Sociodemographic Determinants of Internet Use and its Impact on Family Planning Behavior among Young Male in Ethiopia: Evidence from EDHS 2016

Kedir Abdu Yesuf[*]

Department of Health informatics, Dessie Health Science College, Ethiopia

Corresponding author

Abstract

Background: Internet was preferred source of health information to retrieve relevant information. Objective: The study investigates sociodemographic determinants of internet and its impact on family planning behavior among young male in Ethiopia, 2016. Methods: The study was based on data from Ethiopia health and demographic survey 2016. The sample size was 4550 male youth age between 15-24 years include in EDHS 2016. Multilevel logistic regression was used to determine sociodemographic factor associated with internet utilization. The impact of internet use on family planning behaviors was assessed by propensity score matching using average treatment effect. Result: The magnitude of Internet use in Ethiopia was 14% and factor associated with internet use include age between 20-24 years (AOR=0.60; CI: 0.46-0.79), urban resident (AOR=3.94; CI: 2.75-5.64), higher educational level(AOR=12.98; CI=2.69-62.66), lived in city administrative region (AOR=2.18; CI: 1.46-3.28), respondent own mobile phone (AOR=8.00; CI: 95.58-11.48), respondent who able to read whole sentence(AOR=4.04; CI :(2.54-6.44) and respondent who has computer in household (AOR=2.03, CI: 1.22-3.40) more likely to use internet. In other hand respondent occupation of agricultural and manual has 56% (AOR=0.44; CI: 0.3-0.61) and 46% (AOR=54, CI: 0.36-0.81) less likely to use internet. The average treatment impact of internet use on exposure to internet about FP, male condom uses and knowledge about FP increase by 12%, 7.2% and 4.5% percent point respectively. Conclusion: In spite of fast-growing nature of internet and popularity among youth poeple. In the future, integrating health information to different platforms on the Internet will be a most effective way of health promotion.

Introduction

The internet is a global wide network that connects a million computers across the world. Now day the internet is an integral part of the daily life of most people (1). The internet is widely used for communication purpose because it transmits information fast and widely (2). The Internet-based communication has more advantage over other media channels because it helps to find personalized information based on individual experience and need (3).

Globally, the Internet penetration rate increases rapidly, it is now 4.5 billion people, and it increased from 3 billion in 2012 (1). The internet penetration rate globally is about 59% and, but pick in the western country, about 92% (4). The prevalence of internet users were 78%, 57.4 and 51% in Europe, America and Asia respectively

(1, 5). But the internet user was low in developing countries when compared to developed countries. In Africa, the internet penetration rate was 39%. Overall, Ethiopia's internet user was 17.8% which is lower than most of the African countries (4, 6).

Youth frequently utilize the internet for entertainment purpose when compared to adults. The reason may be the internet can be easily accessed and getting a quick result with low cost everywhere (7). The internet is also considered a trusted and confidential source of information among young people. Despite the accessibility of the content that was transmitted over the internet was questioned for a long time (8). When a health program integrates internet-based service among youth, it should be entertainment-based and focused on the characteristic of the youth age group (9, 10).

The availability of the internet in public and private service was not the only reason for using the internet for health-seeking behavior. Accessibility of technology like mobile and computer determine the use of the internet among youth (11). Youth education level can have effect in use of internet (12). In addition, factors such as age, economic status and communication skill affect internet utilization (7).

The internet-based communication has a significant role in the health system (13, 14). It has been implemented for various types of programs across different levels of health sector and health policy. Intergrading internet-based communication in a health program has contributed much to the success of the program (15, 16). It is also commonly used in family planning programs to create awareness about it and to adapt behavior that enhances family planning practices (17).

Currently, the internet is considered a major source of health information as a reason for it satisfies patient need, helps with theing to relay on one's self-health management decision, high speed, comfortable and helps the government to encourage patients to use it for health purpose (18). Moreover, the internet can have big data that encompass many health topics, which helps with the availability of a large amount of information and searching for relevant information (19).

Health seeking behavior of individuals increases the internet utilization (20, 21). Frequent internet use for health seeking behaviour has a great role in promoting of family planning behavior because it increases accidental exposure to health information (22). The internet based

on health information among young is effective since it has a high potential to reach the youth population (23).

