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COMMUNITY-BASED HEALTH INSURANCE AND HEALTH OUTCOMES IN SUB-SAHARAN AFRICA: EVIDENCE FROM A SYSTEMATIC REVIEW

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ABSTRACT

The poor in Sub-Saharan Africa finds it difficult to access quality healthcare because of their socioeconomic status. Community-Based Health Insurance (CBHI) has come to the rescue of the poor in healthcare accessibility and affordability. This review evaluates the impact of CBHI on health outcomes in Sub-Saharan Africa. We systematically assessed the evidence connected with CBHI membership. We searched and conducted a systematic search for relevant literature on online via Google search engine. These studies were published between 2004 and 2018. Both quantitative and mixed studies which adopted different study designs were included in the review. Inclusion criteria were met by 8 studies with 3 of the studies published in Ethiopia, 2 in Rwanda and one each in Burkina Faso, Nigeria and Senegal. Both quantitative and mixed studies show that CBHI enhances healthcare utilisation/accessibility and reduce out-of-pocket payment. Only two studies show that CBHI improves quality of life and healthcare quality. Despite this, 50% of the studies reported on various problems confronting the operations of CBHI schemes. Community-Based Health Insurance scheme has the potential of making healthcare accessible and affordable to the poor. However, there are loopholes that stakeholders need to address to make the scheme deliver effective healthcare service delivery.

Keywords: CBHI, healthcare, out-of-pocket, utilisation

INTRODUCTION

The poor in Africa face an uphill task in accessing healthcare services. This is because they are financially incapacitated and hardly have money to pay for medical fees. There have been cases where new mothers have been detained for not having money to offset their medical bills (Yates *et al.*, 2017). The non-availability of universal healthcare coverage makes the situations of the poor more complicated in their bid to access healthcare services. Financing their healthcare themselves tend to push them more into poverty (Woldemichael *et al.,* 2016)

Community-Based Health Insurance scheme is regarded as a strong substitute to occupy the vacuum in the healthcare payment system in many developing countries (Woldemichael *et al*., 2016). Many countries in Sub-Saharan Africa have embraced CBHI as a way of increasing access to healthcare and reducing the financial burden among the poor.

However, empirical evidence has proposed that the impact of CBHI on healthcare services to beneficiaries is mixed (Woldemichael *et al*., 2016). In several studies, CBHI schemes have resulted in access to healthcare and reducing financial burdens (Babatunde *et al*., 2016). Sometimes, the poor who are supposed to be covered by CBHI schemes are not covered (Jütting, 2004). In extreme cases, CBHI scheme has been reported to have increased outpatient spending (Woldemichael *et al*., 2016). It is against this scenario that this current review has been conceived. The main aim of this review is to evaluate the impact of CBHI schemes on health outcomes (healthcare utilisation, quality of care and out-of-pocket expenditures) in Sub-Saharan Africa through a systematic review evidence. The rest of this review comprises the methods, discussion and the conclusion.

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METHODS

Search strategy: Our search of eligible literature was conducted online via Google search engine with the search terms "community-based health insurance", "Africa", "impact of CBHI" Only studies that discussed the various impacts of CBHI were retrieved online for further scrutiny.

Criteria for considering studies for this review: Studies that assessed the impact of CBHI on various health outcomes were included in the review. In this case, we excluded studies that did not evaluate the impact of CBHI on one or more health outcomes. Despite CBHI schemes are in progress in different Sub-Saharan countries, only studies conducted in the English-language were included in the review. Further to this, only research articles that assessed the impact of CBHI were included, newspapers, online web articles, documents and online blogs were excluded. For studies to be eligible, they had to meet the following inclusion criteria:

Study design: This review follows the rationale in conducting systematic reviews to evaluate the impact of CBHI schemes on their beneficiaries. The key question for this systematic review is: Do community-based health insurance schemes increase access to healthcare services and reduce out-of-pocket spending among enrolees? Specific study designs related to the outcomes of the impact evaluation were included in the review.

Study Population: We made sure that each of the studies has a sample population that are enrolees of CBHI schemes.

Interventions: There are various types of cash transfer programmes and we only included CCT and UCT programmes and excluded social programmes as voucher schemes.

Outcomes: We included studies that examined health outcomes such as utilisation, quality of care, out-of-pocket expenditures, drug availability, non-essential drugs and waiting time before seeing medical practitioners.

