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Level of Comprehensive Knowledge about HIV and Socio Demographic Factors Associated with it among Male and Female Age 15-49 Years in Ethiopia

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ABSTRACT

BACKGROUND

In Ethiopia only one-quarter of young women and one-third of young men have a comprehensive knowledge of AIDS.

According to recent data from the Ethiopian demographic and health survey (EDHS 2016), national level of comprehensive knowledge about HIV among men and women age 15 years - 49 years is 27.9 % (n = 7613).

This study aims to assess [1] level of comprehensive knowledge about HIV [2] socio demographic factors associated with it among adults age 15 years - 49 years.

METHODS

Demographic and health surveys in 2016, in Ethiopia were analyzed in SPSS, using multivariate logistic regression. Socio demographic variables were selected based on their availability in the dataset. We used comprehensive knowledge about HIV as the outcome variable using the recommended definition by EDHS 2016 Ethiopia descriptive statistics were employed to show the distribution of socio-demographic characteristics.

RESULTS

Of the total sample of 27289 of men and women 15 years - 49 years at the time of survey, 27.9% (n = 7613) have comprehensive knowledge about HIV.

About 79.8% of the variation in the outcome variable (comprehensive knowledge about HIV t) is explained by the independent variables included in model.

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Men and women in the 15 years - 19 years age group AOR 15.287 (95% CI 9.430 - 24.780) and men and women age 15 years - 49 years in urban areas (AOR 29.337; 95% CI: 18.093 - 47.569) were found to be major contributing factors with level of comprehensive knowledge about HIV.

CONCLUSION

Factors associated with comprehensive knowledge on HIV include: Age and residence programs designed should target older age groups and education about HIV/AIDS in rural areas, in particular needs to be improved messages using radios will increase comprehensive knowledge.

KEYWORDS

Comprehensive knowledge about HIV; EDHS; Socio demographic; Ethiopia

ABBREVIATIONS

AIDS: Acquired Immunodeficiency Syndrome; AOR: Adjusted Odds Ratio; CI: Confidence Interval; COR: Crude Odd Ratio; DHS: Demographic Health Survey; EDHS: Ethiopian Demographic and Health Survey; HIV: Human Immune Deficiency Virus; ICF: Inner City Fund; SDG: Sustainable Development Goal; SNNP: Southern Nations Nationalities and People; SSA: Sub-Saharan Africa; TV: Television; UNAIDS: United Nations Programme on HIV and AIDS; UNGASS: United Nations General Assembly Special Session; UNICEF: United Nations International Children's Emergency Fund

INTRODUCTION

According to the Joint United Nations Programme on HIV and AIDS (UNAIDS), 36.7 million people were living with HIV globally by end of year 2016, yet 30% did not know their HIV status [1,2].

Only in Zimbabwe (2010-2011) does comprehensive knowledge about AIDS increase steadily with respondents' age, from 54 percent of women age 15 years - 24 years to 63 percent of women age 45 years - 49 years [3].

Studies from other African countries and eastern India also revealed that comprehensive knowledge of HIV/AIDS ranged from 9% to 42%; however, studies from Brazil and Europe showed a higher (more than 90%) degree of HIV/AIDS and related issues awareness [4,5].

The 2005 Ethiopia demography health survey (EDHS) indicates that only one-quarter of young women and one-third of young men have a comprehensive knowledge of AIDS [6,7].

According to the United Nations General Assembly Special Session (UNGASS) target set in 2001, 95% of young adults need to have correct and comprehensive knowledge of HIV/AIDS [8]. Yet, this is far below the target, since only 33% of young women demonstrated comprehensive knowledge of HIV/AIDS in national household surveys in SSA [9].

Lack of accurate and complete knowledge is one of the major causes of increase in the number of new HIV infections among women in Africa. Globally, less than (30%) of young women have comprehensive knowledge of HIV [10].

In Ethiopia, The levels of overall (57%) and comprehensive (18.5%) knowledge of HIV/AIDS among different population groups including adolescents were lower [7,11].

In all countries except Kenya, comprehensive knowledge about AIDS is higher among urban than rural men, reaching 74 percent in Malawi in 2010 [3]. High awareness levels alone are not enough to combat HIV/AIDS infection [12].

Among the strategies to achieve SDG: 3.3 was the reduction of new HIV infections to less than 40,000 annually by 2018 and to less than 20,000 by 2020 [13].

Individuals can reduce their risk of HIV infection by limiting their exposure to known risk factors. Inaccurate knowledge and misperceptions are the main barrier to preventing the spread of HIV/AIDS [14-17].

