

Willingness to join health insurance schemes in Ethiopia: systematic review and Meta-Analysis

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Abstract

Background: Health insurance especially CBHI has brought significant impact on health related outcomes. However, in Ethiopia, study findings regarding the level of willingness to own/join willingness to own health insurance is highly fragmented. Thus, this systematic review and meta-analysis was aimed to estimate the pooled prevalence of willingness to own health insurance in Ethiopia.

Methods: International data bases were searched for studies done in Ethiopia on willingness to own health insurance between the periods 30 July 2019 to 25 October 2019. Meta-analysis using a random effects model was employed to estimate the pooled prevalence of willingness to join health insurance options/schemes. Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guideline was used to prepare and present this systematic reviews and meta-Analysis. STATA version 14 software was used for analysis. Publication bias was checked using funnel plot and egger test. Subgroup analysis was performed by region and type of insurance scheme.

Results: A total of 17 studies involving 7932 respondents fulfilled the eligibility criteria. The overall pooled prevalence of willingness to be a member of health insurance schemes among respondents in Ethiopia was 64.16% (95%CI: 54.81, 73.51). The subgroup analysis of this study further revealed that the highest prevalence of willingness was observed in Tigray Region with a prevalence of 85.3%.

Conclusion: The findings of this study indicated that the prevalence of willingness to own health insurance in Ethiopia was optimal. Therefore, based on this finding, it is recommending that the existing efforts and emphasis for all regions of the country should be strengthened. Furthermore, the government should expand CBHI implementation and implement SHI for formal sector workers. Furthermore, the implementation gaps and associated challenges shall be studied further for health insurance schemes sustainability.

Key words: willingness to join, health insurance schemes, Ethiopia, Meta-Analysis.

Background

Health insurance scheme is a prepayment strategy or a financing scheme where money is pooled into a common fund and used for paying for healthcare costs of members so as to prevent members from catastrophic health expenditure and improve their health seeking behavior(1). Health insurance in low and middle income countries particularly in Ethiopia has not established well yet. In Ethiopia community based health insurance scheme (CBHI) has been started as pilot in 13 districts of 4 regions(2) and now it has been implemented over all the country where as social health insurance (SHI) has not be implemented yet(3). Since its implementation as pilot, CBHI has brought noticeable impact on health seeking behavior and prevention from catastrophic health expenditure(2).

Despite intensive for CBHI sensitization scheme, still about 1 in 5 households are reluctant to join the scheme and remain in the scheme(4). Previous studies found that there is high proportion of households could not adhere to CBHI scheme requirement and implementation of the scheme has no equivalent with the commitment and the focus of the government(5).

In Ethiopia few studies were conducted to assess willingness to own health insurance and its determinant provides noticeable findings (6-8). These few and fragmented studies done identified that a significant number of the community is not willing to own health insurance (voluntary and compulsory), which made the implementation and the sustainability of the scheme more difficult(4, 9).

The proportion of households who are not willing to join should be ruled out for better intervention. For effective scale up and better sustainability of CBHI and initiation of the proposed social health insurance (SHI) scheme, the willingness of the community should be re-examined to have nationwide representative figure to represent Willingness health insurance schemes. Therefore, this systematic review and meta-analysis aims to estimate the pooled prevalence of willingness to own health insurance in Ethiopia. The findings of this systematic review and meta-analysis had implications to improve health care services utilization, prevent households from catastrophic health expenditure and may help to improve quality of health care, efficiency of the health system at large.

Methods

Searching strategies and data selection

Using the following keywords “prevalence”, “willingness to join CBHI”, “willingness to join SHI”, “willingness to pay for CBH”, “willingness to pay for SHI”, “decisions to own health insurance”, decisions to have health insurance”, and “Ethiopia”; a comprehensive search for potentially relevant articles was performed through PubMed/MEDLINE, Science Direct, World Wide Science, Google Scholar, and Cochrane Library with no date limit. The search terms were used separately and in combination using Boolean operators like “OR” or “AND”. The search was conducted between the periods 30 July 2019 to 25 October 2019. Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guideline was used to prepare and present this systematic reviews and meta-Analysis.

