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Factors Associated with Increased Utilization of Health Information on Community-Based Insurance Premiums to Promote Health-Seeking Behaviors among Community Households in Gasabo District, Rwanda

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ABSTRACT

Globally, regionally and locally in Rwanda, Community-based health insurance (CBHI) has emerged as major health financing source of pooling health risks among the community households and an innovative approach to improving access to affordable and equitable healthcare, particularly in low- and middle-income countries where financial barriers often limit service utilization. Despite its growing low adoption with promising benefits in enhancing health-seeking behavior in utilization due to its affordability, despite existing socioeconomic disparities continue to cause challenges to various population health with various types of disease burdens. It's these reasons that led to study factors associated with increased health information on utilization of community-based insurance premiums to promote health-seeking behaviors among community households in Gasabo district. Specifically, determine the prevalence associated with increased health information on utilization of community-based insurance, assess the level of affordability of Premiums associated with the utilization of community-based insurance, determine the level of community participation of the elderly population's health in the utilization of CBHI and lastly determine level of health education associated with increased health information on utilization of community health insurance premiums among community households in Gasabo District). Study was mixed approaches of survey and interviews using semi structured questionnaire, key informants and focus group discussion guides FGDs. Study designs were descriptive, cross sectional, cohort and triangulation of themes into saturation. Study techniques were purposive, prospective, retrospective using a rapid review form, and subthemes discussion to saturation, data management was by SPSS version 19 and analyzed by cross tabulation of descriptive and inferential statistics. Data presentation was by figures, and tables. Research thesis was approved by School of postgraduate MKUR, and ethical clearance from MKU ethical committee and Gasabo district. The results opined that age distribution shows that the highest proportion of CBHI premium contributors was 60–70 years age group 102 (24.2%), and least cohort was 72(17%) with significant insurance protection impact p values 0.023,and RR(0.2, 0.17).Majority of gender in the utilization of health information on CBHI were male (52.4%) respondents, and females represented 47.6%, indicating a relatively balanced gender composition to mediate sustainability of insurance prevalence on the utilization of community health insurance premiums among the community households in the study area is 82 % (346), with significant protection of the community house on health seeking behaviors of p values 0.02 and potential impact of RR(0.8, 0.2) premiums' uptake via health information, with significant P value of 0.012 and 95% CI. majority of respondents, 320 (75.83%) received affordable

premium packages of the Community-Based Health Insurance. majority 328 (77.73%). Elderly respondent was active community participation in CBHI, and only few 94 (22.27%) indicated no such participation but significant p value of 0.004, 95% CI. Community health workers and least source were from the TV/ radio social Medias which was significant with chi square 3.279 and p values of 0.023 protective. Need to strengthen health education, improve affordability mechanisms, and enhance community participation particularly among elderly populations to sustain and increase CBHI utilization and promote positive health-seeking behavior.

1. Introduction

Community-based health insurance (CBHI) is a relatively innovative approach aimed at improving access to healthcare services by making them more affordable, efficient, and accessible while promoting risk-sharing between the rich and the poor. Evidence from different low-income countries shows that CBHI can significantly influence healthcare-seeking behavior by reducing financial barriers and increasing the likelihood of utilizing formal health services. For instance, in Burkina Faso's Nouna district, the CBHI program was introduced to improve access to facility-based care, and rigorous evaluation methods demonstrated its causal effect on health service utilization by minimizing self-selection bias through panel data analysis. Similarly, in Rwanda, CBHI coverage has expanded substantially, reaching about 87% of the target population between 2020 and 2022, reflecting strong policy commitment to universal health coverage. Despite this high enrollment, studies show that utilization and satisfaction levels remain inconsistent, indicating that insurance coverage alone does not fully guarantee appropriate healthcare use. Evidence further reveals that insured households are approximately 2.76 times more likely to use health services than uninsured households, suggesting a strong positive association between CBHI enrollment and healthcare utilization, although barriers still exist that limit full benefit realization.