Researches on the spread and determinants of HIV/AIDS in sub-Saharan Africa have shown differences by age, sex, urban/rural residence, and geographical regions within and between countries [18].

In Ethiopia, there are no studies that have assessed the level of the comprehensive HIV/AIDS knowledge in general population and there was limited information on comprehensive knowledge as an indicator of current HIV/AIDS intervention by previous studies done in Ethiopia.

Furthermore, after three decades of AIDS pandemic, it is believed that measuring knowledge of HIV/AIDS by a single awareness question (asking a question such as ‘‘Have you ever heard of HIV/AIDS?’’) is simply misleading and inappropriate.

This study tried to assess the level of the comprehensive HIV/AIDS knowledge and the factors associated with it among adults age 15 years - 49 years in Ethiopia.

METHOD

Data and Variables

The data used in this study was derived from the EDHS conducted in 2016. In the EDHS 2016, a sample of 16,650 residential households was selected in two stages. Enumeration areas were selected with probabilities proportional to size followed by systematic sampling of households from each enumeration area with an equal probability. Interviews were completed with a total of 15,683 women aged 15 years - 49 years and a total of 11606 men aged 15 years - 49 years from the selected households. They were interviewed on a range of socio-demographic and health issue [19].

Outcome Variable

We used comprehensive knowledge about HIV as the outcome variable using the recommended definition by EDHS 2016 Ethiopia comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV.

Two most common local misconceptions: HIV can be transmitted by mosquito bites and a person can become infected by sharing food with a person who has HIV for women and men 15 years - 49 years age (1 if the people have comprehensive knowledge about HIV 0 otherwise).

Co-variates

The basic socio-demographic variables were selected based on their availability in the dataset The included basic socio-demographic factors are highest education level (categorized as “No education”, “Primary”, “Secondary” ,“More than secondary”)and working status in the past 12 months (“Not working” or “Working and occupation status (“Not working”, “Non-agriculture” and “Agriculture”), marital status (“Never married”, “Currently married”, “Living together”, “Divorced/separated” and “Widowed”) age (“15 years - 19 years”, “20 years - 24 years”, “25 years - 29 years” 30 years - 34 years” “35 years - 39 years” “40 years - 45

years" and "45 years - 49 years") and mothers exposure to mass media ("No" or "Yes").

Number of living children ("1", "1-2", "3-4" and "5+") , Literacy ("Cannot read at all ", "Can read part/whole sentence" and "Other").

Household factors included household wealth index (categorized as "Poorest", "Poorer", "Middle", "Richer" and "Richest"), the household wealth index was calculated using scores based on household assets with analyses conducted by the National Population Commission and Inner City Fund (ICF) International based on a methodology developed from previous DHSs [20,21] and using methods recommended by the World Bank Poverty Network and United Nations International Children's Emergency Fund (UNICEF) [22].

Community level factors recorded were the place of residence ("rural" or "urban") and geographical region.

The geographical regions were grouped into nine regional states of Ethiopia; namely Afar, Amhara, Benishangul-Gumuz, Gambella, Harari, Oromia, Somali, Southern Nations Nationalities and Peoples' Region (SNNP), and Tigray, and two city administrations named Addis Ababa and Dire Dawa [19].

Statistical Analysis

Sampling weights provided with the EDHS dataset were used during analysis further details on sample weights can be found in the EDHS report [23].

Descriptive statistics were employed to show the distribution of background characteristics. We used logistic regression model to determine the true association between comprehensive knowledge about HIV and basic socio-demographic factors. Both unadjusted and adjusted odds ratios (ORs) were reported with 95% confidence intervals (95% CI). Besides, diagnostic tests were done, particularly goodness of fit of the model by the Hosmer and Lemeshow test; (where p-value of 0.959 was found), The Cronbach's alpha result of the variables is 0.898. The Nagelkerke R square shows that about 79.8 % of the variation in the outcome variable (comprehensive knowledge about HIV) is explained by this logistic model. The overall accuracy of this model to predict subjects having comprehensive knowledge about HIV (with a predicted probability of 0.5 or greater) is 89.1% . All analyses were performed using statistical software SPSS (Version 16.0).

Ethics Approval

This study is a secondary analysis of publicly available dataset where permission was obtained through registering with the DHS website and therefore no ethics approval was required.

RESULT

Baseline Characteristics

Of the total sample of 27289 of men and women 15 years - 49 years at the time of survey, 27.9% (n = 7613) have comprehensive knowledge about HIV.