Family planning is widely used in the world and most of the country, but still there is a different challenge that limits the use and access of it (24). Especially the young age group is under the influence of parents and the community may have intervened in a decision related to family planning. So, to alleviate this challenge, we need to have a strategy integrating information about family planning about accessibility and everything related to it to empower them. Disseminating family planning information in different media is effective to reinforce their risk behavior (25). One of effective media is internet-based information that is in volumes, based on user interest and early web what you want (19).

Various family planning methods exist and are used by women, but male involvement in family planning program is still less. The reason may be lack of awareness about family planning (26, 27). Male involvement in FP has a different perspective in using and influencing women to use the method. Among male condom were most commonly used modern contraceptive methods in Ethiopia (28). Use of a male condom is important to prevent untended pregnancy and infection. Taking advantages of internet use by males would provide and a channel of communication to express the importance of male involvement in family planning program among males (22, 26, 29).

The internet user has a greater chance of exposure to family planning method information, and the user is more likely to use a condom (20). Information about FP on the internet was widely available in different ways, and it is not complex to understand. So it is obvious that frequently internet users are more likely to use condom among males (20, 30). The internet user can search for the required question without travel to the health sector and with low cost.

In Ethiopia, family planning among young were low and had many challenges in effective family planning among males. This shows the gap in male involvement in family planning behavior (29). But the use of the internet can be important to reduce the gap by transferring information among male and female, particularly for that youth population (23). In Ethiopia, the internet is considered one of components of information technology that can be used for the health sector to communicate medical and health information between health professionals and the general public. In general, this will

help to reduce the gap of information between health professionals and the population (23, 31).

Generally, internet use has a great contribution in transferring of health information among youth. This study was done on male respondents because male respondents use the internet more than female ones. In Ethiopia, female has strenuous work at home that limit internet use and low involvement of male in FP. This makes the male more of a user than the female. It is crucial to assess the effect of the internet user in reducing the gap of male involvement in family planning behaviour. So, this study assessed the prevalence of internet utilization and factor associated with it, and its impact on family planning behavior among male respondents.

Materials and Methods

Study setting and design

This study was based on secondary analysis of Ethiopian health and demographic health survey in 2016 (EDHS 2016). EDHS 2016 was the fourth national representative cross-sectional survey conducted in Ethiopia (32). Ethiopia was the tenth African country located in the Horn of Africa. Ethiopia has none region and two administrative cities, and the second populous country with estimated total population of 110 million (33). The electric coverage in the entire country was 45%. An internet service provider by a national Telecommunications firm (34). Ethiopia health care system integrate youth friendly service which give service in health center for providing reproductive health and other related health issue. Ethiopia also implement ICT integral part of health sector transformation plan that include information evolution one pillar of it. HSTP II ensure the important of health promotion in every strategy of plan. It also points out the integration of information technology in health system (35). DHS 2016 implemented by Central Statistical Agency (CSA) a request of the Federal Ministry of Health (FMoH) from January to June 2016 with technical assistance of ICF international (32).

Data source

Ethiopia demographic and health survey were accessed in measure DHS after registration and approval of specific area of request data. Data downloaded on the website of DHS measure that related to the family planning program and household information. The data

is available in the male records (MR) file, and it includes information on sexual behavior and fertility preference (32). The standard questioner was used which was modified according to the Ethiopia context. The questioner includes two parts; (I) household questioner and (II) male questioner. Before data collection pretest was conducted and all involved in data collection was trained. The data quality was checked during the data collection and processing period. Data available on the DHS measure website after formal registration and can be accessed after approval. After getting the dataset, the candidate variable was extracted and recoded in a convenient way for analysis. Management of data carried out by checking missing value and special code.

