ORIGINAL ARTICLE

DETERMINANTS OF COMPREHENSIVE KNOWLEDGE OF HIV/AIDS AMONG FEMALES AGED 15-24 YEARS IN ETHIOPIA

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ABSTRACT

Introduction: *Young females are three to six times more likely to have the Human Immune Deficiency Virus (HIV) compared with males of the same age in Sub-saharan Africa. Comprehensive knowledge of HIV and AIDS is important in the adoption of behavior that reduces the risk for HIV transmission. Although Ethiopia is implementing different programs to reduce HIV/AIDS, there has been no change in the comprehensive knowledge of young females from 2011 to 2016. Therefore, the aim of this study was to assess the determinants of comprehensive knowledge of HIV/AIDS among females aged 15-24 years in Ethiopia.*

Methods: *The 2016 Ethiopian Demographic and Health Survey data was used. Among the interviewed women, 5929 young women aged 15-24 years were considered in this investigation. Frequencies and percentages were used to describe the outcome variable and the characteristics of participants. Bi-variable and multivariable binary logistic regressions were used to identify factors associated with comprehensive knowledge of HIV/AIDS. Adjusted odds ratio (AOR) with its respective 95% confidence interval (CI) was reported to show the strength and significance of associations.*

Results: *In this study, higher odds of comprehensive knowledge about HIV/AIDS were observed among the youth who had media exposure (AOR=1.28; 95% CI:1.10, 1.49), higher education (AOR=4.44;95% CI: 3.20, 6.16), and higher economic status (AOR=1.92; 95% CI: 1.42, 2.60). However, Muslims (AOR=0.68; 95% CI: 0.57, 0.78) and Protestants (AOR=0.86; 95% CI: 0.69, 0.99) were less likely to have comprehensive knowledge about HIV/AIDS as compared to Orthodox Christians.*

Conclusion: *Media exposure, education, economic status and religion were factors associated with comprehensive knowledge. Strengthened strategic behavior change communication intervention for young females is needed, specifically for the uneducated, the poor and Muslims.*

Keywords: *Comprehensive knowledge, HIV, AIDS, associated factors, Female aged 15-24 years, Ethiopia.*

INTRODUCTION

Human Immune Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) is a major public health concern that has threatened the existence of the human race more than the black plague, World War I and World War II(1).Globally, approximately 36.9 million people have been infected, and 25.3 million have lost their life to AIDS-related illnesses(2).

Although all parts of the world are affected by the HIV epidemic, Sub-saharan Africa (SSA) bears the heaviest burden, accounting for 70% of the new HIV infections (3, 4).According to the UNAIDS, about 90% of the countries in SSA are heavily affected by the epidemic, while adult HIV prevalence is only 1.2% worldwide (5).

Although HIV prevalence has fallen in Ethiopia, the epidemic continues to be a major challenge to the health and development of the nation. The prevalence among adults is estimated at1.5%, and young females have a two to six-fold higher prevalence than young males(6, 7).This high prevalence is associated with low level of accurate HIV knowledge, illiteracy, gender-based violence, poverty, expanding urbanization , early sexual debut and other socio-economic

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factors(8, 9).

High levels of knowledge of HIV transmission and prevention and acceptance attitude towards people living with HIV/AIDS (PLHA) have been well-noted as crucial pre-requisite for creating HIV/AIDS free generation(10).Comprehensive knowledge of HIV AIDS is important in the adoption of behavior that reduces the risk for transmission. Studies have shown varying levels of comprehensive knowledge about HIV and AIDS across the continent, but regionally countries in east and southern Africa had the highest levels of comprehensive knowledge compared with west Africa(11).Only 33% of young women demonstrated comprehensive knowledge of HIV/AIDS in national household surveys in SSA. A study on the youth in northern Uganda also revealed that only 23% of young women had comprehensive HIV/ AIDS knowledge(12).

Although Ethiopia has been implementing different prevention programs on the problem, there has been no change of comprehensive knowledge among young females aged 15-24 in the five years from 2011 to 2016(13, 14). Only24.7 % females aged 15-24 have comprehensive knowledge of prevention (14). Therefore, the aim of this study is to assess factors associated with comprehensive knowledge of HIV/AIDS among young females aged 15-24 years in Ethiopia.

DATA AND METHODS

Source of data: This study used data from the publicly available 2016 Ethiopian Demographic and Health Survey. The survey was conducted by Measure DHS and the Ethiopian Central Statistical Agency in nine regional states and two city administrations (Addis Ababa and Dire Dawa). The sample for the survey was designed to represent national, urban–rural, and regional estimates of health and demographic outcomes.

