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Systematic Review

Factors affecting the uptake of community-based health insurance in Ethiopia: a systematic review

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ABSTRACT

The goal of health care financing in Ethiopia is achieving universal health care coverage by community-based health insurance which was expected to cover more than eighty percent of the population. The aim was to minimize catastrophic out-of-pocket health service expenditure. We systematically reviewed factors affecting the uptake of community-based health insurance in Ethiopia. We searched various databases by 09 to 10 March 2019. We included articles regardless of their publication status with both quantitative and qualitative approaches. The factors determining the uptake of community-based health insurance in Ethiopia were found to be demographic and socio-economic, and health status, and health service-related issues. Among demographic and socio-economic factors, the report of the studies regarding gender and age was not consistent. However, income, education, community participation, marriage, occupation, and family size were found to be significant predictors and were positively related to the uptake of the scheme. Concerning health status and health service-related factors; illness experience, benefit package, awareness level, previous out of pocket expenditure for health care service, and health service status (quality, adequacy, efficiency, and coverage) were significantly and positively related but the premium amount, self-rated health status and bureaucratic complexity were found to be negative predictors. To achieve universal health care coverage through community-based health insurance, special attention should be given to community-based intervention.

Keywords: Community-based health insurance, Willingness to join, Willingness to pay, Willingness to uptake, Willingness to enroll, Ethiopia

INTRODUCTION

Health sector reforms have been undertaken in Ethiopia since 1993 envisioned at health care financing to ensure universal health coverage (UHC).[1-6] The health care service of the country is among the worst not only in the world but also in Sub-Saharan Africa (SSA).[1-3,7] Despite the shortage of finance as the "single most" important pathogen affecting health care service, catastrophic out-of-pocket (OOP) expenditure continues to be the main alternative of financing health care.[7-9] The Ethiopian government has been devoted to finding a way to shift from catastrophic OOP expenditure to ensure accessibility targeting quality and equity to achieve UHC.[5,6,10-13] Health insurance has been taken as a strategy with two schemes (risk-pooling arrangements) called social health insurance for the formal sector and community-based health insurance (CBHI) for the informal sector to cover all citizens except defense forces.[4,6,13,14]

CBHI is a non-compulsory, non-profit making risk pooling mechanism in exchange for premium payments to address UHC.[15-18] CBHI is a contemporary alternative to address equity in health service provision.[7,18] CBHI is based on the autonomous decision.[19] Without CBHI, for the poor, it is unthinkable to take health care.[20] The aim is to improve health care utilization while minimizing OOP

payment.[21,22] However, OOP expenditure is still high.[19] So, access of the community to health services is low.[19] Thus, our objective was to systematically review factors affecting the uptake of CBHI in Ethiopia.

METHODS

Protocol and registration

This review was based on a systematic review protocol of "factors that affect the uptake of community-based health insurance in low-income and middle-income countries".[23]

Search strategy

We searched various databases. For PubMed, the resources were searched by using medical subject headings (MeSH) and text words in line with the objective of the review: "factors" or "determinants" or "willingness to join" or "willingness to pay" or "willingness to uptake" or "willingness to enroll", "willingness to utilize" or "community based health insurance" or "health insurance" and "Ethiopia".

Study selection

The pieces of literature were screened by two independent reviewers (EMB and MHK). Firstly, the articles were refined by their title and abstract; secondly, by full-text revision by these Authors independently and finally together.

Eligibility criteria

Studies that reported factors affecting CBHI uptake was included with both qualitative and quantitative approach. The included articles were those that had reported the willingness to participate, join, pay, uptake, enroll and utilize CBHI as the priority finding; and attitude to CBHI, satisfaction with CBHI, the dropout rate from CBHI, and CBHI membership renewal as an additional outcome.

Risk of bias assessment

The risk of bias for the individual included studies was assessed by a 15 item modified tool from strengthening the reporting of observational studies in epidemiology (STROBE) statement and cochrane risk of bias assessment guidelines.[24,25] And articles with low risk from the summary measure were included. Differences during the extraction process were resolved via discussion.

Data extraction

Data extraction was performed by EMB and MHK independently and together from all included articles by using the data extraction form prepared in advance. The data and information extracted from every included study were the following: objective, design, study area, sampling, context, and outcome.

Dealing with missing data

For missing data, we tried to contact the authors. But, the authors have not given us the necessary information.

Data synthesis

We did a detailed qualitative discussion through thematic analysis as illustrated in Figure 2.