Sampling technique, sample size and population

EDHS 2016 used a multistage sampling technique based on two stages. EDHS samples were stratified by geographic region and by urban/rural areas within each region. In the first stage, a primary sampling unit was selected. Primary sampling technique (PSU) unit were enumerated area selected with probability proportional to size within each stratum. PSU was actually a cluster. After the cluster was selected, all the households were listed and a constant number of households selected in the enumeration area. In the second stage, an average of 28-30 household were selected in each selected cluster using equal probability systematic sampling in the selected cluster, but the overall probability of selection of a household will differ from cluster to cluster. In each selected household all men age 15-59 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. In EDHS 2016 male record interview include a total of 12,688 men from 14,176 men eligible for interview in a response rate of 89.5%. In this study the participant was male age between 15-24 years old. EDHS 2016 includes 4000 male youth ages between 15-24 years and after sample weighted 4550 respondents was the actual sample size for this study. Sampling weight computed in analysis of data to adjust probability of selection. Sampling weight considered because of the overall probability of selection of each household is not a constant (32).

Measure and study variable

Outcome variable

The outcome variable for this study was male condom use for family planning purpose. It was coded in DHS as

"contraceptive use by method", but it was recorded by creating a dummy variable male condom use and not use.

Those males who use condom coded as "yes" and who don't use condom coded as "no". The male sample weighting variable was mv005, and it was computed in STATA using SVY command.

Treatment variable

Use of internet were the treatment variable that generated by recoding the frequent of internet use in DHS dataset from variable labeled as "frequent of using internet last month". Those who use internet once a week or once a month categorize as user, but those who not used internet once month were as nonuser. It was recoded as use (coded as "0") and none user (coded as "1") rather than using frequent of internet use.

Control variable

Independent variable related to family planning and internet utilization included in the study. These variables had a subcategory of Scio demographic and family-planning related to the category. Scio demographic variable include as follow; - age of respondent (15-19, 20-24), educational level (no education, primary, secondary and higher), resident (urban, rural), region recode as living in administrative city (yes, no), marital status (single, married and formally married), occupation (no, professional, agricultural, manual and other), wealth index (rich, middle and poor), able to read and write (no, yes), computer in household (yes, no), electric in household (no, yes), mobile ownership (no, yes) and native language (Amharegna, Tigrigna, Oromogna, English and other). Family planning-related variables include knowledge of family planning, SMS message about family planning (those who received text message about family planning as Yes, other who never received text message about family planning as No) and number of living children as (no, yes), community discussion about family planning.

Statistical analysis

The dataset downloaded were cleaned and recoded as required based on standard from previous evidence. The missing value was managed according to a specific recording either leaving it is or removing the variable that has a large missing value. The distribution of demographic variables was summarized in frequency and proportion.

The Scio demographic determinant of internet utilization was accessed by multi-variable logistic regression. In multi-variable logistic regression all candidate variables were entered and p-value less than 0.05 were reported as an associated factor of internet use. Associated factor interpreted in Odd ratio in 95% confidence interval and P value. The probit model was used to determine the association of internet use and condom use for FP.

The probit model estimates the probability of one of two possible outcomes of binary outcome that calculate inverse standard normal distribution of the probability is modeled as a linear combination of the predictors. It is interpreted in the term of coefficient that predicts the association of condom use with each one unit of difference in internet use by controlling other variables.

The impact of internet use on family planning behavior was measured by average treatment effect which was estimated by propensity score matching. Propensity score matching can be used for observational data to estimate the effect of treatment on outcome by considering covariates that predict receiving the treatment. But in observational data estimating PSM may result in bias due to the factor used for predicting rather than by treatment itself. So Propensity score matching was calculated when the common support region was fitted after appropriate matching. Matching used to reduce the bias by creating two sample units of treatment taken or not on all observed covariant.

Different matching methods were checked using propensity score. Propensity score calculated using multivariable logistic regression to test adequacy of matching. Balanced propensity score considered if standardized difference of the covariant between two groups is less than 10 % after matching (36-38).

Propensity score matching performed using psmatch2 command in STATA 14 versions. I used kernel 0.05 matching function. In psmatch2 output, average treatment effect on treated (ATT) is used to measure the effect of internet use on family planning behavior. ATT indicates average treatment effect on those who ultimately receive the treatment (38).

Patient and public involvement (PPI)

Since the analysis was based on secondary analysis of EDHS 2016, there was no patient and public involvement (PPI). But during data collection by measure, DHS PPI participation was considered.