Location: The studies were limited to countries in Sub-Sahara Africa.

Language: Studies were limited to English language

Data extraction: Two authors were responsible for the data extraction and they did it individually. Data extraction form was used to extract salient information from the included studies. Data retrieved from included studies include the date of publication, the location of study, the methodology adopted and the impact of CBHI measured. To arrive at a compromise, the two authors discussed the discrepancies in the extracted data and the conflicting issues that emanated from the data were resolved and the third author gave final approval of the extracted data.

Quality assessment of studies: In the quality assessment of selected studies, we used key criteria adapted from the Mixed Methods Appraisal Tool (MMAT) version 2018 (Hong *et al.,* 2018) to categorise the selected studies into "good", "intermediate" and "poor quality". Two authors performed quality assessments individually and disagreements between them were resolved by compromise through discussion.

Data analysis: A narrative synthesis was used to present details of data extracted from the included studies. This is because meta-analysis was excluded from the review. Coding was used to identify concepts and themes and a narrative synthesis was used to analyse the findings.

RESULTS

STUDY SELECTION

Figure 1 demonstrates the summary of the review literature search. The initial literature search produced 120 potential important abstracts that were screened resulting in the exclusion of 103 articles. Further screening of the 103 articles led to the retaining of 17 articles. A full screening of abstracts and text of the 17 articles led to the inclusion of 8 studies for the review.

STUDY CHARACTERISTICS

Table 1 displays the summary characteristics of the 8 included studies. The studies were conducted between 2004 to 2018. Three of the studies were

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conducted in Ethiopia, two in Rwanda and one each in Burkina Faso, Nigeria and Senegal. In terms of research methods, six studies used a quantitative approach while the remaining two studies employed a mixed-methods technique. Methods of data collection among the studies include household survey, questionnaire, Focus Group Discussions (FGDs) and in-depth interview. Impacts measured include out-of-pocket expenditure, health utilisation, healthcare quality and quality of life. The summary results of the effect of CBHI reported in the included studies are summarised in Figure 2.

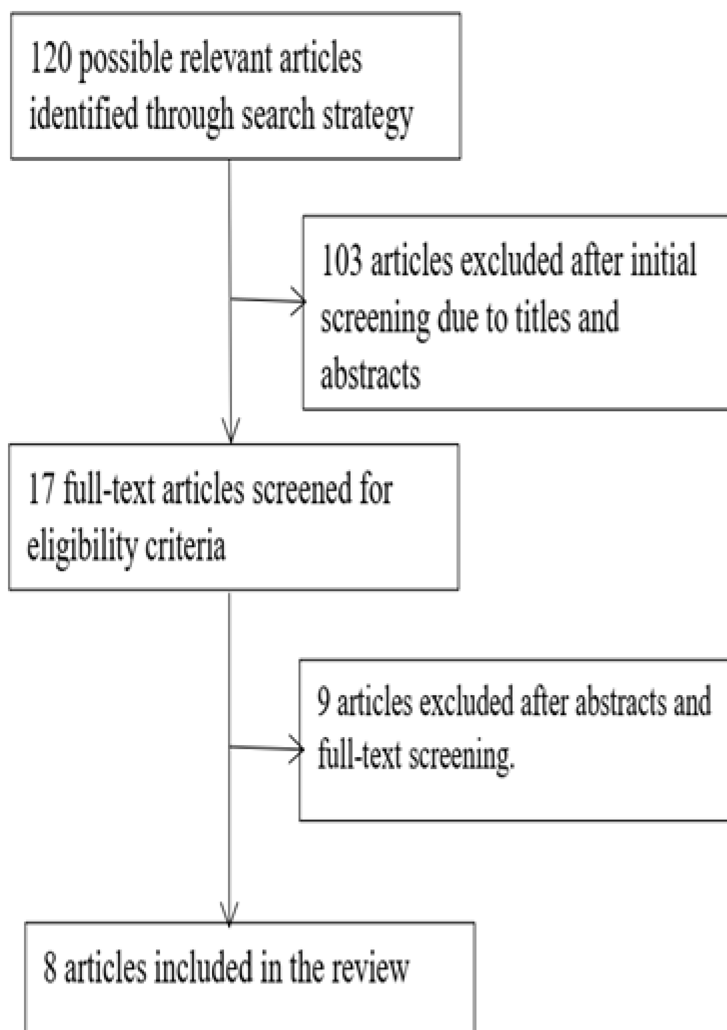

Figure 1: Flow diagram showing study selection process for systematic review of studies on CBHI on health outcomes in Sub-Saharan Africa