RESULTS

Study selection

DOAJ, EconBiz, ERIC, Google Scholar, Oxford journals, PubMed, SpringerLink, Europe PMC, Microsoft Academic Search, OAIster, and AJ databases were searched through March 9 to 10, 2019.

272 records were identified. 257 were from databases and 15 from other sources. 79 articles were duplicates and removed. 193 records were screened for eligibility by their title and abstract, and 159 were excluded. 34 articles were eligible for full-text analysis. 13 articles were excluded. 21 articles were included (Figure 1).

Study characteristics

7 mixed and 14 quantitative studies were included; totally 21 articles as depicted in Table 1.

Factor analysis

As illustrated in Figure 2, factors affecting CBHI uptake were thematically classified as demographic and socio-economic (Table 2), and health status and health service-related factors (Table 3).

The summary of data extraction, before thematization, from the included studies was also included.

Demographic and socio-economic factors

Sex

Being male and female headed of the households had a positive relationship with CBHI uptake.[18,19,26-33] Both male and female genders were encouraging for willingness to pay (WTP).[28,30,33] Being male was directly related to enrolment and utilization.[18,26,27,29] The female gender had a positive correlation with the willingness to join (WTJ).[19,31,32]

Age

Age was positive predictor to CBHI uptake. It was also found to be negative factor.[26,29,33-39] It was positively related with WTJ, enrolment, utilization and WTP.[26,29,34-

[38] It was also inversely related to enrolment, WTJ, WTP, and compliance to CBHI.[15,18,31,33]

Marriage

Marriage was well articulated as a determinant for the uptake of CBHI. Being married was a positive factor to WTJ, and enrolment in the scheme.[18,27,29,31,40-42]

Family size

It was positive predictor to CBHI uptake. It had direct relation with WTJ, WTP, participation, enrolment, uptake, positive attitude to CBHI.[1,16,18,26-28,30,36,37,41,43-49] It was also negative indicator.[33,34]

Education

It was positive determinant to CBHI uptake.[1,16,19,26-30,32-41,44-46,50] Two studies reported it as a negative predictor.[31,51] There was direct relation between education and WTJ, WTP, participation, enrolment, utilization, positive attitude, knowledge and practices and membership.[1,16,19,26-27-30,32-38,40,44-46,50,51] Education was inversely related with WTJ and enrolment.[31,51]

Occupation

Farming was positive factor to WTP, compliance and utilization.[15,26,28,33] Trade was not only an encouraging determinant to WTP for CBHI but also discouraging.[15,28] Being a housewife was directly related to WTJ.[31,32]

Income

Income (including monetary and nonmonetary assets) was found to be positive predictor to CBHI uptake.[1,16,19,26-28,30-32,34,35,38-40,42,43,46,47,49,50] It was also negative determinant.[33,51,52] It was positively related with WTJ, WTP, willingness to participate, uptake, enrolment, being membership in PSNP.[1,16,19,26-28,30-32,34,40,43,46,47,49,50] It was also negatively related with enrolment.[42,51] Financial capability was positively related with WTJ.[35] Livestock size was negatively related with WTP. Poor households (food insecure) had positive interest to WTP and enrolment.[33,52]

Community participation

As depicted in Figure 2, this includes meeting attendance, membership in Iddir and Ikub (social capital), PSNP, community solidarity, and religious inclination. Meeting attendance had a positive relationship with CBHI attitude and enrolment.[18,36,45] Membership in Iddir and Ikub, and PSNP were encouraging to CBHI uptake. Participation (Iddir and Ikub) was positively related with WTJ, WTP and enrolment.[19,30-32,37,42,48,51-55] PSNP was encouraging to uptake, membership, and enrolment.[51,52,55] PSNP was also negatively related to CBHI uptake.[18] Individual social capital and community level horizontal trust had positive associations with WTJ.[31] Community solidarity was directly related to CBHI enrolment.[42,49] Bond to religious beliefs and values was not only a positive predictor of enrolment but also a negative determinant to WTJ.[35,52]

Health status and health service-related factors

Illness

As shown in Table 3, illness, including chronic and frequency of illness, was a positive factor in CBHI uptake. The presence of morbidity/chronic illness and illness experience had a direct relationship with uptake.[21,26,27,30,33,35,36,39,41,43,44,46,49] It was stimulus for the WTP, participation, WTJ, and enrolment. Frequent illness was the driving factor to enroll and uptake.[26,27,30,33,35,36,41,43,44,46,47,49]

