Correlates of health care access problems among reproductive age women in Ethiopia: In-depth analysis of 2016 Ethiopia demographic Health Survey

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Abstract

Background Health care access is timely use of personal health services to achieve best health outcomes. Difficulties to access health care among reproductive age women may led to different negative health outcomes to death and disability. Therefore, this study aimed to assess factors associated with problems of accessing health care among reproductive age women in Ethiopia.

Method This study was based on 2016 Ethiopia Demography and Health Survey. Individual women record (IR) file was used to extract the dataset and 15,683 women were included in the final analysis. A composite variable of problem of accessing health care were created from four questions used to rate problem of accessing health care among reproductive age women. Generalized estimating equation (GEE) model was fitted to identify factors associated with problem of accessing health care. Crude and Adjusted odds ratio with a 95%CI computed to assess the strength of association between independent and outcome variables.

Result In this study the magnitude of problem in accessing health care among reproductive age women was 69.9% of with 95%CI (69.3 to 70.7). Rural residence (AOR= 2.13, 95%CI: 1.79 to 2.53), women age 35-49 years (AOR= 1.24, 95%CI: 1.09 to 1.40), married/live together (AOR= 0.72, 95%CI: 0.64 to 0.81), had health insurance coverage (AOR=0.83, 95%CI: 0.70 to 0.95), wealth index [middle (AOR=0.75,95%CI: 0.66 to 0.85) and rich (AOR=0.47,95%CI:0.42 to 0.53)], primary education(AOR= 0.80, 95%CI: 0.73 to 0.88), secondary education (AOR= 0.57, 95%CI:0.50 to 0.64) and diploma and higher education (AOR= 0.43, 95%CI: 0.37 to 0.50) were factors associated with problem of health care access among reproductive age women.

Conclusion Despite better coverage of health system, problems of health care access among reproductive age women were considerably high. Health insurance coverage,
middle and rich wealth, primary and above educational level were negatively associated with problems health care access. In contrast, older age and rural residence were positively associated with problems of health care access among reproductive age women. This suggests that further interventions are necessary to increase universal reproductive health care access for the achievement of sustainable development goals.

Background

In the past decades maternal health showed a remarkable improvement and achievement of millennium development goals (MDG) through reduction of maternal and child mortality [1]. According to 2015 MDG report, maternal and under-five children mortality decreased by 45 and 52%, respectively from 1990 baseline [1]. However, maternal health problems are still the major concern and are unfinished MDG for low income countries like Africa [1, 2]. Ethiopia one of the sub-Saharan countries with the highest maternal and child mortality with an estimated 353 deaths per 100,000 live births according 2015 report[3]. According 2016 national survey in Ethiopia institutional delivery were 26% and 22% of unmet need for family planning services which utterly linked to a problems with accessibility and utilization of health care services among reproductive age women [3]. Half of global population still don’t have full coverage for essential health services and all united nation member states have agreed to achieve universal health coverage by 2030 as part of SDG [4, 5].

Access to healthcare can be broadly defined based on availability, affordability, accessibility and acceptability of services for best health outcomes [6]. Access to comprehensive, quality health care services is important for promoting and maintaining health, preventing and managing disease, reducing unnecessary disability and premature death, and achieving health equity for all women [7–10]. It agreed that Socio demographic, cultural, and geographical and literacy level and economic conditions plays
a vital role to affect accessibility and utilization of health care services among women [11-15]. Reproductive, maternal, newborn and child health are indictors of equity in health care access in the country [16-20]. Difficulties to access health care among reproductive age women may lead to different negative health outcomes such as unwanted pregnancies resulted from low family planning use, maternal and child mortality from home delivery [7, 9, 19-21]

Ethiopia has three tier health care system ranging from lower primary health care units to provide basic health services to higher tertiary hospitals for specialized cases. Specifically, primary health care units in Ethiopia has components such as health posts which is primarily intended to provide health service to community with 5 kilometer distance through health extension program [22]. In addition, some interventions such as providing maternal service free of charge as exempted were also strategies to improve health care access among women [23]. Different studies showed that rural residence, level of education, marital status, wealth index and occupation were factors associated with problems of accessing health among reproductive age women [11, 13-15, 17, 19, 20, 24]. Though many studies had been conducted to assess health care access in different areas of the country, no study was conducted to identify factors linked to difficulties health care access among reproductive aged women in Ethiopia.