As summarized in Table 1, majority (57.5%) of the respondents were female and a predominant percentage of the men and women 15 years - 49 years lived in rural areas (78.8%), respondents in the regions of Oromiya were (37.1%) and Amhara (24.3%). 32.1% of men and women 15 years - 49 years reported not working in the past 12 months at the time of survey, and 39.2% did not have any formal education. In addition to education status, around 45.9% of men and women 15 years - 49 years reported having poor literacy skills and could not read at all.

Majorities (39.8%) of the respondent's occupation were agriculture, 28.1% were non agriculture employee in addition, and 43.8% of the respondents were orthodox religion followers.

In terms of men and women 15 years - 49 years age, overall 21.8% of men and women were between 15 years and 19 years of age. Most men and women 15 years - 49 years (58.9%) reported as currently married at the time of the survey. Of the total, only 16.4% were in lowest wealth quintile and 26.0% were in the highest wealth quintile.

In terms of the number of living children , about 39.7% of men and women 15 years - 49 years reported to have one living children and 20.7% had more than 5 number of living children during survey.

Regarding exposure to mass media, 6.2% read newsletter, 18.1% watch to TV and 21.7% listen to radio.

Bi-Variable Analysis

An increase in one-year in age (COR = 0.349; 95% CI: 0.339 - 0.359) were less likely to have comprehensive knowledge about HIV.

Odds of comprehensive knowledge about HIV among men and women age 15 years - 49 years in urban areas 6.338 times higher (COR = 6.338; 95% CI: 5.953 - 6.748) than rural areas.

Men and women age 15 years - 49 years in afar are 0.799 (COR = 0.799; 95% CI: 0.719 - 0.888) times less likely to have comprehensive knowledge about HIV than tigray region of Ethiopia.

Men and women age 15 years - 49 years in Amhara are 0.222 (COR = 0.222; 95% CI 0.200 - 0.246) times less likely to have comprehensive knowledge about HIV than tigray region of Ethiopia.

Men and women age 15 years - 49 years in poorer category are 0.497 (COR = 0.497; 95% CI: 0.458 - 0.539) less likely to have comprehensive knowledge about HIV than poorest categories.

Men and women age 15 years - 49 years who were never married 0.347 (COR = 0.347; 95% CI: 0.328 - 0.367) less likely to have comprehensive knowledge about HIV than married.

Socio-demographic factors	N (%)
	Sex
Male	11606 (42.5%)
Female	15683 (57.5%)
	Wealth Index
Lowest	4472 (16.4%)
Second	4927 (18.1%)
Middle	5224 (19.1%)
Fourth	5566 (20.4%)
Highest	7098 (26.0%)
	Residence
Urban	5779 (21.2%)
Rural	21509 (78.8%)
	Age Category
15 - 19	5953 (21.8%)
20 - 24	4645 (17.0 %)
25 - 29	4934 (18.1%)
30 - 34	3980 (14.6%)
35 - 39	3318 (12.2%)
40 - 44	2496 (9.1%)
45 - 49	1961 (7.2%)
	Religion
Orthodox	11946 (43.8%)
	Working Status (Past 12 months)
Working	18518 (67.9%)
	Marital Status
Married	16059 (58.9%)
	Literacy
Cannot read at all	12530 (45.9%)
	Number of Living Children
0	10843 (39.7%)
1-2	5972 (21.9%)
3-4	4834 (17.7%)
>5	5640 (20.75%)
	Frequency of Reading Newspaper
Yes	1703 (6.2%)
No	25586 (93.8%)
	Frequency of Listening to the Radio
Yes	5919 (21.7%)
No	21370 (78.3%)
	Frequency of Watching TV
Yes	4938 (18.1%)
No	22351 (81.9%)
	Region
Tigray	1837 (6.7%)
Afar	210 (0.8%)
Amhara	6628 (24.3%)
Oromiya	10110 (37.1%)
Somali	760 (2.8%)
Benishangul-Gumuz	278 (1.0%)
SNNPR	5659 (20.7%)
Gambela	79 (0.3%)
Harari	67 (0.2%)
Addis Ababa	1503 (5.5%)
Dire Dawa	156 (0.6%)
	Occupation
Not working	8746 (32.0%)
Non-agriculture	7669 (28.1%)
Agriculture	10874 (39.8%)
	Educational Status
No Education	10701 (39.2%)
Primary	11098 (40.7%)
Secondary	3602 (13.2%)
More than Secondary	1887 (6.9%)
N	**27289**

Table 1: Individual, household and community level characteristics of men and women 15 years - 49 years, Ethiopia 2016.

Men and women age 15 years - 49 years who have no education 0.004 (COR = 0.004, 95% CI 0.004 - 0.005) less likely to have comprehensive knowledge about HIV than those who have primary education.