Eligibility criteria:

The authors of this study included observational studies that reported the prevalence of willingness to own/join health insurance in Ethiopia. Both published and gray literatures reported in English language were also included and studies with unspecified sample size, fail to report outcome of interest were excluded.

Outcome assessment and data extraction tool

The outcome considered for this study was: To determine the pooled prevalence of willingness to own health insurance; willingness or decisions to own health insurance refers respondents willingness to join health insurance schemes (CBHI, SHI), or willing to pay for health insurance schemes and/or Willing to participate in health insurance schemes (CBHI, SHI).

All included studies used structured pre-tested questionnaire either self-administered or for face to face interview according to educational level of study subjects. Since the tools used by primary studies are pre-tested at various setting it permit meaningful comparisons among diverse settings.

Data extraction and quality assessment:

The methodological quality of all relevant articles included for full-text review was assessed by two reviewers (WG and MMS) independently using a modified version of the Newcastle-Ottawa Scale for cross-sectional studies adopted from Madhavan A. et al(10). The Newcastle-Ottawa Scale tool adapted for cross-sectional studies was used. This tool has three main sections. The first section scored on the basis of one to five stars focuses on the methodological quality of each study (i.e., sample size, response rate, and sampling technique). The second section of the tool considers the comparability of the study cases with a possibility of two stars to be gained. The last section is concerned with the outcomes and statistical analysis of the original study with a possibility of three stars to be gained. Finally, articles assessed with a score of ≥ 7 out of 10 were considered as achieving high quality. All relevant data from included studies were extracted using pre-piloted data extraction form. Studies characteristics: The name of first author, year of publication, study region, study design, sample size, response rate, number of respondent, the number of individuals (household heads) who are willing to own health insurance, study year and health insurance scheme type. Finally, all extraction data were checked by two reviewers, the 3rd and 4th reviewer (DE and DGF) for accuracy and consistency.

Analysis and Assessment of publication bias

The Microsoft Excel for extraction and STATA Version 14 statistical software for analysis were used. Q-statistics and I^2 test were used to assess the heterogeneity among reported prevalence(11). A random effects meta-analysis model was computed to estimate the pooled effect. Sub-group analysis was done based on study settings and insurance scheme type was conducted. Furthermore, to identify the possible source of heterogeneity, univariate meta-regression by considering sample size, region of the country, and year of study (study period) as covariates. Egger's and Begg's tests at a 5% significance level were done to assess publication bias(12). Point prevalence, as well as 95% confidence intervals, was presented in a forest plot format. For determination of the association of determinant factors with willingness to own health insurance a log odds ratio was used. A funnel plot which is a visual tool was used to assess publication bias. Egger's and begg's test was done to examine publication bias in addition to a funnel plot.

Results

Search results and selection

Initially, we identified 803 studies in the electronic search process. Among these, 204 articles were duplicate and thus removed whereas 403 were excluded after reviewing titles and abstracts due to difference with the outcome of interest. The full text of the remaining 96 studies was assessed for inclusion based on the predetermined inclusion criteria and 79 of these were excluded because they did not meet the eligibility criteria. Finally, a total of 17 unique studies were included in the meta-analysis (Fig. 1).