The 2016 EDHS samples were selected using a stratified, two-stage cluster sampling. In the first stage, 645 clusters of census enumeration areas (EAs)(202 urban and 443 rural) were included in the survey. In the second stage, a complete listing of households was carried out in each of the 645 selected EAs from January 18, 2016 to June 27, 2016, and systematic random sampling was used to select households from each cluster(14).

The EDHS applied the probability sampling to provide nationally representative samples of women in the reproductive age (15-49 years). The response rate for the 2016 EDHS was 94.6%. This study used the latest survey data available, (EDHS 2016) to provide a clear indication on the most recent determinants of HIV/AIDS comprehensive knowledge among young females aged 15-24. Accordingly, 5929 young females aged 15-24 years were considered for analysis.

Study variables: The survey provided data on demographic and health indicators to analyze the health and nutrition of women and children in developing countries. According to the EDHS, comprehensive correct knowledge about HIV is composed of knowing the two ways of preventing sexual transmission (using condoms and limiting sex to one faithful uninfected partner), correctly rejecting the two most common local misconceptions of transmission (transmission via mosquito bites and by sharing food) and knowing that a healthy-looking person can have the virus (14).

Comprehensive correct knowledge about HIV and AIDS was considered as “yes” if the respondent answered all five questions about HIV/AIDS correctly, and “No” if the respondent had any incorrect answers. The independent variables used in this paper included educational status, household wealth, age, marital status, religion, residence, occupation, region

of residence and mass media exposure (at least one of radio, TV or newspaper once in a week).

Methods of analysis: The statistical software STATA version 14 was used for analysis. Descriptive statistics, including prevalence and frequency distributions were used to determine the level of comprehensive knowledge. Bivariable logistic regression analysis was used to show the association between variables and comprehensive knowledge. Adjusted odds ratio (AOR) with its respective 95% CI was reported to show strength and significance of association.

RESULTS

Socio-demographic characteristics: The median age of the participants was 19 (IQR: 17, 22) years. More than 57% of the participants were never in union in their marital status; almost half (49.7%) had primary education, and the majority,(61.3%), were rural dwellers (Table 1).

Media exposure relating characteristics: Of the total participants, 2343 (39.5%)had media exposure at least once a week, specifically 384 (6.5%) through reading newspapers, 1178 (19.9%)through listening to the radio and 1736 (29.3%) watching TV (Table 2).

Table 1: Socio-demographic characteristics of young females aged 15-24 years in Ethiopia, 2016

Variables	Frequency	Percentage
Age (years)		
15-19	3212	54.2
20-24	2714	45.8
Residence		
Urban	2296	38.7
Rural	3630	61.3
Region		
Tigray	726	12.3
Afar	452	7.6
Amhara	611	10.3
Oromia	662	11.2
Somali	399	6.7
Beneshangul Gumuz	421	7.1
SNNP	689	11.6
Gambella	371	6.3
Harari	360	6.0
Addis Ababa	793	13.4
Dire Dawa	442	7.5
Educational level		
No education	1103	18.6
Primary	2948	49.7
Secondary	1348	22.8
Higher	527	8.9
Religion		
Orthodox	2555	43.1
Muslim	2227	37.6
Protestant	1078	18.2
Others[@]	66	1.1
Wealth index		
Poorest	1181	19.9
Poorer	714	12.1
Middle	748	12.6
Richest	800	13.5
Richest	2483	41.9
Marital status		
Never in union	3382	57.1
Cohabiting*	2236	37.8
Formerly cohabiting**	308	5.1
Occupation		
Not working	3381	57.1
Professional/technical/	218	3.7
Sales/services	1133	19.1
Agriculture	743	12.5
Skilled/unskilled manual	298	5.0
[@@]Others	153	2.6

**Currently in union/living with a man, **formerly in union/lived with a man, [@] Catholic and traditional religious [@@]House made, daily laborer etc*

Table 2: Media exposure relating characteristics of young females aged 15-24 years in Ethiopia, 2016

Variables	Frequency	Percent
Reading newspaper/magazine		
Not at all	4524	76.3
Less than once a week	1018	17.2
At least once a week	384	6.5
Listening to the radio		
Not at all	3593	60.6
Less than once a week	1155	19.5
At least once a week	1178	19.9
Watching television		
Not at all	3398	57.3
Less than once a week	792	13.4
At least once a week	1736	29.3
Media exposure		
Yes	2343	39.5
No	3583	60.5

Comprehensive knowledge of HIV/AIDS by selected variables: Young females who had media exposure at least in a week had almost double (34.7%) comprehensive knowledge about HIV/AIDS than those who had no media exposure(18.2%). Similarly, such females who were from urban areas had double (35.6%) comprehensive knowledge about HIV/AIDS than those who were from rural areas (17.9%). Comprehensive knowledge about HIV/AIDS rose as the educational level of participants increased. Those who were Orthodox Christian and never in union in their marital status had more comprehensive knowledge than their counterparts.

