ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 13, Issue, 09, pp. 63608-63612, September, 2023
https://doi.org/10.37118/ijdr.27100.09.2023

RESEARCH ARTICLE **OPEN ACCESS**

THE INFLUENCE OF COMMUNITY BASED HEALTH INSURANCE ON THE UTILIZATION OF MATERNAL HEALTH SERVICES IN KARISIMBI HEALTH ZONE, NORTH- KIVU, DEMOCRATIC REPUBLIC OF CONGO

[1,*]Jules KASHEMWA MULUMEODERHWA, [2]Margaret KASEJE and [2]Charles Wafula

[1]PhD student at Great Lakes University of KISUMU-Kenya; [2]PhD, Professor at Great Lakes University of KISUMU –Kenya

ARTICLE INFO

Article History:
Received 27th June, 2023
Received in revised form
02nd July, 2023
Accepted 06th August, 2023
Published online 29th September, 2023

KeyWords:

Community Based Health Insurance, Utilization, Maternal health services.

****Corresponding author:***
Jules KASHEMWA MULUMEODERHWA,

ABSTRACT

Introduction: While research has evaluated the impact of health insurance on healthcare utilization, few studies have focused on the effects of CBHI on maternal healthcare service utilization. By analyzing the different findings of previously conducted studies, this study aims to determine the influence of CBHI on maternal health care service utilization. ***Method:*** This is a retrospective case-control study based on data collected in the households of breastfeeding women who gave birth during the period from January to December 2021. Data collected on the tablets were analyzed using STATA statistical software. ***Results:*** The results show that marital status, $\chi 2(4, N=804)= 304.4$, $p < 0.001$, socio-economic status ,$\chi 2$ (1, N=804) =174.53, $p < 0.001$, and education level have a significant influence on the use of maternal health services p=0.001. In addition, use of antenatal care services, $\chi 2$ =191.69, p<0.001, types of services received during antenatal care visits, $\chi 2(1, N=804)$ =47.225, p=0.001, number of deliveries in a health facility, $\chi 2$ (3, N=804) =133. 86, p<0.001, mode of payment of delivery fees and use of postnatal services were associated with CBHI membership status, $\chi 2(1, N=804)$ =47.225, p=0.001. ***Discussion and Conclusion:*** Community membership showed great potential in increasing the use of maternal health services. Extending CBHIS would require taking into account the socio-economic status of individuals and the availability of services in primary health care facilities. Barriers to extending CBHI S should be examined in greater detail in future studies.

Citation: ***Jules KASHEMWA MULUMEODERHWA, Margaret KASEJE and Charles Wafula. 2023.*** "The influence of community based health insurance on the utilization of maternal health services in karisimbi health zone, north- kivu, Democratic Republic of Congo". *International Journal of Development Research*, 13, (08), 63608-63612.

INTRODUCTION

Member countries of the United Nations have committed to achieving universal healthcare coverage by 2030 as part of the Sustainable Development Goals. This goal, which falls within the framework of SDG 3 (Ensure healthy lives and promote well-being for all at all ages), is motivated by the recognition of the need and access for all to quality health services, essential medicines and vaccines and to facilitate financial risk (1). However, past studies show gaps in achieving this goal,For example, in 2013, the median proportion of births attended by a skilled birth attendant in 75 low- and middle-income countries was just 62% (2) and, in 2013, around 400 million people worldwide lacked access to at least one basic health service. 400 million people worldwide lacked access to at least one essential maternal health service, including antenatal care, delivery and postnatal care (3).

In addition, during the 2014-2020 period, only 41%and 52% of children in West and Central Africa and East and Southern Africa, respectively, with symptoms of acute respiratory infection after childbirth were taken to a health facility (4). To fill these and other gaps, many low-income countries are paying increasing attention to health insurance as a means of improving the health of their citizens, with the aim of increasing the use of maternal healthcare services to achieve Universal Health Coverage (5-7). In this respect, Community Based Health Insurance has been used as one of the important tools for widening access to healthcare even among women of childbearing age. One of the important tools for widening access to healthcare services by the poorest and most vulnerable groups (8, 9). The most recent Demographic and Health Survey found that only 43% of women had at least four Antenatal Care visits during their previous pregnancy and two weeks' maternity leave. At least four Antenatal Care visits during their previous pregnancy and 34% of women received postnatal care within two days (18). Furthermore, although