Therefore, this study aimed to assess factors associated with problems of accessing health care among reproductive age women in Ethiopia. Finding from this study could help health care planners for improving health care of women.

Methods

Data source

This study was based on secondary data analysis from 2016 Ethiopia Demographic and
Health Survey which was collected cross-sectional from January to June, 2016. Ethiopia is the second largest populous country in Africa with 102.4 million peoples and with an annual growth rate of 2.46%. Ethiopia has divided into nine regional and two-city administration. Ethiopia has a three-tier health care system with primary health care facilities situated in the nearby community. Maternal health care services are exempted and provided free of charge in all health facilities. The institutional delivery rate was 66% in 2016, which indicates one-third of deliveries continue to be at home.

Population and sample

All reproductive aged women Ethiopia were the source population and those reproductive aged women in the enumeration areas (EA) were the study population. We used individual record (IR) file to extract the study participants of reproductive age women. The Ethiopia demographic and health survey used a stratified two stage sampling technique to select the final study participant women. Initially, the enumeration areas were stratified in to urban and rural of whom, 202 and 443 enumeration areas were selected from urban and rural, respectively using probability method based on proportional to the size of EA and with an independent selection in each sampling stratum. In the second stage, a fixed number of 28 households per cluster were selected with an equal probability systematic selection from the newly created household lists. In the interviewed households, 16,583 eligible women were identified for interviews of which, 15,683 women had completed interview and included in the final analysis of this study. The detail of the methodology is available in the full report of 2016 EDHS [3]

Measurement of variables

The 2016 EDHS used five questionnaires, of which women’s questionnaire was used to collect data about women and child health characteristics. From women individual record
(IR) file socio demographic and reproductive characteristics were extracted from the largest dataset. Health care access problem was the response variable, whereas, age, residence, wealth (economic) status, level of education, marital status, working status, health insurance coverage and reproductive characteristics such as contraceptive use and intention, place of delivery, ANC follow up, pregnancy during data collection were independent variables.

Each women were interviewed to rate health care access problems based obtaining money, distance of health facility, getting permission to consult doctor, and not wanting to alone as big and not big problem coded as “0” and “1” for each of the items. Then we created a composite variable that labeled as “problems of accessing health care” if the women responded to at least one the item as big problem classified as “had problems of accessing health care” and when a women had responded not big problem to those listed items considered as “had no problem of health care access” [3, 17].

Data processing and analysis

STATA 14.1 software used for the whole analysis of this study. Summary measures such as median with IQR, frequencies with percentages computed; tables, figures and text used to present the results. We checked for the presence of correlation among observations within clusters (enumeration areas) and the result showed that there was within cluster correlation (ICC = 0.4) which indicated that there is correlation among observations among cluster level. Generalized estimating equation (GEE) model was fitted to identify factors associated with problems of accessing health care among reproductive age women [25]. The generalized estimating equation was fitted with logit link function and binomial family and working correlation structures (independent, exchangeable, unstructured, and autoregressive) were compared for the smallest standard error difference of robust and model-based standard error. Then, the exchangeable correlation structure showed the
smallest standard error difference, and was selected for this study to handle the within correlation. Crude and Adjusted odds ratio with a 95%CI computed to assess the strength of association between independent and outcome variables. All figures presented in the result section used weighted value unless specified otherwise.

Results

Socio demographic characteristics

A total of 15,683 reproductive age women were included in the final analysis of the study. The median age of women were 27 with (IQR: 20 to 35) years, nearly two-third (67.5%) of women gave birth in the past at which 18 years is the median time to the first birth. More than three fourth (77.8%) were rural dwellers, 47.8% of women had no formal education, 63.8% were married, 46.3% rich wealth index, 43.2% were orthodox religion followers. The majority (94.7%) of women had no health insurance coverage, among interview women, 7.2% of them were pregnant during data collection and 41.6% of them visited health facilities in the past 12 months (Table 1).