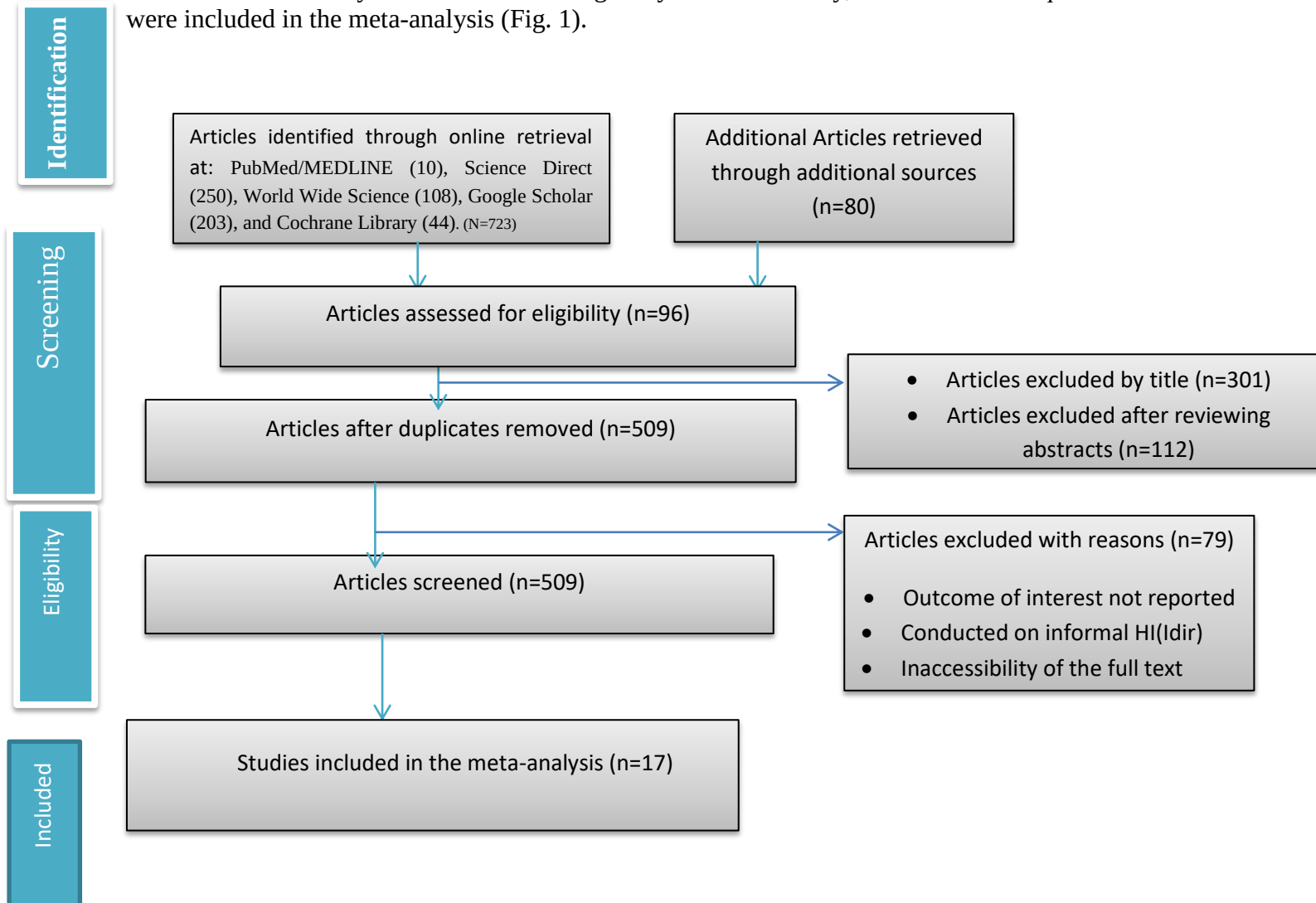


Fig. 1 Flow chart of study selection for systematic review and meta-analysis of determinants of households' decisions' to have health insurance (community based) in Ethiopia.

Characteristics of original studies

In this systematic review and meta-analysis 8163 study samples were identified of whom, 7932 were involved in the studies, which yielding a response rate of 97.17. Among included studies the lowest prevalence (17%) of willingness to own health insurance was found in a study conducted in Addis Ababa(13) and the largest prevalence (85.3%) of willingness to own health insurance was seen in a study conducted at Mekelle town, Tigray region(14).