In Rwanda, persistent challenges such as affordability of premiums, complex payment procedures, and long waiting times continue to affect CBHI adherence, particularly among vulnerable socioeconomic groups categorized under Ubudehe. In addition, health knowledge and access to information play a crucial role in shaping health-seeking behavior, as individuals with higher exposure to media, education, and insurance coverage tend to demonstrate better health awareness and utilization patterns. For example, studies among adolescents show that ownership of mobile phones, higher education levels, and exposure to television are associated with greater health knowledge, while among men in Gasabo District, higher education, older age, and having insurance were significantly linked to increased health-seeking behavior. However, even in settings with relatively high insurance coverage, disparities persist, suggesting that socioeconomic factors and inadequate understanding of insurance benefits may continue to influence behavior. Despite these findings, there remains limited evidence on how the combination of health information and CBHI premium obligations jointly influences healthcare-seeking behavior at the household level, particularly in specific contexts such as Gasabo District, where gaps in utilization still exist despite widespread insurance coverage. Aim of this study is determine the prevalence associated with increased utilization of health information on community-based insurance to promote healthy community households, to assess the level of affordability of Premiums associated with the utilization of community-based insurance premiums. To determine the level of utilization of health information associated community participation among the elderly population's health in the utilization of CBHI, to determine the level of health education associated with increased utilization of health information on community health insurance premiums among community households in Gasabo District).

2. Conceptual Framework

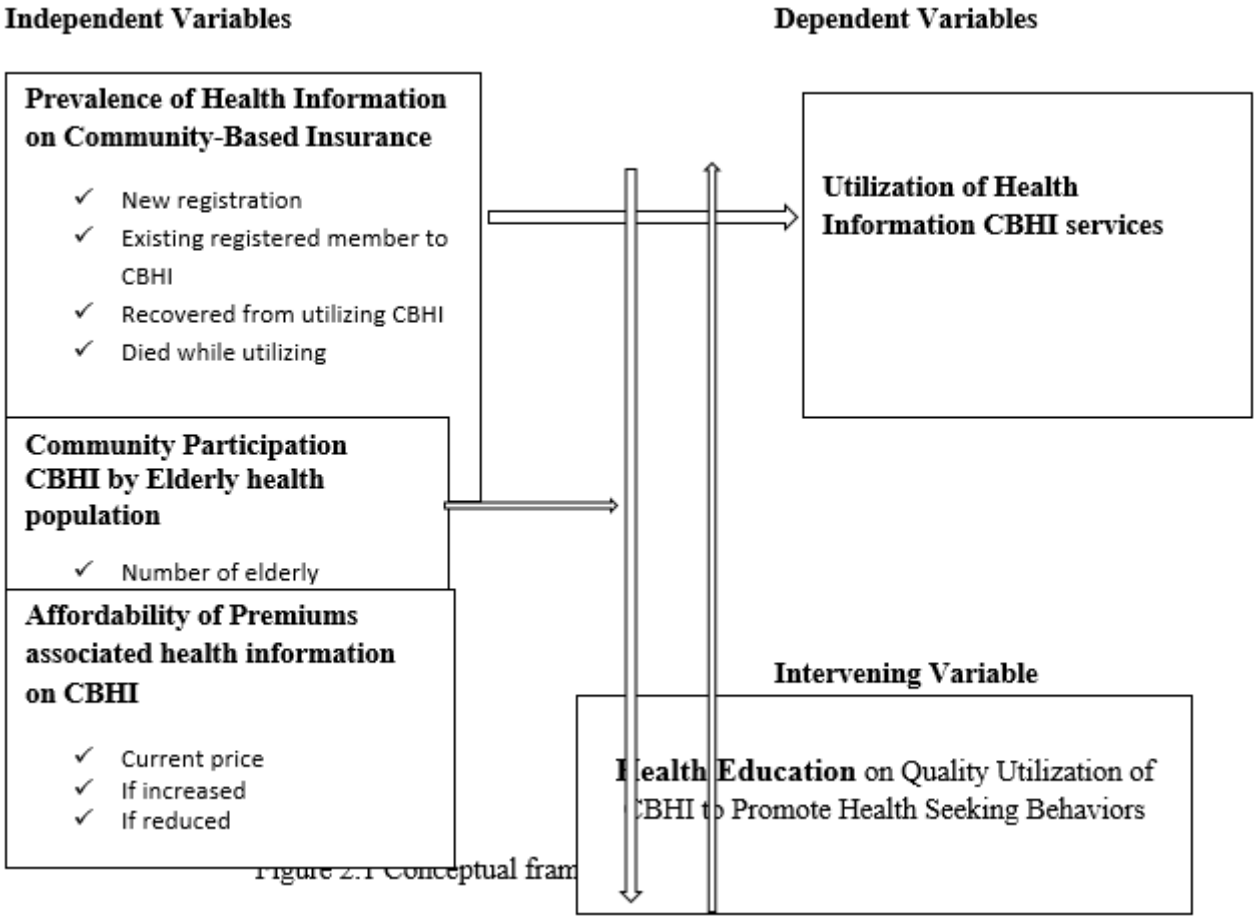

Figure 2.1 Conceptual fram

3. Methodology

This study used quantitative research techniques and a cross-sectional descriptive study design. The approach works well for evaluating the influence of health education on the use of community-based health insurance premiums as well as its prevalence and affordability.