Multicollinearity

Multicollinearity checked by variance inflation factor at cut point of 10. VIF less than 10 is considered the absence of multicollinearity and variable included in analysis (39).

Ethical consideration

The study has been granted permission by ICF international after the request is processed. Ethiopia demographic and health survey 2016 participant gave informed consent prior to study. This study was ethically approved by the education and research board of Dessie Health Science College. Individual and household identification is not made in any phase of study.

Results and Discussion

Scio demographic distribution of male youth respondent in Ethiopia in 2016 EDHS

The result was computed using secondary analysis of Ethiopia DHS 2016 that focused on internet utilization and family planning behavior among male respondents. In Ethiopia DHS 2016, the total number of respondents included in this study was 4455 youth males age between 15-24 years. Most of the respondents, 2572 (57.73 %) were between 15-19 years old. Among respondents, 3588 (87.29%) and 1138 (25.55%) were from rural residents and do not have electricity respectively. More than half of respondents, 2314 (51.94%), own mobile phones. Nearly half of the respondents were 2184 (49.03%) rich wealth index (Table 1).

Determinant of internet utilization among of male youth respondent in Ethiopia

Internet use among youth male age 15-24 was 14%. Factor associated with internet utilization was age of the respondent, educational level, resident, live in the city administrative region and mobile phone ownership. Age between 20-24 years was 40% (AOR=0.60; CI: 0.46-0.79) less likely to use the internet when comparing to the age between 15-19 years. Regarding the urban resident, urban resident 3.94 time (AOR=3.94; CI: 2.75-5.64) more often. Higher and secondary educational level of respondent 12.98 times (AOR=12.98; CI:2.69-62.66) and 39.61 times (AOR=39.61; CI: 7.97-196.89) more likely to use internet. Lived in the city administrative region 2.18 times (AOR=2.18; CI: 1.46-3.28) more likely to use the internet. That respondent owns their own

mobile phone 8 times (AOR=8.00; CI: 95.58-11.48) is more likely to use the internet. Respondent who is able to read the whole sentence 4 times (AOR=4.04; CI :(2.54-6.44) is more likely to use the internet. Respondent who has a computer in the household 2 times (AOR=2.03, CI: 1.22-3.40) is more likely to use the internet. In other hand respondent occupation of agricultural and manual has 56% (AOR=0.44; CI: 0.3-0.61) and 46% (AOR=54, CI: 0.36-0.81) less likely to use internet (Table 2).

The association of internet use and male condom use for FP among male youth

The association of male condom use and internet utilization was computed using a probit model. The use of the internet and exposure to family planning information on Webpages increase the use of male condom use among male youth. But also that older age of the respondent, higher educational level, living in the city administrative region, professional and manual occupation and mobile ownership associated with the use of condoms among male youth. R2 for the model was 0.67. In other hand, rural living and being married are negatively associated with condom use (Table 3).

The Impact of internet use on family planning behavior

The impact of internet use on family planning behavior was computed by PSM model. Most of the respondents that use the internet were more likely to be exposed to the FP message. Average treatment effect after matching indicates internet use significantly associated with knowledge about FP, exposure to Webpages about FP and male condom use. Treatment effect of internet use on exposure to Webpages about FP, male condom uses and knowledge about FP increase 12%, 7.2% and 4.5% percent point respectively.

The study was based on secondary data analysis of EDHS 2016. 2016 EDHS was a national representative cross-sectional study. The study indicated the determinant of internet utilization and its impact on family planning behavior.

The internet penetration rate among young males is low. By controlling other factors such as the age of the respondent, educational level, resident, lived in the city administrative mobile phone ownership and occupation, mobile phone ownership and occupation were significantly affected the use of the internet among young male respondents. The average treatment impact

of internet use on exposure to the internet about FP, male condom uses and knowledge about FP has 12%, 7.2% and 4.5% percent point respectively.

In Ethiopia, the magnitude of internet utilization among young people was 14.7%. It is in line study done in India and Pakistan (41). This finding is much lower than a study done in a developed country. Internet utilization in the developed country and the least developed country were 67% and 30% among young age between 15-24 years respectively (41). However, internet use in Ethiopia was low when compared to these countries. The reason might be access to infrastructure related to technology and national policy related to the internet development program (40).