An increase in one number of living children (COR = 0.263, 95% CI 0.253 - 0.274) were less likely to have comprehensive knowledge about HIV.

Men and women age 15 years - 49 years who were catholic religion follower (COR = 0.097, 95% CI 0.089 - 0.106) were less likely to have comprehensive knowledge about HIV orthodox religion follower.

Multivariable Analysis

Residence they live had significant association with men and women 15 years - 49 years living in urban areas having 29.337 increased odds of having comprehensive knowledge about HIV (AOR 29.337; 95% CI: 18.093 - 47.569) compared to men and women 15 years - 49 years who had live in rural areas.

Demographically, since age is a quantitative numerical variable, an increase in one-year in age has 15.287 (95% CI 9.430 - 24.780) times decrease in odds of having comprehensive knowledge about HIV. Table 2 shows unadjusted and adjusted odds ratios (AOR) that were calculated to determine the strength of association between the co-variates and comprehensive knowledge about HIV. Backward stepwise model with dichotomous outcome of (0 = No comprehensive knowledge about HIV, 1 = comprehensive knowledge about HIV) (Table 3 and Table 4).

Variable	Unadjusted OR	P-value	Adjusted OR	P-value
Age	0.349 (0.339, 0.359)	0.000	15.287 (9.430, 24.780)	0.000
Residence				
Urban	6.338 (5.953, 6.748)	0.000	29.337 (18.093-47.569)	0.000
Rural	1.00			
Region				
Tigray	0.979 (0.730, 1.312)	0.886	Not Retained in Model	
Afar	0.799 (0.719, 0.888)	0.000	Not Retained in Model	
Amhara	0.222 (0.200, 0.246)	0.000	Not Retained in Model	
Wealth Quintile				
Lowest	0.926 (0.853, 1.006)	0.067	Not Retained in Model	
Second	0.497 (0.458, 0.539)	0.000	Not Retained in Model	
Marital Status				
Never Married	0.347 (0.328, 0.367)			
Married	1.00			
Educational Status				
No Education	0.004 (0.004, 0.005)	0.000	Not Retained in Model	
Primary	1.00			
Number of Living Children	0.263 (0.253-0.274)	0.000	Not Retained in Model	
Religion				
Orthodox	1.170 (0.878, 1.559)	0.285	Not Retained in Model	
Catholic	0.097 (0.089, 0.106)	0.000	Not Retained in Model	

Table 2: Unadjusted and adjusted odds ratio for comprehensive knowledge about HIV in Ethiopia 2016.

	Age			Residence		Region				Marital status	
	15-19	20-24	25-29	Urban	Rural	Tigray	Afar	Amhara	Oromia	Never Married	Married
Overall (n = 27289)	5953 (21.8%)	4645 (17.0%)	4934 (18.1%)	5779 (21.2%)	21509 (78.8%)	1837 (6.7%)	210. (0.8%)	6628 (24.3%)	10110 (37.1%)	8918 (32.7%)	16059 (58.9%)
Comprehensive Knowledge about HIV Yes (n - 7613)	3381 (44.4%)	2762 (36.3%)	1470(19.3 %)	3476 (45.7%)	4137 (54.3%)	1129 (14.8%)	128 (1.7%)	3714 (48.8%)	2642 (34.7%)	4036 (53.0%)	3577 (47.0%)
No (n - 19676)	2572 (13.1%)	1883 (9.6%)	3464(17.6 %)	2303 (11.7%)	17372 88.3%)	708 (3.6%)	82(.4 %)	2914 (14.8%)	7468 (38.0%)	4882 (24.8%)	12482 (63.4%)

Table 3: Socio demographic characteristics of men and women age 15 years - 49 years according to comprehensive knowledge about HIV, Ethiopia 2016.

	Wealth Quintile			Educational Status		Number of Living Children		Religion		
	Lowest	Second	Middle	No Education	Primary	0	1-2	Orthodox	Catholic	Protestant
Overall (n=27289)	4472 (16.4%)	4927 (18.1%)	5224 (19.1%)	10701 (39.2%)	11098 (40.7%)	10843 (39.7%)	5972 (21.9%)	11946 (43.8%)	198 (0.7%)	6235 (22.8%)
Comprehensive Knowledge about HIV Yes (n-7613)	2633 (34.6%)	2809 (36.9%)	2171 (28.5%)	7498 (98.5%)	115 (1.5%)	5185 (68.1%)	2428(3 1.9%)	6786 (89.1%)	120 (1.6%)	707 (9.3%)
No (n-19676)	1839 (9.3%)	2118 (10.8%)	3053 (15.5%)	3203 (16.3%)	10983 (55.8%)	5658(2 8.8%)	3544(1 8.0%)	5160 (26.2%)	78 (0.4%)	5528 (28.1%)

Table 4: Socio demographic characteristics of men and women age 15 years - 49 years according to comprehensive knowledge about HIV, Ethiopia 2016.