the number of outpatient visits per capita rose from 0.3 in 2013 (14) to 0.9 in 2019, it remains well below the WHO recommendation of 2.5 annual visits per capita (19). Against the backdrop of government commitments, but significant gaps in some key health outcome indicators, this study examines whether the Community Based Health Insurance initiative is increasing maternal health service utilization among some of the households with breastfeeding women. Previous studies in low- and middle-income countries on the impact of the Community Based Health Insurance on health service utilization have been mixed. In this context, the question this study seeks to answer is: what is the influence of the Community Based Health Insurance on the use of maternal health services in North Kivu?

In this context, the aim of the present study was to determine the influence of the BFHI on the use of maternal health services.

METHODOLOGY

Study Design: This was a retrospective case-control study, conducted from July to September 2022 in the households of lactating women in the health zone of Karisimbi, city of Goma, eastern DRC.

Study Sites: The study was conducted in the Karisimbi health zone, which is one of two health zones in the city of Goma, North Kivu province. It is bordered to the north by the Birambizo health zone and the Rwanguba health zone, to the east by the Republic of Rwanda, to the west by the Kirotshe health zone, and to the south by the Goma health zone. Its altitude is 1° 38′ 00″ south, 29° 11′ 00″ east at 1536m altitude. It is an urban-rural health zone, although the majority of the population lives in the rural part. According to the latest breakdown, it has 19 health areas, a general referral hospital, 4 referral health centers and a military hospital. According to the latest estimates, its current population is about 657,800, of which 23% are rural, with a population density of 1,344 inhabitants/km2, made up of civil servants, farmers, tradesmen, peasants, the unemployed, as well as the military and police. The target population of lactating women, whether or not they are members of the community base health insurance, is estimated at 4%, i.e., 26,312 (20).

Study population and sampling: The study population consisted of 804 breastfeeding women expected at the preschool visit, of which 402 were CBHI members considered as cases and 402 were non-members considered controls. Each case was matched to a control.

Data Collection: Data were collected by four interviewers, each a general practitioner (n=5) and a registered nurse in health and community development (n=8), in July and September 2021. Data were collected in the households of breastfeeding women who had given birth between January and December 2021, using a form specifically developed for the study and validated beforehand by the entire research team, under the supervision of the principal investigator. Data were collected electronically on touch-screen tablets.

DATA ANALYSIS

Data were transferred from the tablet computers to an Excel database. Analyses were performed using STATA software version 14.1. Descriptive statistics and group comparisons were carried out taking into account the characteristics of each of the variables concerned. Comparisons of proportions were made using Pearson's Chi-square test or Fisher's exact test. The analysis of variance (Anova) test was used to compare means. The significance level considered was 0.05. 2.6

Ethical Considerations: The study was conducted according to a research protocol previously submitted to the ethics committees of the Free university of Great Lakes countries in Goma and the Great Lakes University of Kisumu. Its approval by the ethics committees was formalized by letter N°0023/CE/GLUK/MK/2021, dated April 22, 2021. Confidentiality and anonymity were observed throughout the data collection and analysis process.

RESULTS

Relationship between CBHI status and ANC use before delivery: The table below shows the share of CBHI beneficiaries and non-beneficiaries who use ANC services before delivery, allowing us to determine whether ANC use before delivery is associated with membership in CBHI or not. From this table, it can be seen that nearly 6 out of 10 women do not use ANC before delivery, and women who are not members of CBHI alone account for 80% of those who do not use ANC. Furthermore, the test results show a strong relationship between CBHI membership and ANC service utilization; $\chi 2 = 191.69$, df = 1 and $p<0.001$.