The Scio demographic factor associated with internet utilization was predicted using multi-variable logistic regression, and it indicates the age of the respondent, educational level, urban resident, lived in the city administrative region, mobile phone ownership and occupation. It significantly affected the use of the internet among young male respondents.

Adolescent age between 15-19 years was more likely to use the internet than older age between 20-24 years. It support by study done in Spain (42) and Eritrea (42).

Younger male has given more importance to extrinsic rewards of technology use. They have a strong intention to use technology and perceived usefulness of technology use (43). In contrast to this study, evidence from the United State indicates older children use the internet because of less restriction from parents and affording money for internet cost (44).

Respondent resident in the urban increased the utilization of the internet. Additionally, respondents who lived in the city administrative region were more likely to use the internet. It supported by study done in Nigeria (45) and United State (44). Urban residents may have well-infrastructure that provides broadband service, more educated respondents and higher economic community than rural ones. In the city the internet can be accessed in the office, cafes, and school and public which can provide the internet for everyone. It is important for developing countries since they cannot afford the internet at home (46).

Education level associated with internet use are those higher and secondary educated respondents more likely to use the internet. Furthermore, respondents who are

able to read the whole sentence increase internet use. People might know about how to search and use the internet. Addition reasons include being able to read content, understand the context and know the subject matter of service (48).

Mobile ownership and the presence of a computer in the household were positively associated with internet use. It support by evidence from United States (44) and Africa (49).Currently, different computer base technology is widely available for use that would ease access and use of the internet (50). The ownership of a mobile phone was a portable way of accessing Wifi internet with low cost (51). `

Respondents who had occupation were more likely to use the internet than none occupied. Occupation influences the use of the internet. A reason might be the availability of internet in the office and access to media. It was supported by study done in Spain (42)and Iraq (47).

Internet utilization affects family planning behavior including knowledge about family planning, exposure to FP message on the internet and condom use.

Currently, Internet-based health intervention is considered the basic part of disseminating health information. Retrieve health information on the internet foster engagement of the public in health care (52). Most commonly, internet use for health-seeking behavior rather than clinical subject. Health seeking behavior on the internet among patients is well-documented in previous research. Many researches cite the availability of health information on the internet which is important for the public to develop health behavior ((23, 52).

The Impact of internet utilization on family planning behavior was measured using average treatment effect. Internet use increases 4.5-percent on knowledge of family planning when compared to internet non-users. Because of the internet, the internet, the internet used to provide fast and free information. It helps people to interact with each other through the online and share their experiences and knowledge, as in real life.

The use of the internet to the construction of health understandings and knowledge. Health experiences and understandings (2, 18). The information disseminated on the internet includes information related to fertility and family planning, E-commercial service and counseling

service. The Internet-supported fertility awareness is efficient and acceptability (17, 22).

Using the internet increases the exposure to family panning information on the website.

Those who frequently use the internet are 12 percent more likely to be exposed to FP information. This indicates internet use among youth for health information despite different content on the internet. On the internet different applications were accessed, but it indicates the possibility of internet use for health purpose (20). The Internet-based FP channel was a reliable health information that was provided to young people by health professional (53).

This study indicates Internet use strongly correlates with male condom use for family planning purpose of those young males who use the internet. The Internet is a predominant source of male. It is support by evidence from Turkey (54). Male condom use may be temporary, but it is important for family planning program to achieve need to have consistence media that disseminate information about FP like social media and internet (Table 4) (29).

Strength and limitation of study

The study is conducted at the national level using the multistage sampling technique. This is important to collect nationally representative data. The results from this study can be generalized to other developing countries.

The questioner used for data collection and data qulity checkup were based on standard that modified according to specific country which is important to be representative and to compare the statics with different country.

The data source in secondary analysis of EDHS, not all variable that affect internet utilization were included like health status of respondent, access of internet and internet use for health purpose.

This study is not covered organizational and individual level factor include unreliable and slow connection,

financial issue of internet and power supply. Further research should conduct to assess psychological effect of internet use among young. Lastly because of EDHS 2016 was cross sectional so study difficult to causal inference.