Problems of health care access among reproductive age women

In this study the magnitude of problem in accessing health care among reproductive age women was 69.9% of with 95%CI (69.3 to 70.7). Obtaining money for advice (54.8%) and distance to health facilities (50.3%) were the most common problems for accessing health among reproductive age women in Ethiopia. Furth more, out of currently pregnant women during data collection about 73% of them had problems of accessing health care access. Of the parameters used to assess problems of accessing health care about 21.5% of them had multiple problems (not obtaining money, distance to health facility, not want to alone and not getting permission to go) (Figure 1).

Determinant of health care access problem
The result of the bi-variable analysis showed that all explanatory variables were associated with problem of accessing health healthcare at 20% level of significance. The final multivariable generalized estimated equation (GEE) model showed that variables such as residence, marital status, age group, educational level and health insurance were significant determinants of problems of accessing health care at 5% level of significance (Table 2).

Those women who resides in rural areas were 2.13 times more likely had problems health care access compared to urban residents (AOR = 2.13, 95%CI 1.79 to 2.53). Similarly, women who aged 35–49 years, the odds of health care access problem were 1.24 times higher compared to those 15–19 years (AOR = 1.24, 95%CI 1.09 to 1.40). The likelihood of health care access problem among married/live together women decreased by 28% compared to those who never married (AOR = 0.72 95%CI 0.64 to 0.81). The odds of health care access problem were 20% (AOR = 0.80, 95%CI 0.73 to 0.88) to those who had primary education and 43% (AOR = 0.57, 95%CI 0.50 to 0.64) to those who had secondary education as well as 57% (AOR = 0.43 95%CI 0.37 to 0.50) less likely compared to those who had no formal education. For women who had middle and rich wealth status the odds of health care access problem were 25% (AOR = 0.75, 95% CI: 0.66, 0.85) and 53% (AOR = 0.47, 95% CI: 0.42, 0.53) less likely compared to those of poorer women.

Discussion

This study revealed that about 70% of reproductive aged women had problems of accessing health care, of which not obtaining money and distance of to health facilities were the commonest problems reported. The present study was significantly lower than previous EDHS reports of (95.7%) in 2005 [26] and (93.6%) in 2011 {Central Statistical Agency (CSA) [Ethiopia] and ICF, 2005 #37}[27]. This could explained by tremendous efforts of government to achieve millennium development goals of reducing maternal and
child mortality. In addition, countries economic growth in last 15 years and policy revision
to provide basic maternal and child health services free of charge as exempted by the
government may contributed to declining problems of accessing health care [22, 23, 28].
However, the current study result showed high magnitude of access problem despite the
global effort for universal health access for all peoples of the world. Moreover, this finding
was higher than study reports from Tanzania 65% [17] and 64.5% in South Africa [29].
This could be explained socio-cultural and economic difference among countries which
may affect health seeking behaviors. In general findings from this study showed that
despite 100% health coverage in Ethiopia still problems to access health care among
reproductive women made doubts to achievement of SDG and universal reproductive
health access.
Different factors associated with problems of accessing health care among reproductive
aged women. Thus, women who resides in the rural area associated two times more likely
to face access problem compared to urban dwelling. This finding was consistent previous
studies in Tanzania and South Africa [11, 17, 29]. This could be due to the fact that rural
areas are associated with lower geographical accessibility of health facilities. In addition,
socio cultural issues associated with lower male involvement and support to women health
care, besides economic problems. Older age (35–49 years) women were associated with
increased occurrence of health care access problems. This could be due to the fact that
women older age may affect distance travel to obtain health care at peripheral areas.
Married women were associated with lower problems of accessing health care as
compared to those never married. This finding was in line with previous studies [13, 14,
17]. This could be explained by those married women may have better economic and
psycho social support from their partner to access health care [30]. In addition, those
married women may have decided collectively to control their family size and fertility
behavior.

Similarly, those women who had health insurance coverage were associated with less likely of health care access problem compared to those not insured. This finding was consistent with previous studies. Community based health insurance is implemented in Ethiopia since 2010 which protects the community from unexpected catastrophic expenditure and minimize difficulties to obtain money for consulting the doctors [31]. Likewise better educational status were associated with decreased problems of health care access. Better educational level may improve awareness and increase health seeking behavior among reproductive age women. This finding was supported by other studies [11, 14, 17, 32].