Relationship between the status of CBHI and the services received during ANC, according to the respondents: The table below shows the services that the women received during ANC. The cross-reference with the adoption of CBHI will allow us to determine whether or not there is a link between the adoption of CBHI and the services that the women received during ANC. Results from the table show a strong relationship between CBHI membership and the type of services received during ANC visits; $\chi 2(1, N=804) = 47.225$, $p=0.001$. Of all the services provided, vaccination was the most utilized service (25%) while laboratory tests were the least utilized (12%) during ANC visits. By comparison group, utilization of family planning (22%), laboratory tests (18%), and medicines (26%) services were slightly high among CBHI members than among non-members (21%,12%, and 17% respectively). There was however a slightly

Table 1. Test of independence between CBHI status and having undergone ANC before delivery

Use of the ANC	Member	Non member	Total	df	p-value	χ^2
Yes	276	80	356	1	< 0.001	191.69
%	69%	20%	44%			
No	126	322	448			
%	31%	80%	56%			
Total	402	402	804			
% of total	100%	100%	100%			

Table 2. Test of independence between the status of CBHI and the services received during ANC by the women surveyed

Services received during the ANC	Member	%	Non member	%	Total general	% of total	Df	P-value	χ^2
Vaccination	80	20%	122	30%	202	25%	4	0.001	47.225
Family planning	90	22%	78	19%	168	21%			
Laboratory tests	72	18%	28	7%	100	12%			
Medicines	104	26%	34	8%	138	17%			
ITN reception	56	14%	140	35%	196	24%			
Total	402	100%	402	100%	804	100%			

higher utilization of vaccination services (30%) and ITN reception (35%) among non-members than among members (20%, and 14% respectively).

Relationship between CBHI status and utilization of postpartum health service: The analysis of the following contingency table will allow us to understand whether there is a significant link between membership in the CBHI and the fact that women use the health service after giving birth. Results from the table below report a strong association between CBHI membership and utilization of postpartum health services; $\chi 2(1, N=804) =113.78$, $p<0.001$. It is shown that 47% of women sought postpartum health services, most (66%) of whom were CBHI members. On the other hand, majority (72%) of those who did not seek postpartum health services were not CBHI members.

Table 3. Test of independence between CBHI status and whether or not women visited the postpartum health service

Modalities	Member	Non -member	Total	df	P-value	χ^2
Yes	266	114	380	1	< 0.001	113.78
%	66%	28%	47%			
No	136	288	424			
%	34%	72%	53%			
Total	402	402	804			
% total	100%	100%	100%			

Table 4. Test of independence between CBHI status and the number of deliveries in a health facility

Number of deliveries in a health facility	Member	%	Non member	%	Total general	% of total	df	P-value	χ^2
No	84	21%	144	36%	228	28%	3	< 0.001	133.86
2 to 4 deliveries	196	49%	124	31%	320	40%			
5 to 7 deliveries	106	26%	98	24%	204	25%			
More than 8 deliveries	16	4%	36	9%	52	6%			
Total	402	100%	402	100%	804	100%			

Table 5. Test of independence between the status of respondents with regard to CBHI and the services they receive after delivery

Services receivedafterchildbirth	Member	%	Non- member	%	Totgen	% Of total general	df	P-value	χ^2
Supplement in vitamin A and iron-folate	150	56%	46	40%	196	52%	3	0.75	90.05
Vaccination	34	13%	18	16%	52	14%			
Reception of ITN	44	17%	24	21%	68	18%			
Advice on Family Planning	38	14%	26	23%	64	17%			
Total	266	100%	114	100%	380	100%			

Table 6. Contingency table between those who paid the cost of delivery and their status with regard to CBHI

Occurrences	Member	%	Non member	%	Total	% Oftotalgeneral	df	P-value	χ^2
Head of housekeeping	214	53%	206	51%	420	52%	3	< 0.001	174.53
Knowledge		0%	112	28%	112	14%			
Familymembers	161	40%	48	12%	209	26%			
Myself	27	7%	36	9%	63	8%			
Total	402	100%	402	100%	804	100%			

Relationship between CBHI status and the number of deliveries in a health facility: The analysis of the following indicator makes it possible to determine the association between the adoption of CBHI by women of childbearing age and the number of deliveries that women were able to make in a health facility. Results from the table show a strong association between CBHI membership and the number of deliveries in a health facility; $\chi 2 (3, N=804) =133.\ 86$, $p < 0.001$. A majority of women had 2-4 deliveries in a health facility (40%). By comparison group, a higher percentage of those who had 2-4 (49%) and 5-7 (26%) health facility deliveries were CBHI members while their non-member counterparts were (32%, 24% respectively). Most of those who did not deliver in a health facility were non CBHI members (36%).