Recommendation

The internet penetration rate among young males is low. By controlling other factors such as the age of the respondent, educational level, resident, lived in the city administrative mobile phone ownership and occupation, mobile phone ownership and occupation were significantly affected the use of the internet among young male respondents.

Disseminating health information over the internet is the effective way of transferring family planning information to the public, and it has a great promise for future use because of the growing nature of internet use. The average treatment impact of internet use on exposure to the internet about FP, male condom uses and knowledge about FP has 12%, 7.2% and 4.5% percent point respectively.

Since the internet is the main source of family planning, incorporating the internet in family planning program has many advantages for providing health issues special focusing on priority programs like engaging male in family planning program. Male internet use helps them to engage in family planning programs. Policy makers should also consider internet-based family planning service which consists of different issues such as information about FP, place where to access and informed consent.

Health information for the male age group is sensitive to cultural value that challenges for health intervention, so the internet provides trusted and confidential information that protects personal identification of an individual. So, all the concerned bodies should consider age-specific health information on the internet. It would fill the gap in transmitting information among particular people. It is very important for marginalized and discriminated groups. A health professional can also use the internet to transfer targeted information based on priority and on the problem.

Table.1 Scio demographic distribution of male youth respondent in Ethiopia in 2016 EDHS.

Variable	Weight Frequency (N)	Weight Percentage (%)
Age		
15-19	2572	57.73%
20-14	1883	42.27%
Education level		
No education	543	12.18%
Primary	2744	61.59%
Secondary	910	20.43%
Higher	258	5.80%
Residence		
Urban	867	19.47%
Rural	3588	80.53%
Lived in city administrative region		
No	4223	94.79%
Yes	232	5.21%
Marital status		
Single	3889	87.29%
Married	500	11.23%
Formal	66	1.48%
Occupation		
No	811	18.20%
Agricultural	2575	57.79%
Professional	310	8.98%
Manual	342	7.69%
Other	327	7.35%
Wealth index		
Poor	1425	31.97%
Middle	846	19.00%
Rich	2184	49.03%
Number of living children		
No child	4153	93.21%
Above one	302	6.79%
Literacy /able to read whole sentence/		
No	1681	37.74%
Yes	2774	62.26%
Computer access		
No	4319	96.96%
Yes	136	3.04%
Electric in household		
No	3317	74.45%
Yes	1138	25.55%
Mobile phone owns		
No	2141	48.06%
Yes	2314	51.94%
Native language		
Amarigha	2018	45.29%
Tigrign	305	6.85%
Oromigna	1500	33.66%
English	10	0.22%
Other	623	13.98%

Table.2 Determinant of internet utilization among of male youth respondent in Ethiopia in 2016 EDHS