3.2 Study area

The study carried out in Rwanda's City of Kigali, specifically in the Gasabo District. Gasabo was chosen because of its mix of urban and rural areas and its proactive use of community-based health insurance programs.

3.3 Study Population

The target population ware all adults living in Gasabo District who are either household heads or enrolled in the Community-Based Health Insurance (CBHI) program and who are at least eighteen years of age.

3.4 Sample Size Determination

A typical formula for calculating proportions with a 95% confidence interval and a 5% margin of error used to determine the sample size. In order to increase sample size, a 50% prevalence of health information on utilization of community-based insurance assumed if previous data in Gasabo District prevalence are unavailable.

To compute sample size, the Cochran formula (Cochran 1953) was used:

$$n = \frac{z^2 . P . Q}{L^2}$$

Substitution of Formula

Where n = estimated sample size,

Z = z statistic at 95% confidence interval,

1.96

P = health information on utilization of community-based insurance condition under research**,** health information on utilization prevalence we were estimate to be 50%.

Q = 1-P,

L = 5% allowable margin of error

$n = \frac{1.96^2 X 0.5 X (1-0.5)}{0.05^2}$ =384 patient samples were the minimal sample size

And then adding 10% of none responding 38.4 ~38

The sample size was 422 patients

3.5 Sampling Technique

We ware purposive prospective, retrospective using rapid review form and discussion of subthemes to themes to get a representative sample of houses in Gasabo District. This approach is appropriate because of the district's wide geographic region and diversified population. Simple random sampling used to choose a number of sectors within Gasabo District in the first step. Selective bias reduced because each sector is given an equal probability of being included in this study.

This strategy aims to guarantee a representative and varied sample that captures the district's disparities in community-based health insurance use, affordability, and health education levels. By keeping the sample's statistical integrity while concentrating data collection efforts inside certain clusters, it also increases logistical viability. Each chosen household had an interview with the head of the household or any responsible adult who is at least eighteen years old.

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion criteria

The study was involved Gasabo District houses having at least one adult resident who is at least eighteen years old and has lived there for at least six months before the study begins. The ability to give informed permission and the desire to engage in the interview are prerequisites for eligibility. The chosen responder needs to be aware with the household's health insurance situation, specifically with regard to community-based health insurance rates and health-seeking practices.

3.6.2 Exclusion Criteria

Inaccessible households throughout the data collecting period or those without an eligible respondent after at least two follow-up visits removed from the study. To preserve the quality and reliability of the data, people who are unable to converse normally because of cognitive impairments, severe illnesses, or any other condition that would make it difficult for them to answer the questionnaire disqualified.

3.7 Data Collection Methods

The study was employed a structured questionnaire to gather data in order to obtain quantitative information pertaining to the study's goals. Both closed-ended and a few open-ended questions included in the questionnaire, which covered important topics like household health-seeking behaviors, insurance premium affordability, knowledge and awareness of community-based health insurance (CBHI), sociodemographic data, and degree of health education. To guarantee clarity and cultural suitability for all responders, the tool created in English and translated into Kinyarwanda, the native tongue.

A pre-test of the questionnaire carried out in a community that is comparable to the study area but excluded from the actual sample prior to the primary data collection. This pre-test was assisted in locating any unclear passages, improper inquiries, or problems with the translation. The tool's accuracy and dependability enhanced by making the required changes in response to the feedback. Face-to-face interviews with trained data collectors who speak Kinyarwanda used to distribute the questionnaires. Better response rates are guaranteed by this method, which also makes it possible to clarify any unclear queries. Data collectors got training on the goals of the study, ethical issues, and appropriate interviewing methods in order to preserve quality and consistency. The head of the household or a knowledgeable adult member was the objective of the household-level interviews. Every day, field supervisors kept an eye on the data collecting procedure to make sure that the protocol is followed and to confirm that the data is accurate and complete before submitting it for input and analysis.