Relationship between CBHI status of the respondents and the services they receive after childbirth: The table below shows the main services that women receive after childbirth. We want to see how women who are members and non-members of the CBHI system are distributed according to this criterion. The table below shows that most women, i.e., approximately 5 out of 10 women surveyed (52%) received vitamin A and iron folate supplements, (14%) received vaccination, (18%) received ITN, and (17%) received family planning services after delivery, with(56%, 13%, 17%, and 14% respectively) of them being members of CBHI. However, the independence test shows that the CBHI membership status of a woman has no influence on the services she can benefit from after delivery; $\chi 2 (3, N=804) =90.053$, $p =0.75$.

Relationship between those who paid the cost of delivery and CBHI status: Here we divide the surveyed women who are members and non-members of the CBHI according to the people who paid the cost of delivery for them. The status of the woman in terms of CBHI membership was significantly associated with the different sources of origin of the costs allocated for childbirth; $\chi 2 (1, N=804) =174.53$, $p < 0.001$. It results from this table that the heads of households were in majority (52%) responsible for the payment of the cost allocated for childbirth with no significant difference between members (53%) and non-members (51%). On the other hand, approximately 1 out of 10 (8%) of the women surveyed would pay for delivery costs by themselves, and (26%) by family members, with (40%, and 26 respectively) being CBHI members.

Relationship between women's status with respect to CBHI and the method of payment used to pay for the cost of delivery: Here, we divide the women surveyed by the method of payment used to pay for the cost of their delivery. From the table, a woman's membership in CBHI significantly influences the method of payment adopted to pay for the cost of childbirth; $\chi 2 (4, N=804) =304.4$, $p < 0.001$. Results from the table shows that most women surveyed (50%) paid for the cost of childbirth in cash, (23%) paid through health insurance, (16%) paid in kind, of whom (33%,47%, and 19%, respectively) were members of CBHI. A small percentage (3%) and (7%) of the women surveyed paid for childbirth costs in instalments and pledges respectively.

Relationship between women's status in relation to community-based ANC and who makes the final decision on where to perform ANC: In this analysis we want to see who tells the family in their household where to go for ANC.

Table 7. Contingency table between the status of the woman with regard to CBHI and the method of payment used to pay for the cost of delivery

Method of payment	Member	%	Non member	%	Total general	% of total general	df	P-value	χ^2
Healthinsurance	188	47%		0%	188	23%	4	<0.001	304.4
Cash payment	131	33%	274	68%	405	50%			
Payment in kind	75	19%	53	13%	128	16%			
Payment in instalments	8	2%	15	4%	23	3%			
Payment by pledge		0%	60	15%	60	7%			
Total	402	100%	402	100%	804	100%			

The test of independence showed no association between those who decide on the place of ANC and CBHI membership status of the women surveyed; p=0.221. The table below shows thatthe family-in-law majorly made decisions regarding the place of ANC(53%), followed by the spouse (28%), then the mother-to-be (19%), with no significant difference between CBHI members (50%, 30%, 19% respectively) and non-members (56%, 26%, 18% respectively).