Concerning the region where the included studies were conducted: included studies were conducted in four Ethiopian regions and in the capital Addis Ababa. Six studies were conducted in Amhara (15-21), five studies in Oromia region (6, 22-25), two studies each done in SNNPR region (26, 27) and Addis Ababa (13) and 1 study in Tigray region (14). In relation to response rate, almost all studies had a good response rate (>85%), which may, in part, be attributable to the use of interviewer-administered questionnaires to collect the data (Table 1).

Table 1: Shows summary of 17 studies included in the meta-analysis of communities' willingness to own health insurance (CBHI, SHI) and its determinants in Ethiopia factors, 2019.

Authors	Pub year	Study region	Study design	Total sample	Response rate	No. of responders	Prevalence	Study year	Insurance type
Tesfaye et al (25)	2019	Oromia	Cross-sectional	206	98.50%	203	39.4	2013	CBHI
Haile et al (27)	2014	SNNPR	Cross-sectional	845	95.60%	808	77.8	2013	CBHI
Ebrahim et al (6)	2019	Oromia	Cross-sectional	435	94.90%	413	73	2017	CBHI
Mekuria et al (24)	2019	Oromia	cross-sectional	292	100%	292	71	2016	CBHI
Yeshiwas et al (15)	2018	Amhara	cross-sectional	557	88%	488	72.7	2013	SHI
Mekonnen et al (16)	2019	Amhara	cross-sectional	633	97.80%	619	65	2018	SHI
Abebaw et al (21).	2018	Amhara	cross-sectional	421	100%	421	69.8	2015	SHI
Tenaw.Y (28)	2019	Addis Ababa	cross-sectional	321	93%	294	35	2017	SHI
Gidey et al (14).	2019	Tigray	cross-sectional	384	99.20%	381	85.3	2017	SHI
Lasebew et al (13)	2017	Addis Ababa	cross-sectional	420	97.30%	409	17	2016	SHI
Tesfamichael et al (26)	2014	SNNPR	cross-sectional	335	98.00%	328	74.4	2012	SHI
Kebede et al (18)	2013	Amhara	Cross-sectional	528	100%	528	80	2013	CBHI
Molla et al (22)	2014	Oromia	Cross-sectional	758	98.02%	743	51.5	2012	CBHI
Entele et al (23)	2016	Oromia	Cross-sectional	500	100.00 %	500	39.7	2014	CBHI
Mamo et al (19)	2017	Amhara	Cross-sectional	392	100%	392	79	2016	CBHI
Minyihun et al (17)	2019	Amhara	Cross-sectional	532	97.40%	519	77.8	2016	CBHI
kibret et al (20)	2019	Amhara	Cross-sectional	604	98.20%	594	81.5	2014	CBHI

Meta-analysis:

The overall prevalence calculated from the 17 included Ethiopian studies showed a pooled prevalence of willingness to own health insurance (CBHI, SHI) was found to be 64.16% (95%CI: 54.81, 73.51) (Fig. 2). The included studies exhibited significant heterogeneity ($I^2 = 99.0$, $p = 0.000$), which led us to compute a random effect meta-analysis model to estimate the pooled prevalence of communities' willingness to own health insurance (CBHI, SHI) in Ethiopia. To identify the possible sources of heterogeneity, different factors associated with the heterogeneity such as number of respondents (sample size), year of study, and number of studies per region of the country where the study conducted, were investigated using univariate meta-regression models, but none of these variables were found to be statistically significant.