Variable	Internet User	Internet none user	COR	AOR
Age				
15-19	2230	342	1	1
20-24	1570	313	1.3 (1.10-1.53) *	0.60 (0.46-0.79)*
Education level				
No education	541	2	1	1
Primary	2590	154	19 (4.15-85.44)*	4.37 (0.91-20.98)
Secondary	599	312	167 (36.4-745.9)*	12.98 (2.69-62.66)*
Higher	71	187	840 (182-3868)*	39.61 (7.97-196.89)*
Residence				
Urban	416	451	2.89 (2.69-3.08)*	3.94 (2.75-5.65)*
Rural	3384	204	1	1
Lived in city administrative region				
No	3722	501	1	1
Yes	78	154	2.69 (2.40-2.98)*	2.18 (1.46-3.28)*
Marital status				
Single	3279	610	1	1
Married	462	38	0.44 (0.31-0.62)*	1.27 (0.73-2.20)
Formally	59	7	0.65 (0.29-1.42)	2.33 (0.84-6.45)
Occupation				
No	574	237	1	1
Agricultural	2448	126	0.12 (0.09-0.15) *	0.44 (0.32-0.61) *
Professional	252	148	1.42 (1.10-1.83) *	0.76 (0.52-1.09)
Manual	240	102	1.03 (0.78-1.36)	0.54 (0.36-0.81) *
Other	285	42	0.35 (0.25-0.51) *	0.64 (0.40-1.03)
Wealth index				
Poor	1376	49	1	1
Middle	802	44	1.55 (1.02-2.35) *	0.93 (0.59-1.48)
Rich	1622	562	9.82 (7.26-13.29) *	1.32 (0.89-1.95)
Number of living children				
No child	3511	641	1	1
Above one	289	14	0.25 (0.14-0.44) *	0.56 (0.25-1.24)
Literacy /able to read whole sentence/				
No	1656	26	1	1
Yes	2144	629	19.06 (12.7-28.4) *	4.04 (2.54-6.44) *
Computer access				
No	3764	556	1	1
Yes	36	99	18.55 (12.5-27.4) *	2.03 (1.22-3.40) *
Electric in household				
No	3125	191	1	1
Yes	675	463	11 (9.29-13.53) *	0.86 (0.59-1.26)
Mobile phone own				
No	2098	43	1	1
Yes	1702	612	17.59 (12.8-24.1) *	8.00 (5.58-11.48) *
Native language				
Amarigna	1606	412	1	
Tigrigna	263	42	0.62 (0.43-0.87) *	0.68 (0.42-1.08)
Oromigna	1344	155	0.45 (0.36-0.54) *	0.79 (0.60-1.04)
English	8	2	0.79 (0.15-4.16)	0.76 (0.05-11.81)
Other	578	45	0.30 (0.21-0.41) *	0.75 (0.49-1.14)

Table.3 The association of internet use and male condom use for FP among male youth in Ethiopia, 2016

Variable	Coefficient	Sta. error	P-value
Age			
15-19	1	1	1
20-24	0.492	0.101	0.000
Education level			
No education	1	1	1
Primary	0.354	0.217	0.103
Secondary	0.348	0.252	0.168
Higher	0.579	0.286	0.043
Residence			
Urban	1	1	1
Rural	-0.185	0.148	0.212
Lived in city administrative region			
No	1	1	1
Yes	0.359	0.135	0.008
Marital status			
Single	1	1	1
Married	-1.152	0.200	0.000
Formally	-0.191	0.432	0.658
Occupation			
No	1	1	1
Agricultural	0.185	0.133	0.163
Professional	0.373	0.145	0.010
Manual	0.580	0.151	0.000
Other	0.417	0.211	0.048
Wealth index			
Poor	1	1	1
Middle	-0.199	0.163	0.224
Rich	0.158	0.124	0.202
Number of living children			
No child	1	1	1
Above one	0.326	0.303	0.281
Literacy /able to read whole sentence/			
No	1	1	1
Yes	-0.005	0.122	0.965
Frequently Internet use			
No	1	1	1
Yes	0.480	0.141	0.001
Mobile phone own			
No	1	1	1
Yes	0.225	0.109	0.039
SMS message about FP			
No	1	1	1
Yes	-0.283	0.288	0.326
Exposure to internet about FP			
No	1	1	1
Yes	0.055	0.180	0.758
Constant	-2.663	0.221	0.000

Table.4 The Impact of internet use on family planning behavior among male youth in Ethiopia, 2016

Variable	Internet use		ATT			
	Exposed	Unexposed	X^2	%	95 % CI	P-value
Knowledge about FP	3268(76%)	1020(24%)	53*	4.5 %	(0.03-0.05)	0.000
Exposure to internet about FP	27(11%)	201(89%)	586*	12.0%	(0.07-0.16)	0.000
Male condom use	181(47%)	202(53%)	213*	7.2%	(0.01-0.12)	0.015

Further, research should be conducted on the barrier and opportunity. Additional factors for internet use also include organization factor and national policy.

Abbreviations

FP: Family planning; ATT: Average treatment effect; EDHS: Ethiopia demographic health survey; AOR: Adjusted odd ratio; PSM: Propensity score matching; ICT: information communication technology; CI: Confidence interval

Conflict of interest

The author declares there is no competing interest related to this study for publication.

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Ethical approval and conset of respondant

The conset form taken from participant before data collected and confidentiality was ensured. The permission letter gotten from DHS measure and ethically approved by Dessie Health Science College ethical review committee in ref no of 68/2020.

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