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Table 1: Characteristics of included studies

Study	Year of publication	Country	Methods	Data collection methods	Impact(s) reported
Babatunde *et al.*	2016	Nigeria	Quantitative	Well-structured questionnaire	Reduced out-of-pocket spending
Collins *et al.*	2016	Rwanda	Mixed	CBHI household survey, Integrated Household Living Conditions Surveys (EICV)	Healthcare utilisation, decreased out-of-pocket expenditure, enrolment and coverage
Gebru and Lentiro	2018	Ethiopia	Quantitative	Questionnaire	Quality of life
Jembere	2018	Ethiopia	Mixed	Household survey, FGDs, key informant and in-depth interviews were carried	Healthcare utilisation, healthcare quality, out-of-pocket expenditure
Jütting	2004	Senegal	Quantitative	Household survey	Healthcare utilisation, decreased out-of-pocket expenditure
Parmar	2014	Burkina Faso	Quantitative	Household survey	Healthcare utilisation, enrolment
Woldemichael *et al.*	2016	Rwanda	Quantitative	Rwandan Integrated Household Living Conditions Surveys	Out-of-Pocket Healthcare Spending
Yilma *et al.*	2015	Ethiopia	Quantitative	Three rounds of household survey data	Reduction in borrowing for financing healthcare

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Study	Utilisation	Health quality	Out-of-pocket expenditure	Consumption	Non-essential drug	Waiting time	Premium	Drug availability
Babatunde et al. 2016			+					
Collins et al. 2016	+		+				−	
Gebru and Lentiro, 2018		+						
Jembere, 2018	+	+	+			−		−
Jütting, 2004	+		+					
Parmar, 2014	+							
Woldemichael et al. 2016	+		+		−			
Yilma et al. 2015			+	−				

+ Positive effect − Negative effect ≠ Not statistically significant

Figure 2: Summary of results from included studies

POSITIVE IMPACT OF COMMUNITY-BASED HEALTH INSURANCE

Healthcare utilisation/accessibility

Community-Based Health Insurance improves healthcare utilisation/accessibility. This has been reported in 5 studies (Collins *et al.,* 2016; Jembere, 2018; Jütting, 2004; Parmar *et al.,* 2014 and Woldemichael *et al*., 2016). In Burkina Faso, the introduction of the CBHI scheme (Assurance Maladie a` Base Communautaire-AMBC) improved the usage of healthcare facilities by the poor and children (Parmar *et al.,* 2014). However, health utilisation was higher for the rich and adults and utilisation was not related to

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ethnicity, gender and occupation. In Rwanda, those insured under CBHI had better access to clinics and hospitals where some drugs were covered by the scheme and are exempted from extra charges (Woldemichael *et al.,* 2016). Also, in Rwanda, it was reported that since 2003, CBHI has significantly increased the utilisation of healthcare services by the insured individuals. Many of the insured persons have capitalised on the scheme to make use of modern health facilities which was not the case when there was no health insurance scheme (Collins *et al.,* 2016). Similarly, in Ethiopia, the poor and chronically ill patients had better access to healthcare services due to the subsidised fee of CBHI. This had led to an increase in healthcare utilisation by insured persons (Jembere, 2018). In Senegal, insured members of les mutuelles de sante (mutual health organisations) used healthcare services frequently more than none members and they pay less for a visit (Jütting, 2004).