DISCUSSION

There is a comparative uniformity that health insurance has a positive influence on access and utilization of maternal health services. Results from our study demonstrated a strong relationship between Community Based Health Insurance membership and utilization of antenatal care services. This result is consistent with findings from a study by Kimberly et.al on CBHI and access to maternal health services which reported that, members of a CBHI were more likely to register a higher number of ANC visits compared to non-members (21). However a study in India evaluating YeshAsvini CHBI found no relationship between CBHI membership and ANC services (22). Types of services received in a health facility during ANC visits was also found to be influenced by CBHI membership status in our study. Members of CBHI were more likely to get services like vaccination, family planning, laboratory test and medicines than non-members. This is probably because most of these services are included in the CBHI package. Unlike non-members who make unaffordable out-of-pocket payments, members of CBHIS use these services freely. This finding agrees with findings from other studies that have established a positive influence of health insurance on access and utilization of quality health care services such as ANC services. Results from a study by Mbulialso reported a positive association between health insurance and utilization of family planning services (23). This study found a strong association between a woman's membership in a CBHI and utilization postpartum health services. Women who were members of CBHI visited postpartum health services more than those who were not members of CBHI. These results corroborate with results from a study which reported that insured mothers utilized postnatal health services more than uninsured mothers(24). Another study also reported that CBHI membership increased the likelihood of uptake of formal health care services (25). This could be explained by lack of a consistent flow of income among non-members to pay for these services. Sometimes the presence of user fee for these services in the health facilities is a challenge especially for the rural urban poor. Studies have reported a negative impact of introduction of user fee in public health facilities on utilization of maternal health services. However, utilization of these services among members is somewhat dependent on services covered by the CBHI. Most SSA countries do not have complete maternal services coverage. It means that, being a CBHI member doesn't always translate to the use of maternal health services, but the presence of these services in the CBHI package. Our study established a strong relationship between CBHI membership status and the number of deliveries in a health facility. Majority of participants who had more than two deliveries in a health facility were CBHI members. This is consistent with findings from a study in Ethiopia which found a positive association between CBHI membership and deliveries in health facility (26). The number of facility deliveries were higher among CBHI members. This study also reported a strong association between CBHI membership status and the person who paid for the delivery costs. A higher percentage of participants had their delivery payments done by household heads while the lowest percentage paid for delivery costs on their own.

We found no substantial evidence from previous studies on the relationship between CBHI membership and the person who pays for delivery services. However, household heads are customarily the principal providers and primary care givers for their families. This could thus explain the variation in the percentage of people who paid for delivery costs with household heads being the majority. It was also founded from the study that the mode of payment of delivery costs was associated with CBHI membership status. Participants who were CBHI members largely covered their delivery costs through health insurance. A substantial percentage of non-members pledged to pay for the costs. This is due to uncertainty in the availability of funds especially among those with lower income and not members of CBHI. There was no association between CBHI membership status and the final decision maker on the place of ANC services but most of such decisions were made by the in-laws.

CONCLUSIONS

The results of this study the influence of Community Based Health Insurance on the utilization of maternal health services in Karisimbi health zone, North- Kivu, Democratic Republic of Congo , generally seem to indicate the relevance.Community Based Health Insurance effectively improves maternal health service updates as it cushions households against catastrophic out-of-pocket expenditures. The barriers to the implementation of Community Based Health Insurance should be addressed and further results required on the cost of the implication of the program to improve uptake of these services.Finally, at this stage, there are still a number of questions to be explored, in particular, what would be the trend in relation to the increase in maternal health service users in areas where CBHI is implemented simultaneously with the performance-based financing approach in the DRC.

Conflit d'intérêt: "The authors state that they have no financial or personal relationships that may have inappropriately influenced them in writing this article."

Contribution des Auteurs: Jules Kashemwa coordinated and participated in all phases of the study (formulation of the research protocol, data collection, data analysis, writing of the article); Professors Margaret and Charles carried out the main stages of data analysis, in collaboration with the other authors; Jules kashemwa initiated the article and all the other authors contributed to its revision and the production of the final version of the article.

Remerciements: The authors would like to thank the teams from the health zone and Community Based Health Insurance for their collaboration in the study, as well as the thirteen interviewers for data collection. The views expressed in this article do not necessarily reflect those of the health zone.

REFERENCES

Aggarwal, A. (2010). Impact evaluation of India's 'Yeshasvini' community-based health insurance programme. *Health Economics*, *19*(S1), 5–35. https://doi.org/10.1002/HEC.1605 Mbuli, M. D., Awolu, M. M., Asangbeng, T. E.,

Alebachew A, Yusuf Y, Mann C, Berman P, FMOH. Ethiopia's progress in health financing and the contribution of the 1998 health care and financing strategy in Ethiopia. Resource tracking and management project. Boston and Addis Ababa: Harvard T.H.

Chan School of Public Health; Breakthrough International Consultancy, PLC; and Ethiopian Federal Ministry of Health; 2015.

