RESEARCH ARTICLE

Effects of community-based health insurance on modern family planning utilization in Ethiopia [version 1; peer review: awaiting peer review]

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Abstract

Background: Community-based health insurance (CBHI) has been established in a number of developing countries to expand access to modern health care service. However, few studies have focused on health care utilization of CBHI members in Ethiopia. Accordingly, the aim of this study was to assess the effect of CBHI on modern family planning (FP) utilization as part of its routine outcome monitoring activities.

Methods: The USAID Transform: Primary Health Care project, conducted a continuous monitoring follow up visit using a multistage sampling technique in its four major targeted regions. A total of 3433 households were selected and 3313 women of reproductive age (15-49 years) were interviewed. The questionnaire captured the CBHI status of each household and FP use data from randomly selected women. Microsoft Access database was used to enter the data, which was then transferred to SPSS Version 20 for further analysis.

Results: In total 50.8% of married women (aged 15-49 years) were found to be enrolled in CBHI. Current modern FP use is 47.5% among married women in project-supported areas. Modern FP use is 50.9% among married women who are exposed to CBHI schemes, versus 44.1% among women who are not exposed to CBHI which is statistically significant.

Conclusions: Modern FP utilization among insured women was higher compared with uninsured women. While FP methods are provided for free, CBHI enrolment improves FP use among women of child-bearing age. Women who have access to CBHI may frequently visit health facilities seeking services for themselves and their families, during which they may be introduced to FP services. This in turn may improve their awareness and attitude towards FP. The results will increase awareness for program implementers of the benefits of CBHI schemes in FP programming, particularly in rural settings, and provide an opportunity to increase lifelong returns in Ethiopia.

Keywords
Family planning, utilization, CBHI, Ethiopia
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Introduction

In 2011, the Government of Ethiopia introduced a community-based health insurance (CBHI) program and implemented it using a phased-in approach. The program was first piloted in 2011–2013, within 13 woredas (districts) of the four most populous regions: Oromia, Amhara, SNNP and Tigray. Prompted by its success, lessons learned, and viability of implementing the scheme as concluded in the evaluation carried out of the 13 pilot CBHI schemes in 2014/15, the Government decided to scale-up the CBHI program to other woredas. Currently, CBHI is being implemented in a total of 512 woredas in six regions and two city administrations. CBHI is a health insurance scheme that pools resources from citizens (members) in the informal sector in the form of contributions into a collective fund, which is managed by a scheme management body, generally functioning under the woreda health bureau, and governed by board members drawn from CBHI scheme members and other key stakeholders as appropriate. USAID has been supporting the Government of Ethiopia in health sector financing reforms in Ethiopia, including CBHI implementation since their inception through its consecutive previous projects. In continuation of this assistance, USAID recently launched a new 5-year activity, the Health Financing Improvement Program, 2018–2023 to support health sector financing. Additionally, the USAID Transform: Primary Health Care project provides technical support in its focus woredas towards the initiation, launching and operationalization of CBHI schemes.

CBHI is believed to considerably increase the demand for health care services because the financial burden on households and/or individual beneficiaries at the time of seeking health care will be removed as CBHI schemes cover these costs. The design of Ethiopian CBHI learned from the experience of other countries, and has recorded notable progress in several community health outcomes over the past 10 years. Family planning (FP) is a proven strategy to reduce maternal and child mortality and morbidity among women of reproductive age. CBHI contributes to the improvement of health seeking behaviour, health care utilization and service quality. Different evidence suggests that CBHI membership has positive effects on health care utilization. Despite this positive pattern, the overall health risk profile of those who have enrolled in the scheme does not seem to be very different from those who have not yet enrolled. There is no specific evidence of the role of CBHI in improving modern FP utilization. The main aim of this study was to evaluate the effect of CBHI on modern FP utilization.

Methods

Study background

The USAID Transform: Primary Health Care project conduct continuous monitoring follow-up visits using a multistage sampling technique in its four major targeted regions. The project had been supporting 360 woredas in its four major target regions and established 29 clusters-level offices (CLOs) and considers all CLOs. The sample technique was a combination of simple random and random-walk technique. A sampling frame was prepared by listing the woreda health offices (WorHOs) under each CLO, health centers (HCs) under each WorHOs and Health Posts (HPs) under each HC. A total of 164 WorHOs, 328 HCs and 694 HPs were selected randomly in proportion to the size of the region. A HP is found in a kebele (village), which is the lowest administrative area in Ethiopia. If the HP was randomly selected for the project continuous household survey, then the kebele associated with the selected HP was chosen for the next stage of sampling.