Women who had middle and rich wealth index categories associated with lower odds of health access problem compared to poor wealth index. This finding was consistent with previous study conducted in Tanzania[17]. This possible reasons might be due to the fact that women who had better wealth index may help women to access health care to their best health outcomes. In addition, better wealth index may reduce difficulties of obtaining money to access health care.

This study has strengths of nationally representative data and advanced statistical models were used to account correlations within clusters. However, this study has limitations of cross sectional nature of the study and spatial variability were not assessed. In addition effects of the health system and health worker factors were not assessed.

Conclusion

Despite better coverage of health system, problems of health care access among reproductive age women were considerably high. Health insurance coverage, middle and rich wealth, primary and above educational level were negatively associated with problems health care access. In contrast, older age and rural residence were positively
associated with problems of health care access among reproductive age women. This suggests that further interventions are necessary to increase universal reproductive health care access for the achievement of sustainable development goals.

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from measure DHS through filling requesting form for accessing data. The data used in this study are publicly available, aggregated secondary data which hasn’t any personal identifying information that can be linked to study participants. Confidentiality of data was maintained anonymously.

Availability of data and materials

The datasets used during the current study is available from the corresponding author

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Consent for publication

Not applicable.

Competing interests

The authors declared that they have no competing interests.

Authors’ contributions
KST, ZTT and FBK conceived the study, involved in the study design, data analysis, drafted the manuscript and critically reviewed the manuscript. All authors read and approved the final manuscript.

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Tables
Table 1: Socio demographic and reproductive characteristics of women who aged 15-49 years in Ethiopia, 2016 (n=15,683)
| Characteristics          | Category                        | Frequency | Percentage |
|-------------------------|---------------------------------|-----------|------------|
| Age in years            |                                 |           |            |
|                         | 15-19                           | 3381      | 21.6       |
|                         | 20-34                           | 8064      | 51.4       |
|                         | 35-49                           | 4238      | 27         |
| Residence               | Urban                           | 3476      | 21.2       |
|                         | Rural                           | 12207     | 77.8       |
| Religion                | Orthodox                        | 6786      | 43.3       |
|                         | Muslim                          | 4893      | 31.2       |
|                         | Protestant                      | 3674      | 23.4       |
|                         | Other                           | 330       | 2.1        |
| Education level         | No formal education             | 7498      | 49         |
|                         | Primary school                  | 5490      | 35         |
|                         | Secondary school                | 1818      | 11.5       |
|                         | Diploma and above               | 877       | 5.5        |
| Marital status          | Never married                   | 4037      | 25.7       |
|                         | Married/living together         | 10223     | 65.2       |
|                         | Divorce/widowed/separated       | 1423      | 9.1        |
| Wealth index            | Poor                            | 5442      | 34.7       |
|                         | Middle                          | 2978      | 19         |
|                         | Rich                            | 7263      | 46.3       |
| Gave birth in the last five years | Yes                           | 7590      | 48.4       |
|                         | No                              | 8093      | 51.6       |
| Place of delivery (n=7,590) | Home                          | 5066      | 66.7       |
|                         | Health facility                 | 2524      | 33.3       |
| Had ANC follow up(n=7,590) | Yes                          | 2818      | 37.1       |
|                         | No                              | 4772      | 63.9       |
| Contraceptive use and intention | Using modern method              | 3899      | 24.8       |
|                         | Using traditional method        | 75        | 0.5        |
|                         | Non-user and intends to use later | 6470 | 41.2       |
|                         | Does not intend to use          | 5239      | 33.5       |
| Visited health facility in the last 12 months | Yes                           | 6526      | 41.6       |
|                         | No                              | 9157      | 58.4       |
| Sex of household head   | Male                            | 11960     | 76.3       |
|                         | Female                          | 3723      | 23.7       |
| History of abortion     | No                              | 14447     | 92.1       |
|                         | Yes                             | 1326      | 7.9        |
| Working status          | Working                         | 5220      | 33.3       |
|                         | Not working                     | 10463     | 66.7       |
| Ever heard of fistula   | Yes                             | 5990      | 38.4       |
|                         | No                              | 9625      | 61.6       |
| Health insurance coverage | Yes                          | 830       | 5.3        |
|                         | No                              | 14853     | 94.7       |
| Currently pregnant      | No                              | 14,547    | 92.8       |
|                         | Yes                             | 1,135     | 7.2        |