Determinants of comprehensive knowledge about HIV/AIDS: The bivariable logistic regression analysis (at p-value of 0.25) showed that all variables (educational status, household wealth, age, marital status, religion, residence, occupation, region of residence and mass media exposure) were significant. The multivariable logistic regression analysis showed exposure to media, advanced levels of education, Orthodox Christian religion and high wealth index were positively and significantly associated with comprehensive knowledge. The likelihood of having comprehensive knowledge for those who had media exposure at least once in a week was 28 % (AOR=1.28; 95%CI: 1.10, 1.49) higher than those who had no such exposure. The odds of having comprehensive knowledge for respondents with primary, secondary and higher education were 2.32 (AOR=2.32; 95% CI: 1.80, 2.99), 3.78 (AOR=3.78; 95%CI: 2.87, 4.96) and 4.44 (AOR=4.44; 95%CI: 3.20, 6.16) times higher for those with no education, respectively.

Muslim and Protestant youth were 32% (AOR=0.68; 95%CI: 0.57, 0.78) and 14 %(AOR=0.86; 95%CI: 0.69, 0.99)) less likely to have comprehensive knowledge, respectively, compared to Orthodox Christians. Respondents with middle, richer and the richest economic status were 39% (AOR=1.39; 95% CI: 1.05, 1.82), 78% (AOR=1.78; 95%CI: 1.38, 2.31) and 92% (AOR=1.92; 95%CI: 1.42, 2.60) more likely to have comprehensive knowledge about HIV/AIDS, respectively, compared to the poorest (Table 3).

Table 3: Bivariable and multivariable logistic regression analysis of factors associated with comprehensive knowledge about HIV/AIDS

Variables	Comprehensive knowledge about HIV/AIDS		COR(95% CI)	AOR(95% CI)
	Yes (%)	No (%)		
Have media exposure				
Yes	814(34.7)	1529(65.3)	2.38(2.11, 2.69)	1.28(1.10, 1.49)
No	654(18.2)	2929(81.8)	1	1
Residence				
Urban	818(35.6)	1478(64.4)	1	1
Rural	650(17.9)	2980(82.1)	0.39(0.34, 0.44)	0.86(0.68, 1.09)
Educational level				
No education	85(7.7)	1018(92.3)	1	1
Primary	644(21.8)	2304(78.2)	3.34(2.63, 4.24)	2.32(1.80, 2.99)
Secondary	497(36.9)	851(63.1)	6.99(5.46, 8.95)	3.78(2.87, 4.96)
Higher	242(45.9)	285(54.1)	10.16(7.68, 13.45)	4.44(3.20, 6.16)
Religion				
Orthodox	819(32.1)	1736(67.9)	1	1
Muslim	383(17.2)	1844(82.8)	0.44(0.38, 0.50)	0.68(0.57, 0.78)
Protestant	257(23.8)	821(76.2)	0.66(0.56, 0.78)	0.86(0.69, 0.99)
Others	9(13.6)	57(86.4)	0.33(0.16, 0.68)	0.50(0.24, 1.05)
Wealth index				
Poorest	123(10.4)	1058(89.6)	1	1
Poorer	117(16.4)	597(83.6)	1.69(1.28, 2.21)	1.29(0.97, 1.70)
Middle	143(19.1)	605(80.9)	2.03(1.57, 2.64)	1.39(1.05, 1.82)
Richer	203(25.4)	597(74.6)	2.92(2.29, 3.74)	1.78(1.38, 2.31)
Richest	882(35.5)	1601(64.5)	4.74(3.86, 5.81)	1.92(1.42, 2.60)
Marital status				
Never in union	977(28.9)	2405(71.1)	1	1
Cohabiting*	417(18.6)	1819(81.4)	0.56(0.49, 0.64)	0.90(0.79, 1.04)
Formerly Cohabiting**	74(24.1)	234(75.9)	0.78(0.59, 1.02)	1.16(0.87, 1.55)
Occupation				
Not work	780(23.1)	2601(76.9)	1	1
Professional/technical/	98(44.9)	120(55.1)	2.72(2.06, 3.59)	1.13(0.82, 1.55)
Sales/services	314(27.7)	819(72.3)	1.28(1.09, 1.49)	0.90(0.77, 1.07)
Agriculture	151(20.3)	592(79.7)	0.85(0.69, 1.03	1.17(0.94, 1.45)
Skilled/unskilled manual	81(27.2)	217(72.8)	1.24(0.95, 1.62)	1.07(0.81, 1.43)
Others	44(28.8)	109(71.2)	1.35(0.94, 1.93)	1.03(0.71, 1.50)