3.8 Storage of Data Collected

The facts gathered from the participants shall be treated and stored in high confidentiality to avoid leakage to unauthorized persons. The raw data collected should be filed for easy reference and accessibility. Soft copies of the data should be encrypted. After the data is analyzed, computer printouts should be stored while storage devices like CDs and /or diskettes should be used to store soft copies of the analyzed data. Utmost care and protection of the saved data should be ensured where the researcher should be the only authorized holder and implementer of the results. This is in line with the Data Protection Law of Rwanda (No. 058/2021 of 13/10/2021) which stipulates that Data controllers and Data processors are required to ensure security of the personal data in their possession by adopting appropriate, reasonable technical and organizational measures to prevent loss, damage or destruction of personal data. The Data Protection Law also requires Data controllers or Data processors processing sensitive personal data to implement appropriate safeguard measures, including storing sensitive personal data separately from other types of data or applying measures such as tokenization, pseudonymization or encryption.

3.9 Data Management and Analysis

Following data collection, each completed questionnaire was examined for accuracy, consistency, and completeness. Depending on the research team's preferences and availability, the data was subsequently being managed by Statistical Package for the Social Sciences (SPSS) version 26 software. and Microsoft Excel spreadsheet and exported. Before doing statistical analysis, data cleaning done to get rid of any inconsistent, duplicate, or incomplete items.

A summary of the respondents' sociodemographic traits, their degree of awareness and health education, and their usage patterns of community-based health insurance premiums provided via descriptive statistics including frequencies, percentages, means, and standard deviations. An outline of the main study variables provided by these summaries. Chi-square tests employed for the inferential analysis to evaluate correlations between categorical variables, including the one between insurance use and health education. Using binary logistic regression analysis, which accounts for potential confounders, factors that are significantly linked to higher consumption of community-based insurance premiums identified. Odds ratios (ORs), confidence intervals (CIs), and p-values used to display the results; a p-value of less than 0.05 was determined statistical significance.

3.10 Ethical Considerations

The Mount Kenya University School of Postgraduate committee was granted ethical clearance for the study, and the Gasabo District research committee approved data collection. The goal, methods, risks, and

advantages of the study was all thoroughly explained to participants, and their participation entered voluntarily after informed consent has been obtained. The consent form readied out loud and a thumbprint accepted for participants who are illiterate. Personal identifiers kept out, data was securely stored, and it was only being used for research in order to maintain confidentiality.

4. RESULTS

4.1 Respondents Rate

Out the 422 respondent target population intended to do survey and interview in the study all 422 (100%) respondents turned up to participate in the study as the respondent rate.

4.1.1 Demographic Profile

The results opined that age distribution shows that the highest proportion of CBHI premium contributors was 60–70 years age group 102 (24.2%), and least cohort was 72(17%) with significant insurance protection impact p-values 0.023,and RR (0.2, 0.17) utilization of CBHI.