After getting the associated list of kebeles, prepared the list of gotts from the HP associated kebeles in consultation with the health extension worker (HEW) and selected one gott randomly from each associated kebele. A gott is a geographic area under the kebele covering on average 250 households. The survey team utilized a list of households under the selected gotts from the health post registry book. The list of the households served as a sampling frame for the selection of the households. The survey team selected five households from each Got using a random-walk technique in person at their household. If there was more than one eligible respondent found in a household, simple random sampling was used to select one eligible respondent. Of the total planned 3433 households, data were collected and analyzed from 3313 women of reproductive age in the households.

The sample size requirements were based on estimates for the proportion of modern methods of FP utilization on the day of the monitoring follow-up visit at 95% confidence. The sample size determines used in double population proportion formula. For the purpose of this analysis, our definition of modern FP included oral contraceptives, emergency contraceptives, injectable contraceptives, contraceptive implants, and IUDs.

Data collection was conducted from October 1 to December 31, 2017 and 3313 women of reproductive age (15–49) were interviewed. A household questionnaire was developed in consultation with program technical advisors. Regional and CLO staff members received training to use the survey questionnaire and were responsible for data collection in their respective catchment.

Data processing and analysis

The data management process was managed by the monitoring, evaluation and learning teams at regional and country office levels. Microsoft Access database was used to enter the data, which was then transferred to SPSS Version 20 for analysis. A total of 10% of the questionnaire was selected and re-entered and cross-checked for data consistency and completeness. It was observed that about 99% of the questionnaires were entered accurately. Data cleaning was performed to check for frequencies, accuracy, consistencies and missing values. Frequencies, proportion, and summary statistics were used to describe the study population in relation to the study variables. Significance tests performed using the cut-off values set is p<0.05 with 95% confidence interval (CI).

Ethical consideration

This report used project data that has been collected as part of the annual random follow-up monitoring visit to households.
in project areas and the result was not linked to individual identifiers. The results of the study did not distinguish respondents’ race, age, health information, religion, sex and sexual orientation or any other social groups. Therefore, the study did not require ethical clearance by a human research ethics committee. However, the project obtained permission to implement and assess progress from the regional health bureaus of Amhara, Oromia, SNNPR and Tigray.

The assessment questionnaires of CBHI effect on modern family planning directly related to their program monitoring and meant to inform the program. The interviews were not intended to develop or contribute to generalizable knowledge. Participants were informed about the purpose of the survey, project approaches to enabling the responsive, iterative implementation that has taken place project life cycle. After discussion and understanding of the purpose the project obtained oral consent from each participant, since participants were fearful of being identified.

## Results

### Family planning usage

A total of 3313 reproductive age women found in 3433 households were included in the study. Among the study participants, 50.8% of married women aged 15–49 were found to be in a household already enrolled in CBHI. Current modern FP use is 47.5% among married women in project-supported areas (Table 1). De-identified raw data are available on Open Science Framework12.

Table 2 presents respondents’ contraceptives prevalence rate of different methods. The table shows that 50.2% of the respondents utilized any method of FP, 49% used modern methods and 0.5% of the respondents utilized permanent methods.

Table 3 presents family planning prevalence rate among young married women. The table shows that 53.5% of young women are currently using any method of contraceptives and 16.4% of respondents are using long-acting reversible contraceptives.

### Effect of CBHI on FP usage

Modern FP use is 52% among married women who are exposed to CBHI schemes, versus 44.1% among women who are not exposed to CBHI. The effect of CBHI on family planning utilization is statistically significantly (p=0.002). While family planning methods are provided for free, CBHI enrolment improves family planning use among women of child bearing age. Women who have access to CBHI may frequently visit health facilities seeking services for themselves and their families, during which they may be introduced to family planning services. This in turn may improve their awareness and attitude towards family planning. As a result, women who are part of CBHI may have better FP utilization rate compared to women who are not.

### Discussion

This study revealed that CBHI impacted modern family planning utilization among insured and uninsured women. Modern family planning utilization among insured women was higher compared with uninsured women. The positive results of the CBHI schemes in encouraging health care utilization suggests that CBHI can be effective instrument for achieving universal health coverage, together with other policy tools13. According

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**Table 1. Participants enrolled in community-based health insurance (CBHI) and their perception of its importance.**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Prevalence, % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHs found in a woreda/district with CBHI schemes</td>
<td>63.9 (62.2-65.6)</td>
</tr>
<tr>
<td>CBHI enrolment rates</td>
<td>50.8 (46.8-53)</td>
</tr>
<tr>
<td>HHs that believe CBHI is important</td>
<td>88.8 (87.2-90.4)</td>
</tr>
<tr>
<td>HHs that believe CBHI is important and enrolled in CBHI</td>
<td>77.2 (74.9-79.5)</td>
</tr>
<tr>
<td>HHs that believe CBHI is not important, but are enrolled in CBHI</td>
<td>14.3 (8.7-19.9)</td>
</tr>
</tbody>
</table>

CI, confidence interval; HHs, households.