Annual report of the Karisimbi health zone 2021

Borde MT, Kabthymer RH, Shaka MF, Abate SM. The burden of household out-of-pocket healthcare expenditures in Ethiopia: a systematic review and meta-analysis. Int J Equity Health. 2022;21(1):14.

Central Statistical Agency (CSA) [Ethiopia], ICF. Ethiopia demographic and Health Survey 2016. Addis Ababa and Rockville: CSA and ICF; 2016.

Doreen Mbuli, M., Muhamed Awolu, M., Elvis ASANGBENG, T., Ali Mbuli, I., Jill Pangmekeh, P., Dickson Shey, N., & Muhamed Awolu MPH, M. (2018). The Influence of Health Insurance on the Utilization of Maternal Health Care Services in Kumba Health District: A Community-based Assessment. *BioRxiv*, 474130. https://doi.org/10.1101/474130

Endale K, Pick A, Woldehanna T. Financing social protection in Ethiopia: a long-term perspective. OECD Development Policy Papers 15. OECD Publishing; 2019.

Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. Ethiopia Mini Demographic and Health Survey 2019: fnal report. Rockville: EPHI and ICF; 2021.

Kibusi SM, Sunguya BF, Kimunai E, Hines CS. Health insurance is important in improving maternal health service utilization in Tanzania—analysis of the 2011/2012 Tanzania HIV/AIDS and malaria indicator survey. BMC Health Serv Res. 2018;18(1):112.

Mbuli, I. A., Pangmekeh, P. J., & Shey, N. D. (2018). The Influence of Health Insurance on the Utilization of Maternal Health Care Services in Kumba Health District: A Community-based Assessment. *BioMed Central*, *200*(85), 1718–1726.

MoH. Essential health services package of Ethiopia. Addis Ababa: Federal Democratic Republic of Ethiopia, Ministry of Health; 2019.

MoH. National Human Resources for Health Strategic Plan for Ethiopia 2016–2025. Addis Ababa: Federal Democratic Republic of Ethiopia, Ministry of Health; 2016.

Rashad AS, Sharaf MF, Mansour EI. Does public health insurance increase maternal health care utilization in Egypt? J Int Dev. 2019;31(6):516–20. 50. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the sustainable development goals era: time for a revolution. Lancet Glob Health. 2018;6(11):e1196–252.

Sekabaraga, C., Diop, F., & Soucat, A. (2011). Can innovative health financing policies increase access to MDG-related services? Evidence from Rwanda. *Health Policy and Planning*, *26*(suppl_2), ii52–ii62. https://doi.org/10.1093/HEAPOL/CZR070

Smith, K. V., & Sulzbach, S. (2008b). Community-based health insurance and access to maternal health services: Evidence from three West African countries. *Social Science & Medicine*, *66*(12), 2460–2473. https://doi.org/10.1016/J.SOCSCIMED.2008.01.044

UNICEF. Pneumonia: UNICEF global databases, 2021. 2021. Available from: https://data.unicef.org/topic/child-health/pneumonia/

United Nations. The sustainable development goals report 2016. New York: United Nations, Department of Economic and Social Afairs; 2016.

Wang Y, Jiang Y, Li Y, Wang X, Ma C, Ma S. Health insurance utilization and its impact: observations from the middle-aged and elderly in China. Beck EJ, editor. PLoS ONE. 2013;8(12):e80978.

WHO, UNICEF. Accountability for maternal, newborn & child survival: the 2013 update. Geneva: World Health Organization and UNICEF; 2013.

Woldemichael A, Gurara D, Shimeles A. The impact of community based health insurance schemes on out-of-pocket healthcare spending: evidence from Rwanda. International Monetary Fund; 2019. IMF Working Paper No.: WP/19/38

Worku, A. G., Yalew, A. W., & Afework, M. F. (2013b). Factors affecting utilization of skilled maternal care in Northwest Ethiopia: A multilevel analysis. *BMC International Health and Human Rights*, *13*(1), 1–11. https://doi.org/10.1186/1472-698X-13-20/TABLES/4

World Health Organization, World Bank. Tracking universal health coverage: frst global monitoring report. Geneva: World Health Organization; 2015.

****