**Currently in union/living with a man , **Formerly in union/lived with a man, [@] Catholic and traditional religious, [@@]House made, daily laborer etc*

DISCUSSION

The aim of this study was to determine factors associated with comprehensive knowledge of HIV/AIDS among young females aged 15-24 years in Ethiopia. The study revealed that exposure to media, higher levels of education, Orthodox Christian religion and higher wealth index were positively and significantly associated with comprehensive HIV/AIDS knowledge.

A study conducted in Uganda showed that respondents who had access to the radio had significantly higher odds of having comprehensive knowledge of HIV compared to those with no radio, and women who had TV-sets had higher odds of having comprehensive knowledge compared to those who had not (15). Another study in South Africa also supported this finding as the majority of the respondents (96%) reported that TV-sets and radio receivers had positive impacts on their understanding of prevention and transmission, and more than four in ten decided to change their sexual behavior as a result of what they learned from the media(16).In fact, the mass media address HIV/AIDS topics more openly.

A significant positive association was observed between comprehensive HIV/AIDS knowledge and better educational level. This finding is consistent with those of other studies in east and Sub-saharan African countries (Burundi, Kenya and Ethiopia) among women in reproductive age groups (15-49) (17, 18). Education has a significant role in determining comprehensive knowledge of HIV and AIDS. It in turn may affect occupation, wealth status and attitudes to PLHIVs. Additionally, it also has a significant role in determining social status, and in many cases, it translates to better occupation, income and access to information(19). Formal education may influence HIV and AIDS knowledge not only by providing young people with the information needed to protect themselves from infection but also by motivating such people to take better care of their health for successful and prosperous future(20).

Family wealth index was associated with comprehensive HIV/AIDS knowledge. Young women from middle or high family wealth index were more likely to have comprehensive HIV/AIDS knowledge compared to those from low family wealth index. This is consistent with the finding of another studies which reported an increase in mean-knowledge score by increasing socio-economic class(21, 22). Wealthier people may have more access to education as well as mass media. Hence, they can get correct and comprehensive knowledge in comparison to the poorest people.Better standards of living among women have an influence on their comprehensive knowledge since the rich can easily afford and access information from the media and other social services(15).

In this study, Muslims and Protestants were significantly associated with comprehensive knowledge about HIV/AIDS. This finding is similar to those of other studies(17, 23). The differences in the degree of HIV/AIDS knowledge among religions could be due to the fact that some religions might teach their followers about ways of preventing HIV/AIDS. So, religious associations could play a vital role in HIV information dissemination.

Limitation: The limitation of this study was that we did not investigate factors associated with comprehensive HIV/AIDS knowledge for males in similar age with females which would be important to recommend to decision makers to design appropriate interventions for both male and female youth aged 15 -24 years.

CONCLUSION

Media exposure, educational level, economic status

and religion were factors associated with comprehensive knowledge. Strengthened strategic behavior change communication intervention for young females aged 15-24years is needed, especially for the uneducated, the poor and Muslims.

List of Abbreviations: AOR: Adjusted odds ratio; CI: Confidence interval; COR: Adjusted odds ratio; DHS: Demographic health survey; EAs: enumeration areas; EDHS: Ethiopian Demographic and Health Survey; HIV/AIDS: Human Immune Deficiency Virus/ Acquired Immune Deficiency Syndrome; FHAPCO :Federal HIV/AIDS Prevention and Control Office; IQR: Inter quartile range; PLHA: People living with HIV/AIDS; SES: Socio-Economic Status; SNNP: Southern Nations Nationalities and Peoples; SSA: Sub-Saharan Africa; UNGASS: United Nations General Assembly Special Session; UNAIDS: United Nation HIV/AIDS

Ethics approval and consent to participate: The original EDHS data were collected in conformity with international and national ethical guidelines. The data for this study were downloaded and used after the purpose of the analysis was communicated and approved by the Measure DHS.

Consent for publication: Not applicable

Availability of data and materials: The datasets used are available from the correspondence author on reasonable request.

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