Health perception

Good health perception was negatively related to the uptake of CBHI.[26,35,37,42,46,48,49] It was also negatively related with the WTP, WTJ, enrolment and utilization of CBHI.[26,35,37,46,48,49]

Premium

It was negatively related with the scheme's uptake.[15,26,28,31,35,42,43] Premium cost was inversely related to WTJ, participation, WTP, compliance, enrolment and utilization.[15,28,31,35,42,43]

Previous OOP expenditure

Previous OOP expense for health service was positively related to the scheme's uptake.[18,33,39,41] OOP expense was directly related to enrolment and WTP.[18,33,39,41] It was also reported that OOP was better than CBHI.[28] Experience of borrowing money for health care service was positively related to WTJ.[19,31]

Awareness

Awareness including information, attitude and readiness to start/renew membership, was found to be predictor for CBHI enrolment. Being informed was positive predictor to the scheme's uptake.[12,15,16,18,26,29,30,35-37,39,42,44,45,47,49,51,56] It was directly related to the interest, participation, compliance, enrolment, WTJ, WTP, uptake and being member.[12,15,16,18,26,29,30,35-37,42,44,47,49,51,56] It encourages positive attitude to CBHI.[39,45] The attitude towards sense of ownership was positive predictor.[45] Positive attitude and readiness to start/renew membership were positively related to compliance, WTJ and uptake.[15,35,47]

Service status

Quality, availability, accessibility, coverage, adequacy of health service, and capacity and readiness of health facility were directly correlated with scheme uptake.[12,26-28,30,33,35-

[37,39,41,42,48,49,51,56,57] Service adequacy was positively related with WTP, WTJ, enrolment, and utilization.[12,26-28,30,33,35,36,37,41,48,49,51] Insufficient equipment and human power were negative predictors.[12] Availability of medical equipment and laboratory services were encouraging to WTP, enrolment, and uptake.[33,34,37,52,56] Availability of inpatient services were positively related to enrolment.[42] Prior health insurance and health service utilization was positive and negative predictor for WTP and enrolment respectively.[18,30] Health sector distance was negatively related to participation, enrolment, and WTJ.[16,31] Travel time was inversely related to enrolment.[41,52] Waiting time was negatively related to WTP and utilization of CBHI.[26,33] Trust was positively related with WTJ, WTP, enrolment, and uptake.[26,30,35,36,37,48]

Benefits package

Packages availability and coverage by CBHI increased WTJ, enrolment, and positive attitude to it.[27,35,37,45,49]

Bureaucratic complexity

It was reported as a negative predictor of CBHI enrolment.[27]

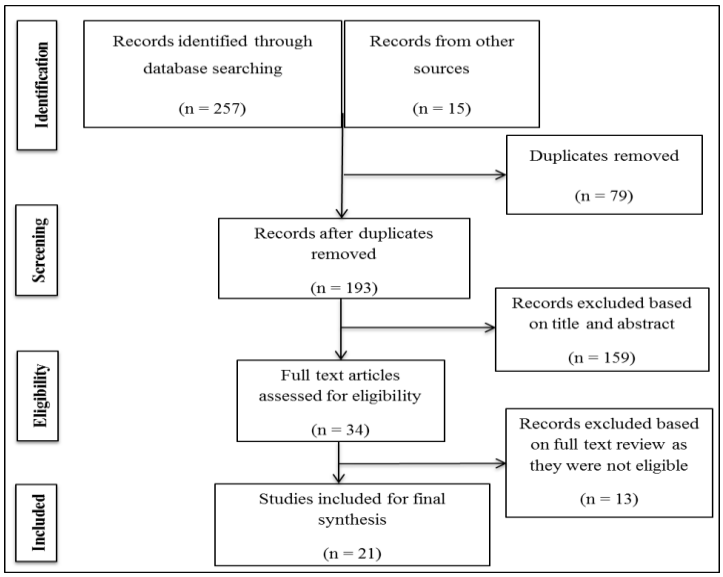

Figure 1: Flow diagram of literature screening strategy.