**Table 2. Family planning prevalence rate among married women of reproductive age (15–49 years).**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Prevalence, % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any method</td>
<td>50.2 (48.4-51.9)</td>
</tr>
<tr>
<td>Modern method</td>
<td>49.0 (47.2-50.7)</td>
</tr>
<tr>
<td>Long-acting reversible contraceptive</td>
<td>15.1 (13.9-16.4)</td>
</tr>
<tr>
<td>Short acting contraceptive</td>
<td>33.3 (31.7-35)</td>
</tr>
<tr>
<td>Permanent methods</td>
<td>0.5 (0.2-0.7)</td>
</tr>
</tbody>
</table>

CI, confidence interval.

**Table 3. Family planning prevalence rate among young married women aged 15–24 years.**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Prevalence, % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any method</td>
<td>53.5 (50.1-56.8)</td>
</tr>
<tr>
<td>Modern method</td>
<td>51.9 (48.6-55.3)</td>
</tr>
<tr>
<td>Long-acting reversible contraceptive method</td>
<td>16.4 (13.9-18.9)</td>
</tr>
<tr>
<td>Short acting contraceptive</td>
<td>35.6 (32.3-38.8)</td>
</tr>
</tbody>
</table>

CI, confidence interval.
to the findings of Shimelis, CBHI membership has a potential to increase healthcare utilization\textsuperscript{5}. Similarly, Giedion \textit{et al.}\textsuperscript{13} reviewed 23 studies and found differences in how CBHI affected service access and utilization among different population groups. Nevertheless, the evidence indicates that, overall, the CBHI universal health coverage scheme improves access and utilization of services\textsuperscript{11}. Similar evidence showed that the trend of outpatient service care increased for insured households, while it declined for the uninsured\textsuperscript{24}. The finding of this study showed that women with CBHI improved modern family planning utilization among uninsured women of child-bearing age. The government of Ethiopia is rolling out CBHI to improve community financial protection when receiving health facility service and utilization as well as of health care service improvements\textsuperscript{10,16,17}. Although FP methods are provided for free, women who have access to CBHI may frequently visit health facilities seeking services for themselves and their families, during which health care provider might be introduced to FP services and their importance. Studies show that the number of outpatient visits per insured household member increased, while for uninsured households in the CBHI districts the corresponding members are reduced their visits\textsuperscript{4,10}. This in turn may improve their awareness and attitude towards family planning.

The limitation of this study was not allowed the casual effect of factors that contribute their association. Except for respondents, characteristics such as perception about CBHI and age, this study did not allow a link with other potential causes that may affect utilization of modern FP methods. Despite these limitations, the study provided a comprehensive opportunity to overview the effect of CBHI-related utilization of modern FP methods.

\textbf{Conclusion and recommendation}

The present study showed that more than half of the respondents are currently using modern FP methods. CBHI enrolment was significantly associated with use of FP. Child-bearing women who were not exposed to the CBHI scheme should be the target audience. Moreover, it needs communication strategy that will provide information about the contribution of CBHI on FP utilization. The results of this study will help program implementers be aware of the benefits of the CBHI scheme in FP programming particularly in rural settings, and the opportunity to increase lifelong returns in Ethiopia.

\textbf{Data availability}

\textbf{Underlying data}

Open Science Framework: Effects of community-based health insurance on modern family planning utilization in Ethiopia. https://doi.org/10.17605/OSF.IO/ZS2T3\textsuperscript{12}.

This project contains the raw responses to the survey for each participant in file HH 2017.sav.

\textbf{Extended data}

Open Science Framework: Effects of community-based health insurance on modern family planning utilization in Ethiopia. https://doi.org/10.17605/OSF.IO/ZS2T3\textsuperscript{12}.

This project contains the survey questionnaire in file HH FUV Checklist.pdf.

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).

\textbf{Grant information}

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7. Modern health care use includes utilization of health care services from health posts, health centers, private/NGO clinics, and public/private/NGO hospitals.


