $P < 0.05$, AOR = Adjusted Odds Ratio, CC = Community conversation, CI = Confidence interval, COR = Crude Odds Ratio, VCT = Voluntary counseling and testing

Discussion

This study showed that significantly higher proportion of the study participants from well CC performing *kebeles* had utilized VCT compared with participants from poor CC performing *kebeles* ($P < 0.001$). This could be due to change in the community understanding of the pandemic as a result of CC sessions. Similarly, CC as a powerful tool in reducing risky sexual behavior embedded in the community and an early marriage has been documented in Ethiopia.^[3] On the contrary, though could not reach statistical significance, representation of larger number

of students in well CC group compared with poor CC group could have also positively affected the observed association.

VCT service uptake documented in the current study for well CC *kebeles* is higher than that reported in the recent Ethiopia Demographic and Health Survey (EDHS) report (73% vs. 67%).^[11] Our finding that CC is an independent predictor of VCT service utilization is further supported by different reports from Ethiopia,^[3,6,10] where after the CC program initiation, VCT service uptake showed increment. Moreover,

being sexually active, having sex with a partner and having a colleague who utilized VCT were the reported predictors of VCT uptake among college youths in Ethiopia.^[12]

The proportion of the study participants who knew that VCT service is important in reducing the spread of HIV infection was significantly higher in a well CC group ($P = 0.034$). The finding suggests that CC plays key role in improving knowledge of the community with regard to VCT.

Positive attitude toward VCT reported in this study (97.8% in well and 93.8% in poor CC groups) was consistent with a Harar and Jijiga^[3,13] studies.

Consistent with a study done in North and South Gonder,^[14] those who were in the age range of 15-24 years were found to significantly utilize VCT service compared to those aged between 35 and 59 years.

The finding that knowledge about HIV transmission is associated with HIV test uptake was also reported from Blantyre, Malawi.^[15] As with the current study, lack of association between sex and religion has been reported by a study conducted in Ethiopia.^[16]

This study is robust in that it has used a comparative cross-sectional design having a power of 80% to discriminate the difference. The study population were also homogenous on major sociodemographic characteristics, other than CC group, and hence were comparable. It has also used standard questionnaire from previous HIV behavioral surveillance surveys. Unlike the previous studies, this study determined the role of CC in VCT service utilization.

Apart from its strengths, this study has short comings also: It was difficult to establish temporal relationship between CC and utilization of VCT. Moreover, the criteria used to classify *kebeles* into well and poor CC groups were quite general and not specific to HIV/VCT topics. Though CC is advocated as a powerful tool, its benefits are offset by its dependence on the facilitators' skills. The criteria used to classify study *kebeles* into well or poor CC groups did not take facilitation skill into account. Thus misclassification bias cannot be ruled out. The bottom line assumption was if *kebeles* had generally well CC performance, they would address HIV/VCT well. However, as there are lots of community felt problems to be discussed in CC, the share of HIV/VCT might be low. Consequently, even in a well CC *kebele*, HIV/VCT topics might be addressed poorly. Though it is known that VCT uptake varies with VCT modality as a community-based or facility-based,^[17] the study could not separate one

modality from the other VCT modality. Another, noteworthy limitation is that the definition of risky sex in this study did not take into account the HIV status of the sex partner of the study participant.

Conclusion

This finding suggests that well CC performance is associated with increased VCT service uptake. Therefore, HIV interventions in the rural communities should support CC performance.

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