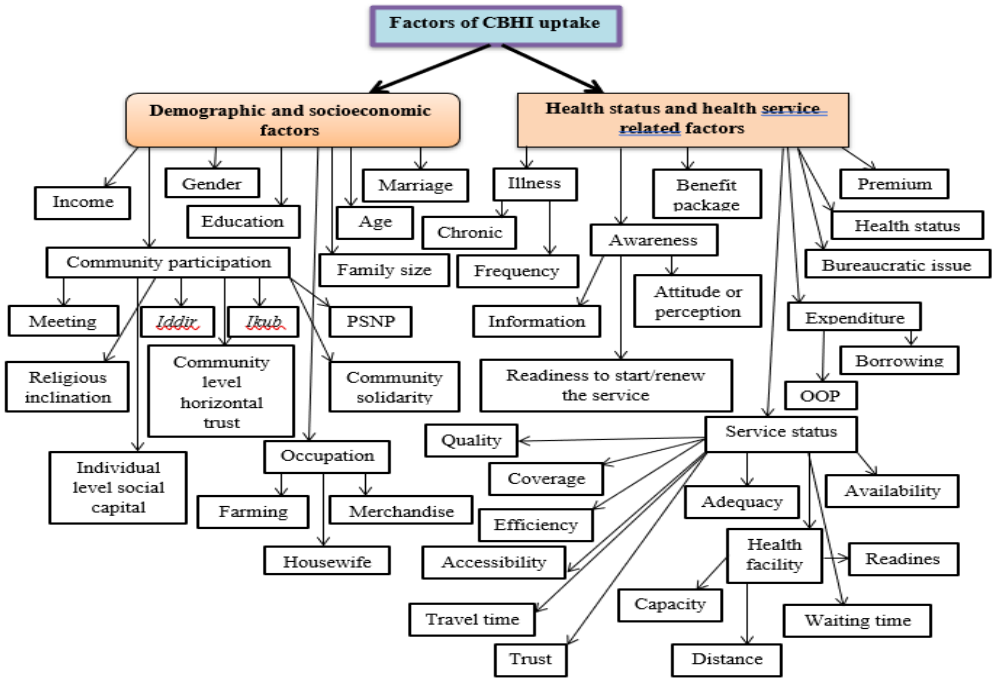

Figure 2: Thematic classification of the factors affecting CBHI uptake in Ethiopia.

PSNP is to refer to the productive safety net program.

Table 1: Characteristics of studies that met inclusion criteria.

Study ID	Study design	Study area	SS (RR %)	Study outcome	ROIC (%)
Mariam 2003[43]	Mixed approach	Amhara and Oromiya	1200 (99)	Willingness to participate	86
Molla 2014[35]	Cross sectional	Oromiya	741 (98.02)	Willingness to participate	51.5
Ololo 2009[32]	Cross sectional	Oromiya	849 (94.6)	Willingness to join	76.5
Haile 2014[31]	Cross sectional	SNNPR	845 (95.6)	Willingness to join	78
Kibret 2019[19]	Cross sectional	Amhara	604 (98.2)	Willingness to join	81.5
Kassahun 2018[40]	Cross sectional	Amhara	636 (100)	Willingness to join	83.2
Kebede 2014[28]	Cross sectional	Amhara	528 (100)	Willingness to pay	80
Zewde 2014[46]	CVM	Addis Ababa	210 (98.81)	Demand to CBHI	98
Entele 2016[33]	CVM	Oromiya	500 (100)	Willingness to pay	39.7
Minyihun 2019[44]	Cross sectional	Amhara	532 (97.4)	Willingness to pay	77.8
Mamo 2017[30]	Cross sectional	Amhara	392 (93)	Willingness to pay	79
Namomsa 2017[29]	Mixed approach	Oromiya	600 (100)	Enrolment and challenges	-
Atnafu 2018[37]	Mixed approach	Amhara	2008 (100)	Adverse selection and supply-side factors	-
Shibeshi 2017[47]	Mixed approach	Oromiya	634 (99.3)	Factors affecting uptake	-
Gobena 2018[26]	Cross-sectional	Oromiya	644 (98)	Utilization and factors	27.5
Workneh 2017[15]	Cross sectional	Amhara	511 (96.4)	Compliance with CBHI	77.9
Abebe 2014[27]	Mixed approach	Amhara	836 (97.25)	Coverage, intake, enrolment	-
Nurie 2017[36]	Mixed approach	Oromiya	182 (100)	Demographic and socio-economic determinants	-
Jembere 2018[45]	Mixed approach	Amhara	344 (100)	Attitude to CBHI	93
Mirach 2019[49]	Cross sectional	Amhara	690 (94)	Determinants of CBHI implementation	-
Ebrahim 2019[42]	Cross sectional	Oromiya	435 (94.9)	CBHI and associated factors	73.6

CVM: contingent valuation method; RR: response rate; SS: sample size; ROIC: rate of interest to CBHI

Table 2: Summary of demographic and socio-economic factors in the included studies.