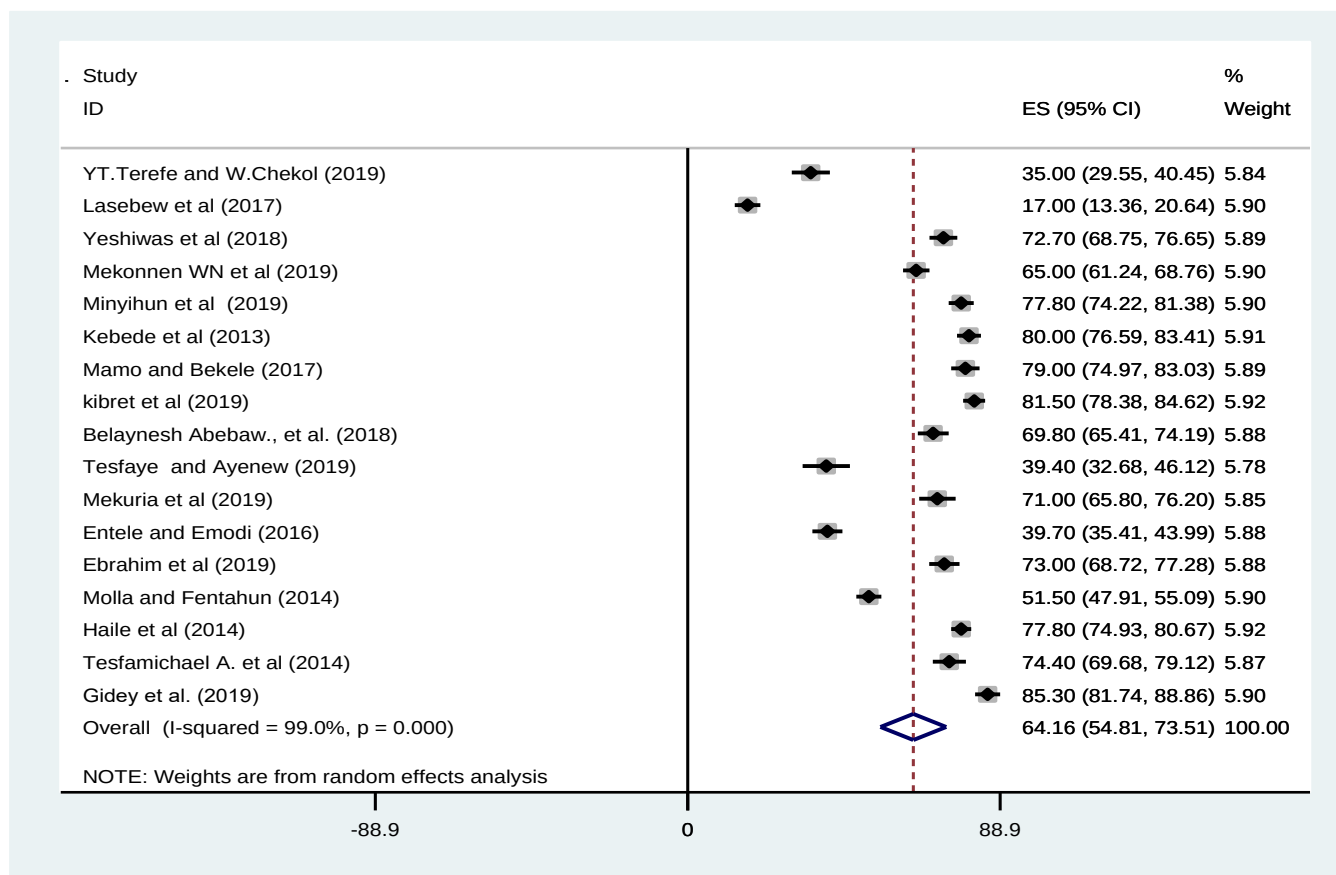


Fig. 2 Forest plot of the pooled prevalence of respondents' willingness to own health insurance (CBHI, SHI) in Ethiopia.

Publication Bias assessment

Presence or absence of publication bias was examined using a funnel plot and Egger's test. Visual inspection of the funnel plot suggested asymmetry (Fig. 4). However, asymmetry of the funnel plot was not statistically significant as evidenced by begg's and Egger's test p-value of $p = 0.484$ and $P = 0.741$ respectively.