Table 2: Review of effects of CBIH on healthcare utilisation/accessibility

Country	Study	Sample	Study design	Outcomes	Results
Burkina Faso	Parmar, 2014	990 households	Clustered-randomized control design	Utilisation	CHI increased healthcare utilisation by (Odds Ratio [OR]=2.182), for the poor it was (OR=0.449) and (OR=0.565) for children
Ethiopia	Jembere, 2018	344 households	Cross-sectional study design	Utilisation	Health services utilization increased from 0.33 visits of individual per year in 2011 to 1.44 visits in 2016
Rwanda	Woldemichael *et al.* 2016	26,195 households	NA	Utilisation	The effect on utilization (moral hazard) outweighs the "price effect"
Rwanda	Collins *et al.* 2016	1,429 households	NA	Clinic visit	Outpatient visit by the poor increased by 14% while that of the rich increased by 27%
Senegal	Jütting, 2004	2,860 persons	NA	Utilisation	For the last two years, 151 insured people out of 2,856 have been in hospital

Healthcare quality and quality of life

Two studies have found an improvement in health quality and quality of life in Ethiopia (Gebru and Lentiro, 2018; Jembere, 2018). In the Tehuledere District, South Wollo Zone of Northeast Ethiopia, the majority of inpatients and outpatients claimed the introduction of CBHI has increased healthcare quality services in the areas of laboratory, referral system and cleanliness of health facilities (Jembere, 2018). In the Dale Woreda (Yirgalem) and Gorche Woreda regions, CBHI had impacted the health-

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related quality of both insured household heads and non-insured household heads, however, insured household heads had a higher quality of life compared to the non-insured household heads in the areas of psychological and environmental health (Gebru and Lentiro, 2018).

Table 3: Review of effects of CBIH on healthcare quality and quality of life

Country	Study	Sample	Study design	Outcomes	Results
Ethiopia	Gebru and Lentiro, 2018	1,955 household heads.	Comparative cross-sectional study	Health-related quality of life	The health-related quality score among CBHI insured household heads was 63.02 and 58.92 for un-insured household heads
Ethiopia	Jembere, 2018	344 households	Cross-sectional study design	Quality of care	More than half of the study respondents agreed that the introduction of CBHI has improved the overall quality of health services both in inpatient and outpatient services

Out-of-pocket expenditure

Around six studies have reported that CBHI has positively impacted the reduction of out-of-pocket payment (Babatunde *et al*., 2016; Collins *et al*., 2016; Jembere, 2018; Jütting, 2004; Woldemichael *et al*., 2016; Yilma *et al*., 2015). In the following four main regions of Ethiopia (Tigray, Amhara, Oromiya, and SNNPR) CBHI prompted the reduction of borrowing to finance healthcare among insured individuals (Yilma *et al.,* 2015). In another part of Ethiopia (Tehuledere District), insured people on a health insurance scheme utilised the services of modern healthcare because the scheme gave them the privilege of "free of payment" for health services (Jembere, 2018). In Nigeria, CBHI helped beneficiaries of the scheme to reduce out-of-pocket spending which allow them to increase income and calorie intake (Babatunde *et al*., 2016). For the insured people in Rwanda, CBHI has reduced out-of-pocket expenditures and equity of out-of-pocket payment between the poor and the rich has improved over time (Collins *et al*., 2016). In the same vein, a similar study in Rwanda reported that CBHI programme reduced the annual per capital expenditure on drugs by 3.553 RwF, which is approximately 85% reduction as against the average spending by the non-insured (Woldemichael *et al*., 2016). CBHI has made it possible in Rwanda for the incidence of financial catastrophe arising from out-of-pocket spending for health services to be reduced significantly (Collins *et al*., 2016) In Senegal, CBHI scheme gave financial protection to members because they pay on average less than half of the amount non-members pay (Jütting, 2004).

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Table 4: Review of effects of CBIH on out of pocket expenditures

Country	Study	Sample	Study design	Outcomes	Results
Ethiopia	Jembere, 2018	344 head of household	Cross-sectional study design	Out-of-pocketing expenditure	Most of the respondents assumed that free of payment at the time of services and improvement in the quality of services were prime reasons.
Ethiopia	Yilma *et al*, 2015	1,632 households	Propensity Score-Matching model (PSM)	Borrowing to finance healthcare	CBHI led to a five-percentage point or 13% reduction in the probability of borrowing and is associated with an increase in household income.
Nigeria	Babatunde *et al*. 2016	175 respondents	PSM	Out-of-pocketing expenditure	CHI reduced health spending and increased per capital income by ₦907.00
Rwanda	Collins *et al*. 2016	1,429 households	NA	Payment	3.54% and 27.1% enrolees paying premiums and co-payments agreed that payment was easy for them respectively
Rwanda	Woldemichael *et al*. 2016	26,195	NA	Out-of-pocketing expenditure	CBHI improved the possibility of spending by 28.6 percentage points but reduced the amount of spending net of premium payment by -4,106 RwF. which is about 85% reduction compared to the average spending by the uninsured.
Senegal	Jütting, 2004	2,860 persons	NA	Financial protection	Better financial protection against hospitalization risk.