Table 2: Bivariable and multivariable generalized estimating equation (GEE) regression analysis reproductive age group women in Ethiopia, 2016 (n=15,683)

| Characteristics | Health care access problem | Crude odds ratio (95%CI) | Adjusted CR (95%CI) |
|-----------------|----------------------------|--------------------------|---------------------|

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|                                | Yes       | No       | 95% CI     | P value  |
|--------------------------------|-----------|----------|------------|----------|
| **Residence**                  |           |          |            |          |
| Urban                          | 1584      | 1892     | 1          | 1        |
| Rural                          | 9392      | 2814     | 4.00(3.40, 4.70) | 2.13(1.79, 2.55) |
| **Household head**             |           |          |            |          |
| Male                           | 8466      | 3495     | 1          | 1        |
| Female                         | 2511      | 1211     | 1.11(1.04,1.19) | 1.05(0.97, 1.12) |
| **Marital status**             |           |          |            |          |
| Never married                  | 2592      | 1443     | 1          | 1        |
| Married/living together        | 7345      | 2877     | 1.04(0.94,1.08) | 0.72(0.64, 0.80) |
| Divorced/widowed/ separated    | 1038      | 384      | 1.39(1.24,1.56) | 1.00(0.87, 1.15) |
| **Age group**                  |           |          |            |          |
| 15-19                          | 2291      | 1089     | 1          |          |
| 20-34                          | 5582      | 2481     | 1.014(0.94,1.09) | 1.06(0.99, 1.07) |
| 35-49                          | 3103      | 1135     | 1.21(1.11,1.32) | 1.24(1.09, 1.40) |
| **Level of education**         |           |          |            |          |
| No formal education            | 5847      | 1650     | 1          | 1        |
| Primary education              | 3906      | 1584     | 0.72(0.67,0.78) | 0.80(0.73, 0.86) |
| Secondary education            | 873       | 943      | 0.48(0.43,0.53) | 0.57(0.50, 0.64) |
| Diploma and above              | 349       | 527      | 0.36(0.32,0.41) | 0.43(0.37, 0.50) |
| **Working status**             |           |          |            |          |
| Working                        | 3407      | 1812     | 0.96(0.90,1.02) | 0.99(0.92, 1.03) |
| Not working                    | 7569      | 2893     | 1          | 1        |
| **Wealth status**              |           |          |            |          |
| Poor                           | 4574      | 867      | 1          | 1        |
| Middle                         | 2300      | 677      | 0.70(0.62,0.79) | 0.75(0.66, 0.86) |
| Rich                           | 4101      | 3161     | 0.36(0.33,0.40) | 0.47(0.42, 0.53) |
| **Health insurance**           |           |          |            |          |
| Non-insured                    | 10551     | 4337     | 1          | 1        |
| Insured                        | 460       | 369      | 0.78(0.66,0.91) | 0.83(0.70, 0.96) |
| **Gave birth in the last five years** |         |          |            |          |
| Yes                            | 3288      | 2804     | 1          |          |
| No                             | 5688      | 1901     | 1.07(1.01,1.14) | 1.09(0.98, 1.23) |
| **Ever heard of fistula**      |           |          |            |          |
| Yes                            | 7395      | 2229     | 1          | 1        |
| No                             | 3521      | 2468     | 0.73(0.68,0.78) | 0.79(0.75, 0.86) |
* shows statistical significance at p-value less than 0.05

Figures and legends

Figure 1: percentage of problem accessing health care among reproductive age women in Ethiopia, 2016

Figures

![Figure 1: Percentage of problem accessing health care in Ethiopia](chart)

**Figure 1**

Percentage of problem accessing healthcare in Ethiopia