DISCUSSION

Of the total sample of 27289 of men and women 15 years - 49 years at the time of survey, 27.9% (n = 7613) have comprehensive knowledge about HIV and this is higher compared to 7.8% [23], and other national health surveys, such as India and Pakistan [24,25].

Our study is also higher compared to 7.1%, 9.3%, 19.1%, 24.5%, 13.8% and 9.4% respectively [26-31].

This could be due to the difference in the study populations, as this study covered wide population groups while the previous studies has smaller sample size and narrow population they either include youth or school adolescent or women or men only.

This study findings of level of comprehensive knowledge about HIV is lower compared to 38%, 51%, 39.5% respectively [32-34] and Intervention group respondents, (2^{nd} and above year students) 75.8% and comparative respondents (1^{st} year students) 68.6% [35].

This study findings of level of comprehensive knowledge about HIV is also lower compared to Burundi (48.9%) and Kenya (46.3%) [27] and previous studies 43.7%, 31.7% respectively [36,37].

The awareness and knowledge of HIV/AIDS in those countries was found very high, probably because they experienced HIV epidemic early. Many countries used mass communication through mass media to raise awareness of HIV/AIDS [38].

This study shows an increase in one-year in age has 15.287(95% CI 9.430 - 24.780) times decrease in odds of having comprehensive knowledge about HIV and this is similar compared to previous studies [23,39-41].

The rationale of this finding is that married women aged 30 years or more are less adaptive to absorbing information compared to young women, which reduces their likelihood of knowing about HIV/AIDS. And our finding is contrarily or differ to previous studies that showed older ages had higher odds of having comprehensive knowledge compared to teenagers [3,27,32,42-44,45].

In the context of Ethiopia, women from different age groups differ in lifestyle, health practice, adaptability, maturity, accessibility, sex behaviors, etc., which could be the underlying reason behind the influence of women's age on their knowledge about HIV/AIDS.

In this study residence they live had significant association with men and women 15 years - 49 years living in urban areas having 29.337 increased odds of having comprehensive knowledge about HIV (AOR 29.337; 95% CI: 18.093 - 47.569) compared to men and women 15 years - 49 years who had live in rural areas. This study is similar compared to previous studies [3,27,32,41-45].

A broad difference between rural and urban areas related to HIV/AIDS comprehensive knowledge has been also reported from Sub-Sahara Africa and other areas [46-50]. This study is also in accordance with other studies [44,51-54].

Contrary to our findings, there are few studies [40], which reported that the type of residence is unrelated to women's knowledge about HIV/AIDS and the difference in knowledge among rural and urban women was not significant [28].

The increasing trend in HIV and AIDS comprehensive knowledge among urban young women could be attributed to the increase in interventions targeting young people, especially young women. Such efforts are spearheaded by the government, institutions of learning and civil society organizations [44].

The difference in knowledge among rural and urban women was significant with the results of the previous studies [27,44,54-57]. Since women living in urban areas may have greater access to education, mass media, and HIV/AIDS awareness campaigns [27,58].

Urban residence also increased women's likelihood of having good knowledge of HIV/AIDS [59].

It is well established that life in larger cities provides greater access to sources of information about HIV/AIDS and reduces the stigma of HIV/AIDS. Previous research explained that location of residence is a form of imbalance, especially in accessing information or health services that impacts the level of one's knowledge [60].

Previous research has stated that urban populations are particularly vulnerable to HIV infection, especially women and children, but this trend can be overcome by access and adequate health services [61].

Rural women are less likely to enjoy the healthcare and counseling facilities compared to their urban counterparts and remain somewhat isolated from the service network [40].

In the before study respondents that lived in close proximity to health centres were more likely to have

comprehensive knowledge of HIV compared to respondents that lived more than 5 km radius [33]. This is probably because those that lived near to the health facilities had access to HIV related information which enhanced their knowledge. and these findings are consistent with a study conducted in Mozambique [62].

However, rural women are often abandoned, neglected, and deprived of better health care facilities [63], and some recent studies [64] reported rural women as vulnerable to HIV infection due to their low level of knowledge about HIV/AIDS. On the other hand, urban women often enjoy better living provided with easier access to health information, media, healthcare facilities, etc., which reduces the likelihood of HIV infection subsequently.