Year of study	Variables								
	Sex		Age	Education	Income	Community participation	Marriage	Occupation	Family size
	Male	Female							
Mariam 2003[43]					✓				✓
Ololo 2009[32]				✓	✓	✓		✓	
Molla 2014[35]			✓	✓		×			
Haile 2014[31]			×	×	✓	✓	✓	✓	✓
Kebede 2014[28]	✓			✓	✓			✓	✓
Zewde 2014[46]				✓	✓			✓	✓
Kibret 2019[19]		✓		✓	✓	✓			
Workneh 2017[15]			×					✓	
Kassahun 2018[40]				✓	✓		✓		✓
Minyihun 2019[44]				✓	✓				✓
Entele 2016[33]		✓	×	✓				✓	×
Shibeshi 2017[47]					✓				✓
Mamo 2017[30]	✓			✓	✓	✓			✓
Namomsa 2017[29]	✓		✓	✓			✓		
Jembere 2018[45]				✓		✓			✓
Mirach 2019[49]					✓				✓
Nurie 2017[36]			✓	✓		✓			✓
Gobena 2018[26]	✓		✓	✓	✓			✓	✓
Atnafu 2018[37]			✓	✓		✓			✓
Abebe 2014[27]		×		✓	✓		✓		✓
Ebrahim 2019[42]					✓	✓	✓		

Table 3: Summary of health status and health service-related factors in the included studies.

Study ID	Variables										
	Illness	Premium	Bene-fit package	Aware-ness	Health-iness	Service quality	Distance	Waiting time	Borrowing	Trust	Bureaucratic complexity
Mariam 2003[43]	✓	×									
Ololo 2009[32]											
Molla 2014[35]	✓	×	✓	✓	×	✓				✓	
Haile 2014[31]		×					×		✓		
Kebede 2014[28]		×		✓		✓					
Zewde 2014[46]					×						
Kibret 2019[19]									✓		
Workneh 2017[15]		×		✓							
Kassahun 2018[40]											
Minyihun 2019[44]	✓			✓							
Entele 2016[33]	✓					✓		×			
Shibeshi 2017[47]	✓			✓						✓	
Mamo 2017[30]	✓			✓		✓				✓	
Namomsa 2017[29]				✓							
Jembere 2018[45]			✓								
Mirach 2019[49]	✓		✓	✓	×	✓					
Nurie 2017[36]	✓			✓		✓	×			✓	
Gobena 2018[26]	✓	×		✓	×	✓	×	×		✓	
Atnafu 2018[37]			✓	✓	×	✓					
Abebe 2014[27]	✓		✓			✓					×
Ebrahim 2019[42]		×		✓	×						

✓Positive correlation; ×negative correlation

DISCUSSION

Studies with quantitative, qualitative, and mixed approaches were included. The factors that affect the uptake of CBHI in Ethiopia were categorized into demographic and socio-economic, and health status, and health service-related.

Demographic and socio-economic factors

Gender was found to be a significant predictor of the uptake of CBHI. However, neither maleness nor femaleness was a clear predictor of CBHI. Households which were headed by a male were more willing to uptake the scheme as compared to female-headed.[18,26-30] Oppositely, families which were headed by a female were more willing to uptake CBHI as compared to those families that were being led by men.[19,31-33] On the other hand, female-headed households were found to be less willing to uptake the scheme.[27] Regarding age, no consistent result was found; the results of included studies were not found to be consistent. On one hand, older individuals were more willing to uptake CBHI than younger ones.[26,29,34-38] On the other side, willingness to uptake (WTU) the scheme was found to be increased with younger age; i.e. since the scheme covers family members up to 18 years of age, families with greater younger members were more willing to uptake the scheme than those families with older members.[15,18,31,33,39]

Concerning marriage, WTU the scheme was found to be more among those who were married than those who were not.[18,27,29,31,40-42] Coming to family size, as it increased; WTU the scheme did so. Those households with large family sizes were more willing to uptake CBHI than those households with small size.[1,16,18,26-28,30,31,36,37,40,41,43-49] Concerning income, except for some studies, reports of all articles were consistent.[33,51,52] As the income of the family increases, they could afford the premium. Thus, decision to uptake CBHI was found to be increased with income.[1,16,19,26-28,30-32,35,38-40,42,43,46,47,49,50] Oppositely, as livestock size increased with income, WTU the scheme was found to be decreased. Because livestock was considered as reserved assets.[33] However, food-insecure families that could not afford OOP payment were found to be interested to uptake CBHI.[33,51,52] About occupation, WTU the scheme was found to be increased with being housewife, farmer, and merchant.[15,26,26,28,31-33] However, it was also found to be less among merchants.[15]