Asymmetry in the funnel plots should not be always linked with publications bias [35]. High heterogeneity between the studies might be the reason for the asymmetry of the funnel plot in this systematic review and meta-analysis. Besides, the result of sensitivity analyses using random effects model suggested that no single study unduly influenced the overall estimate.

In this meta-analysis, the Authors performed a multiple comparison of the prevalence of willingness to own health insurance (CBHI, SHI) in Ethiopia by taking different factors. The factors included region where the study was conducted, types of insurance scheme (CBHI or SHI), Year of study when the study was conducted, sample size and number of respondents. Regarding regional prevalence, the highest prevalence of willingness was observed in Tigray Region with a prevalence of 85.3% (95%CI: 81.74, 88.86) followed by SNNPR at 76.64% (95%CI: 73.48; 79.78), and the least regional prevalence was observed in Addis Ababa at 25.88% (95%CI: 8.24, 43.52). Furthermore, the subgroup analysis of this study indicated that the

higher prevalence of willingness to own health insurance was observed when the scheme is voluntary (CBHI) at prevalence of 67.19% (95%CI: 57.93, 76.44) and a prevalence of willingness to own health insurance was lower if the scheme is compulsory (SHI) with the prevalence of 59.90% (95% CI: 40.75, 79.04). List wise, the highest prevalence of willingness to own health insurance (CBHI, SHI) was observed in studies conducted in the year 2015 and the lowest prevalence was in the year 2014 with the prevalence of 69.80% (95% CI :65.41,74.19) and 60.63% (95% CI:19.66,101.59) respectively. Regarding to total sample size and number of respondents, did not observed a paternal increment of prevalence of willingness to own health insurance as sample size and number of respondents increased.

Discussion

In this meta-analysis the pooled prevalence of willingness to own health insurance in Ethiopia was 64.16% (95%CI: 54.81, 73.51). This implies that still nearly 35% of respondents are not willing to be a member of any health insurance schemes/modalities. Hence, this result shows an important policy implication in that the policy makers and implementers ought to design attractive health insurance alternatives or look in to the already established schemes to enable the community members to be a member of health insurance schemes and so as to achieve universal health coverage in 2030. In comparison with the previous similar studies, the finding is slightly in line with a study conducted in South Sudan, which showed the prevalence of willingness to own health insurance as 68%. However, this finding is much higher than a study conducted in Tanzania which found the prevalence of willingness to own health insurance as 30%(29). The finding of this analysis is also much higher than a study conducted in Nigeria and china, which estimated the prevalence of willingness to own health insurance among respondents as less than 40% and 50% respectively(30). The possible reason for this discrepancy might be the difference in quality of health services provided and comprehensiveness of the benefit packages in health insurance schemes.

The subgroup analysis of this study indicated that the highest prevalence of willingness to own health insurance was observed in Tigray region, 85.3% (95%CI: 81.74, 88.86). A possible explanation for this variation could be due to a difference in study setting, as studies conducted in Tigray, SNNPR and Amhara regions included both community-based and facility-based studies whereas studies conducted Addis Ababa included only facility-based studies. In addition, this meta-analysis revealed that the prevalence of willingness to own health insurance (CBHI scheme) (67.19%) was higher than willingness to health insurance (for SHI scheme) (59.90%).

This result is also has a great policy implication in that the policy makers and those concerned decision makers shall secure inter-regional equity insurance coverage.

Limitations of the study

This meta-analysis represented only studies reported from four regions and the capital Addis Ababa, which may end up with over estimation of prevalence of willingness to own health insurance.

Conclusion and recommendations

The findings of this study indicated that the prevalence of willingness to own health insurance in Ethiopia was optimal. Nearly two-third of respondents was willing to own health insurance. Therefore, based on these findings, it is recommending that the existing efforts and emphasis for

low socio-economic status households should be strengthened. Furthermore, the government should expand CBHI implementation and implement SHI for formal sector workers. Furthermore, the implementation gaps and associated challenges shall be studied further for health insurance schemes sustainability.

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