It is not surprising that good levels of knowledge related to HIV/AIDS were less common in rural areas than in cities. Therefore, it is necessary to empower rural communities, especially in terms of increasing women's knowledge and capacity.

Study Limitations

Responses were self-reported; social desirability bias might led to under or over reporting, however, the representativeness of the survey sample and comparability with other studies strengthens the results.

Another limitation was that, sexual behaviors' and risk perceptions' data was not collected. Additionally, the survey questionnaire capture socio demographic questions only, these specific results should therefore be interpreted with caution.

CONCLUSION

Factors associated with comprehensive knowledge on HIV include: Age and residence. Programs designed should target older age groups and education about HIV/AIDS in rural areas, in particular needs to be improved. Messages using radios will increase comprehensive knowledge.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

REFERENCES

1. (2017) Global HIV and AIDS statistics.
2. (2016) UNAIDS. Global HIV and AIDs statistics, 2016.
3. Wang W, Alva S, Wang S (2012) HIV-related knowledge and behaviors among people living with HIV in eight high HIV prevalence countries in sub-saharan Africa, DHS analytical studies 29 United States agency for International development, ICF International Calverton, Maryland, USA.
4. Correia DS, Pontes AC, Cavalcante JC, et al. (2009) Adolescents: Contraceptive knowledge and use, a Brazilian study. The Scientific World Journal 9: 37-45.
5. Samkange-Zeeb FN, Spallek L, Zeeb H (2011) Awareness and knowledge of sexually transmitted diseases (STDs) among school-going adolescents in Europe: A systematic review of published literature. BMC Public Health 11(1): 727.
6. Central Statistical Agency (2005) Ethiopia demographic and health survey, CSA, Addis Ababa, Ethiopia.
7. Central Statistical Agency (2011) Ethiopia demographic and health survey 2011, Central statistical agency, Addis Ababa, Ethiopia.

8. United Nations (2001) Declaration of commitment on HIV/AIDS, United Nations general assembly special session on HIV/AIDS. New York, USA
9. UNAIDS (2013) Getting to zero: Report on the HIV epidemic in Eastern & Southern Africa Joint United Nations program on HIV/AIDS.
10. UNAIDS (2013) UNAIDS report on the global AIDS epidemic 2013. Geneva, Switzerland.
11. Kassie GM, Mariam DH, Tsui AO (2008) Patterns of knowledge and condom use among population groups: Results from the 2005 Ethiopian behavioral surveillance surveys on HIV. BMC Public Health 8(1): 429.
12. Burgoyne AD, Drummond PD (2008) Knowledge of HIV and AIDS in women in sub-Saharan Africa. African Journal of Reproductive Health 12(2): 14-31.
13. (2014) UNAIDS (Joint United Nations Programme on HIV/AIDS). Fast-track ending the AIDS epidemic by 2030: 1-40.
14. Nubed CK, Akoachere JFTK (2016) Knowledge, attitudes and practices regarding HIV/AIDS among senior secondary school students in Fako division, South West Region, Cameroon. BMC Public Health 16(1): 1-10.
15. Sallar AM (2009) Correlates of misperceptions in HIV knowledge and attitude towards people living with HIV/AIDS (PLWHAs) among in-school and out-of-school adolescents in Ghana. African Health Sciences 9(2): 82-89.
16. Janahi EM, Mustafa S, Alsari S, et al. (2016) Public knowledge, perceptions, and attitudes towards HIV/AIDS in Bahrain: A cross-sectional study. The Journal of Infection in Developing Countries 10(09): 1003-1011.
17. Shamsipour M, Khajehkazemi R, Haghdoost AA, et al. (2016) Knowledge, attitude, and practice of clerical students with respect to HIV/AIDS in Iran, 2011. Journal of Religion and Health 55(1): 26-37.
18. Mishra V, Agrawal P, Alva S, et al. (2009) Changes in HIV related knowledge and behaviors in Sub-Saharan Africa. DHS Comparative Reports No. 24. ICF Macro, Calverton, Maryland, USA.
19. CSA and ICF (2016) Ethiopia demographic and health survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA.
20. Central Statistical Authority/Ethiopia and ORC Macro (2000) Ethiopia demographic and health survey. Addis Ababa, Ethiopia.
21. Filmer D, Pritchett LH (2001) Estimating wealth effects without expenditure data-or tears: An application to educational enrollments in states of India. Demography 38(1): 115-132.
22. Asaduzzaman M, Higuchi M, Sarker MAB, et al. (2016) Awareness and knowledge of HIV/AIDS among married women in rural Bangladesh and exposure to media: A secondary data analysis of the 2011 Bangladesh demographic and health survey. Nagoya Journal of Medical Science 78(1): 109-118.
23. Macro International, IIPS (2007) National family health survey (NFHS-3), India 1: 315-320.
24. Measure DHS, NIPS (2013) Demographic and health survey, Pakistan, 2012-2013: 185-198.
25. (2013) Statistics Indonesia, National population and family planning board, Kementerian Kesehatanb, ICF International. Indonesia Demographic and Health Survey-2012.
26. Teshome R, Youjie W, Habte E, et al. (2016) Comparison and association of comprehensive HIV/AIDS knowledge and attitude towards people living with HIV/AIDS among women aged 15-49 in three east African countries: Burundi, Ethiopia and Kenya. Journal of AIDS and Clinical Research 7(04): 1-8.
27. Zarei E, Khabiri R, Tajvar M, et al. (2018) Knowledge of and attitudes toward HIV/AIDS among Iranian women. Epidemiology and Health 40.