Considering education, as educational attainment becomes advanced, the tendency to uptake CBHI was found to be encouraging. As educational attainment increased; awareness level to CBHI was increased accordingly.[1,16,19,26-30,32-41,44-46,50] But, due to negative attitude, WTU was found to be decreased when educational attainment increased.[31,51] Relating to community participation, households that were known to attend local meetings were found to be more willing to uptake CBHI than those households that did not.[18,36,45] Households that were members in *Iddir* and *Ikub* and PSNP were found to be more willing to uptake the scheme than those households that were not.[19,30-32,37,42,48,51-55] Oppositely, WTU was found to be decreased in

households that were members of PSNP.[18] WTU was found to be increased with individual social capital and community level horizontal trust.[31] As reciprocity increased, the tendency to uptake CBHI was found to be more likely.[42,49]

Health status and health service-related factors

WTU the scheme was more among those families with illness experience than those who were not.[21,26,27,30,33,35,36,39,41,43,44,46,47,49] WTU the scheme was found to be decreased if good self-rated healthiness was expected. If the family was perceived healthy, WTU the scheme was decreased.[26,35,37,42,46,48,49] In stating the awareness level, as knowledge and information about CBHI increased, WTU the scheme was also found to be increased.[12,15,16,18,26,29,30,35-37,39,42,44,45,47,49,51,56] WTU the scheme was found to be increased if the unused premium was reserved for future use as a deposit for the payer for the future; i.e. attitude towards the sense of ownership.[45]

Referring to premium cost, as it increased, its affordability decreased. WTU the scheme was found to be decreased with higher premium cost.[15,26,28,31,35,42,43] As the income of the family increased, premiums became affordable. Thus, WTU the scheme was found to be increased.[1,16,19,26-28,30-32,35,38-40,43,46,47,49,50] However, as the premium becomes increased, CBHI uptake was found to be decreased.[15,26,28,31,35,42,43] Regarding the experience of previous expenditure, households that were experienced previous OOP expenses were more willing to uptake CBHI than those who did not.[18,33,39,41] But it was also reported that OOP payment was better than CBHI.[28] However, households experienced borrowing money for health care service to pay OOP payment were more interested to use CBHI than those households did not.[19,31]

Regarding service-related issues, WTU the scheme was increased with increased quality, availability, accessibility, coverage, adequacy of health service, and capacity and readiness of health facility.[12,26-28,30,3,35-37,39,41,48,49,51,56,57] The WTU scheme was found to be increased with the availability of sufficient equipment and human power.[12] If laboratory service provision was available, WTU the scheme was more likely.[34,56] If health facilities were well furnished, WTU the scheme was found to be increased.[33,37,52] If it was too far to reach the health facility, WTU the scheme was found to be decreased.[16,31,41,52] If the waiting time to be served in the institution was too long, WTU the scheme was found to be unlikely.[26,33] WTU the scheme was found to be increased with trust to CBHI service.[26,30,35-37,48] As the benefits package to be provided by CBHI increased, WTU the scheme was found to be increased. But WTU the scheme was found to be decreased with the bureaucratic complexity of the CBHI office.[27]

Limitations

Since most of the resources included were cross-sectional studies, it was not easy to analyze the true temporal relationship; the exact direction of the relationship of the association of each variable (factor). There were also relationship differences for certain variables; the factor that was significant in one study was not to another study or significant in reverse. For certain studies, we faced difficulty contacting authors whenever ambiguity was in place.

CONCLUSION

This review pointed out that the factors affecting the uptake of CBHI include demographic and socio-economic and health status and health service-related factors. The factors like income, education, community participation, marriage, occupation, family size, illness experience, benefit package, awareness, previous OOP expenditure, service quality, and trust were found to be positively related to the scheme's uptake. However, premium amount, self-rated health status, and bureaucratic complexity were negative predictors. To address these factors, more effort should be sought at the community level.

Recommendations

According to this review, to achieve UHC through CBHI, it is recommended that special attention should be given to devote to increase the income of the family by creating opportunities to occupation, increasing awareness through education on CBHI, appreciating community participation according to indigenous social arrangements, keeping intact family (marriage) by monitoring through social work focusing on vital statistics, finding a means to address CBHI service according to family size, increasing benefit package to be provided by the scheme with health service quality, efficiency, and accessibility, and working on the premium amount to be affordable and ensuring good governance.

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