The negative impact of community-based health insurance

According to 4 studies, CBHI has not improved healthcare delivery services to some beneficiaries (Jembere, 2018; Jütting, 2004; Woldemichael *et al*., 2016; Yilma *et al*., 2015). In Ethiopia, CBHI did not bring about an increase in consumption for poor households (Yilma *et al*., 2015). Whereas, in Nigeria, CBHI increases households' calorie intake and purchasing power (Babatunde *et al*., 2016). Also, in Ethiopia, CBHI scheme led to worsening healthcare services as members of the scheme must deal with long waiting time, inadequate drugs and

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mistreatment by healthcare providers (Jembere, 2018). In Rwanda, CBHI benefits did not cover non-essential drugs received from organisations outside health facilities covered by the CBHI schemes. Furthermore, inpatient services for members are not economically when it comes to hospitalisation (Woldemichael *et al.,* 2016). Still, in Rwanda, it was reported that the majority of the insured persons complained that it was not easy for them to pay the premium and they will not enrol for the scheme in the following year (Collins *et al*., 2016).

DISCUSSION

The review evaluates the impact of CBHI on health outcomes in Sub-Saharan Africa. Since most of the countries in Sub-Saharan Africa do not have comprehensive health insurance schemes for their population, CBHI has served as an alternative for most people, especially the poor, in order for them to have access to basic healthcare services.

The findings from this review have proven that CBHI makes it possible for people to have access to healthcare services. For instance, some included studies in this review showed that those who are members of CBHI schemes have ultimate access to healthcare services and utilisation. This is in consonance with the study of Atnafu *et al,* 2018) in which there was a tremendous difference between the insured (50.5%) and the uninsured (29.3%) on healthcare utilisation.

CBHI can promote the quality of life for insured people, according to one of the included studies (Gebru and Lentiro, 2018). However, most studies included in this review did not mention that persons insured have improved the quality of their lives due to membership of the CBHI scheme. On the issue of health quality, one study admitted that health quality has improved for the insured people because they have access to medical facilities. While this is so, there are challenges mentioned by the insured individuals confronting them because of improved health quality of health service providers.

One of the aims of CBHI is to reduce the financial burden of the poor. Findings from this review indicate that most of the included studies admitted that CBHI reduced the out-of-pocket payment of the insured individuals and it has made some insured persons increased their household consumption. This is in consonance with a study in Indonesia that investigated health insurance programmes on out-of-pocket expenditures (Aji *et al,* 2013). The findings from the study suggested that two of the health insurance schemes reduced out-of-pocket expenditures by 34% and 55% respectively (Aji *et al*., 2013).

Despite the positive impact of CBHI on the insured individuals, there are challenges as reported by some included studies confronting the operations of the scheme. For instance, patients must wait for a long time before they can see a doctor, borrowing has increased for some insured people because they have to meet up with their premium.

This study encountered some limitations. Firstly, only English language studies were included in the studies and they are other studies in other languages that have evaluated the impact of CBHI on health outcomes in Africa. Secondly. Some of the findings of the included studies were too complex to understand which made the interpretation of their results cumbersome. Furthermore, studies that used qualitative analysis on their findings made it difficult for an objective answer to be arrived at because of the respondents who gave various answers to questions that were put before them. Finally, the study was limited to Sub-Saharan Africa and the findings might not correlate with findings from other regions.

CONCLUSION

CBHI has the potential of making healthcare accessible and affordable to the poor. The findings of this review have revealed how the poor are benefiting from the CBHI scheme. However, there are still some challenges that are befalling the scheme, resulting in plans by some people to quit the scheme. For effective service delivery, stakeholders need to look at the loopholes threatening the operations of the scheme and make a proper adjustment for the benefit of quality healthcare services for the population.

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AUTHOR'S CONTRIBUTION

Oluwatoyin A. Adeniji and Oladayo N. Awojobi conceived the paper idea, reviewed literature and drafted the content of the study. Jane T. Abe critically reviewed and revised the draft. All authors agreed on the manuscript's final version.

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