28. Oljira L, Berhane Y, Worku A (2013) Assessment of comprehensive HIV/AIDS knowledge level among in-school adolescents in Eastern Ethiopia. Journal of the International AIDS Society 16(1): 17349.
29. Elbadawi A, Mirghani H (2016) Assessment of HIV/AIDS comprehensive correct knowledge among Sudanese university: A cross-sectional analytic study 2014. Pan African Medical Journal 24(1): 48.
30. Badru T, Mwaisaka J, Khamofu H, et al. (2020) HIV comprehensive knowledge and prevalence among young adolescents in Nigeria: Evidence from Akwa Ibom AIDS indicator survey, 2017. BMC Public Health 20(1): 45.
31. Ankunda D, Asiimwe JB (2017) Determinants of comprehensive knowledge of HIV/AIDS among women of the reproductive age (15-49) in Uganda. International Journal of Community Medicine and Public Health 4: 3530-3535.
32. Kwagonza L, Bulage L, Okello PE, et al. (2020) Comprehensive knowledge of HIV prevention among fishing communities of Lake Kyoga, Uganda, 2013. BMC Public Health 20(1): 1-8.
33. (2011) MoH. Uganda AIDS indicator survey.
34. Sahile Z, Mekuria M, Yared A (2015) Comprehensive HIV/AIDS knowledge and sexual behavior among university students in Ambo, central Ethiopia: Implication to improve intervention. Journal of sexually transmitted diseases, 2015.
35. Othman SM (2015) Knowledge about HIV/AIDS among high school students in Erbil city/Iraq. Global Journal of Health Science 7(1): 16.
36. Megabiaw B, Awoke T (2013) Comprehensive knowledge, attitude and practice of street adults towards human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) in Northwest Ethiopia. Journal of AIDS and HIV Research 5(6): 181-187.
37. Li L, Rotheram-Borus MJ, Lu Y, et al. (2009) Mass media and HIV/AIDS in China. Journal of Health Communication 14(5): 424-438.
38. Hossain M, Mani KK, Sidik SM, et al. (2014) Knowledge and awareness about STDs among women in Bangladesh. BMC Public Health 14(1): 775.
39. Yaya S, Bishwajit G, Danhoundo G, et al. (2016) Trends and determinants of HIV/AIDS knowledge among women in Bangladesh. BMC Public Health 16(1): 812.
40. Sheikh MT, Uddin MN, Khan JR (2017) A comprehensive analysis of trends and determinants of HIV/AIDS knowledge among the Bangladeshi women based on Bangladesh demographic and health surveys, 2007-2014. Archives of Public Health 75(1): 59.
41. Sheikh MT, Uddin MN, Khan JR (2017) A comprehensive analysis of trends and determinants of HIV/AIDS knowledge among the Bangladeshi women based on Bangladesh demographic and health surveys, 2007-2014. Archives of Public Health 75(1): 59.
42. (2005) National bureau of statistics (NBS) [Tanzania] and ORC macro. Tanzania demographic and health survey 2004-05.
43. Epsley EJ, Nhandi B, Wringe A, et al. (2011) Evaluation of knowledge levels amongst village AIDS committees after undergoing HIV educational sessions: Results from a pilot study in rural Tanzania. BMC International Health and Human Rights 11(1): 14.
44. Ochako R, Ulwodi D, Njagi P, et al. (2011) Trends and determinants of comprehensive HIV and AIDS knowledge among urban young women in Kenya. AIDS Research and Therapy 8(1): 11.
45. Hong SY, Thompson D, Wanke C, et al. (2012) Knowledge of HIV transmission and associated factors among HIV-positive and HIV-negative patients in rural Kenya. Journal of AIDS & Clinical Research 3(7): 1-3.

46. Lifson AR, Demissie W, Tadesse A, et al. (2012) HIV/AIDS stigma-associated attitudes in a rural Ethiopian community: Characteristics, correlation with HIV knowledge and other factors, and implications for community intervention. BMC International Health and Human Rights 12(1): 6.
47. Ngayimbesha A, Chen PJ (2011) AIDS awareness among women and its influence on attitude toward people living with HIV/AIDS in Burundi. East African Journal of Public Health 8(1): 60-65.
48. Jesmin SS, Chaudhuri S, Abdullah S (2013) Educating women for HIV prevention: Does exposure to mass media make them more knowledgeable?. Health Care for Women International 34(3-4): 303-331.
49. Terán Calderón C, Gorena Urizar D, González Blázquez C, et al. (2015) Knowledge, attitudes and practices on HIV/AIDS and prevalence of HIV in the general population of Sucre, Bolivia. Brazilian Journal of Infectious Diseases 19(4): 369-375.
50. Veinot TC, Harris R (2011) Talking about, knowing about HIV/AIDS in Canada: A rural-urban comparison. The Journal of Rural Health 27(3): 310-318.
51. Hossain M, Mani KK, Sidik SM, et al. (2014) Knowledge and awareness about STDs among women in Bangladesh. BMC Public Health 14(1): 775.
52. Khan MA (2002) Knowledge on AIDS among female adolescents in Bangladesh: Evidence from the Bangladesh demographic and health survey data. Journal of Health, Population and Nutrition: 130-137.
53. Huy NV, Lee HY, Nam YS, et al. (2016) Secular trends in HIV knowledge and attitudes among Vietnamese women based on the multiple indicator cluster surveys, 2000, 2006, and 2011: What do we know and what should we do to protect them?. Global Health Action 9(1): 29247.
54. Mondal MNI, Rahman MM, Rahman MO, et al. (2012) Level of awareness about HIV/AIDS among ever married women in Bangladesh. Food and Public Health 2(3): 73-78.
55. Rashidian A, Khosravi A, Khabiri R, et al. (2012) Islamic Republic of Iran's multiple indicator demographic and health survey (IrMIDHS) 2010. Tehran: Ministry of Health and Medical Education: 128-129.
56. Meshkati M, Hajari A, Mostajeran M, et al. (2014) Knowledge and attitudes of married women referred to health centers affiliated to Isfahan University of Medical Sciences, Iran, about AIDS and related factors. Journal of Mazandaran University of Medical Sciences 23(108): 100-107.
57. Terán Calderón C, Gorena Urizar D, González Blázquez C, et al. (2015) Knowledge, attitudes and practices on HIV/AIDS and prevalence of HIV in the general population of Sucre, Bolivia. Brazilian Journal of Infectious Diseases 19(4): 369-375.
58. Shokoohi M, Karamouzian M, Mirzazadeh A, et al. (2016) HIV knowledge, attitudes, and practices of young people in Iran: findings of a National Population-Based Survey in 2013. PLoS One 11(9): e0161849.
59. Pradnyani PE, Arief Wibowo M (2019) The effects of socio-demographic characteristics on Indonesian women's knowledge of HIV/AIDS: A cross-sectional study. Journal of Preventive Medicine and Public Health 52(2): 109-114.
60. Schafer KR, Albrecht H, Dillingham R, et al. (2017) The continuum of HIV care in rural communities in the United States and Canada: What is known and future research directions. Journal of Acquired Immune Deficiency Syndromes 75(1): 35-44.
61. Van Donk M (2006) "Positive" urban futures in sub-Saharan Africa: HIV/AIDS and the need for ABC (A broader conceptualization). Environment and Urbanization 18(1): 155-175.

62. Buehler CP, Blevins M, Ossemane EB, et al. (2015) Assessing spatial patterns of HIV knowledge in rural Mozambique using geographic information systems. Tropical Medicine & International Health 20(3): 353-364.
63. Mondal MNI, Hoque N, Chowdhury MRK, et al. (2014) Factors associated with misconceptions about HIV transmission of ever-married women in Bangladesh. Japanese Journal of Infectious Diseases 68(1): 13-19.
64. Asaduzzaman M, Higuchi M, Sarker MAB, et al. (2016) Awareness and knowledge of HIV/AIDS among married women in rural Bangladesh and exposure to media: A secondary data analysis of the 2011 Bangladesh demographic and health survey. Nagoya Journal of Medical Science 78(1): 109.