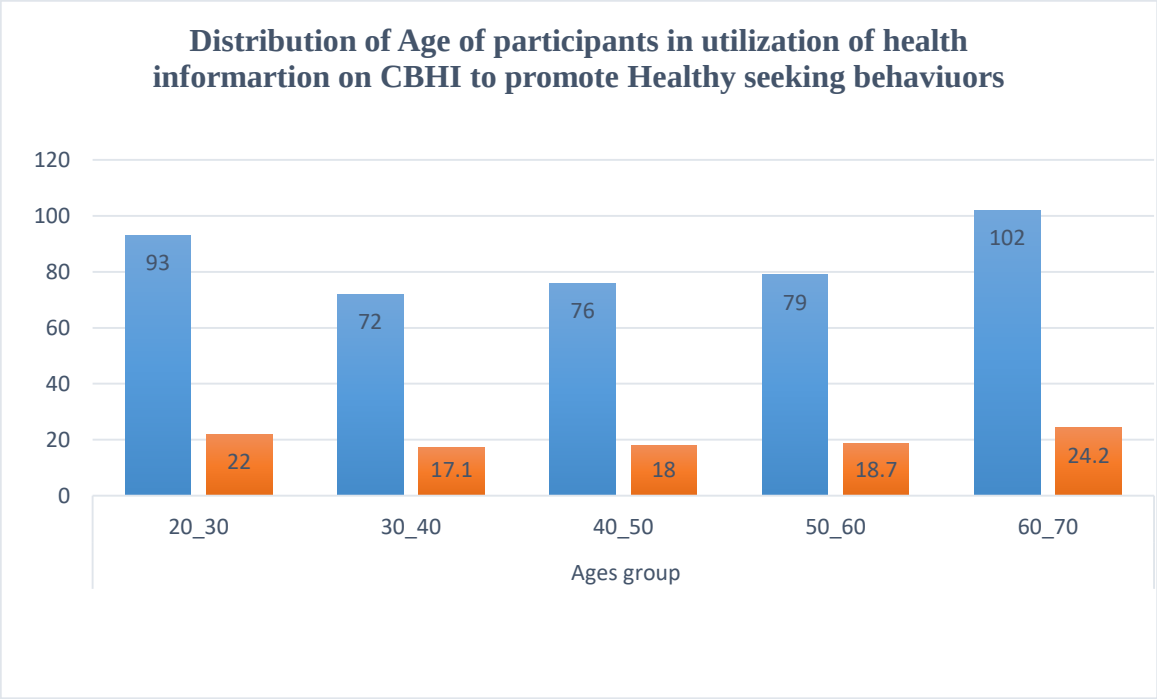

Figure 4.1: Distribution of the age of participants in utilization of health information on CBHI to promote healthy-seeking behaviors

The majority of gender in the utilization of health information on CBHI were male 221(52.4%), and females represented 201(47.6 %,) indicating a relatively balanced gender composition to mediate sustainability of insurance premiums' uptake via health information, with significant protective of a P value of 0.012 and 95% CI2.8 utilization.

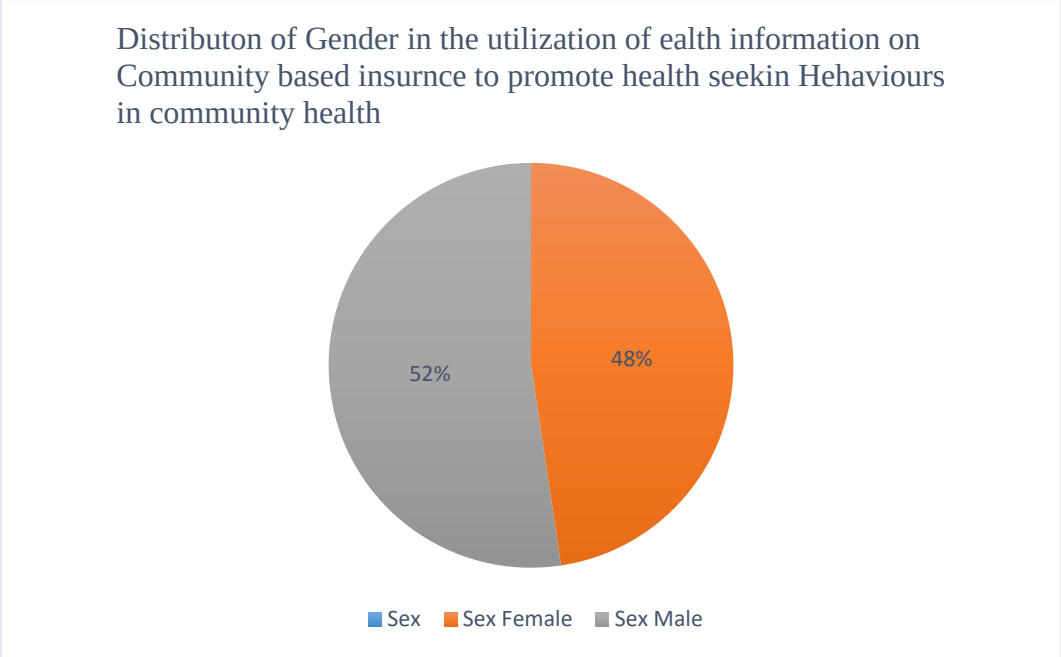

Figure 4.2: Distribution of Gender in the utilization of health information on Community based insurance to promote health seeking Behaviors in community health

On marital status many respondents on the utilization of health information on Community based insurance premium uptake were married 216 (51.2%), and only few 23 (5.5%) were divorced, and protective association on utilization of health information to promote health seeing behaviors were RR (0.5, 0.06).

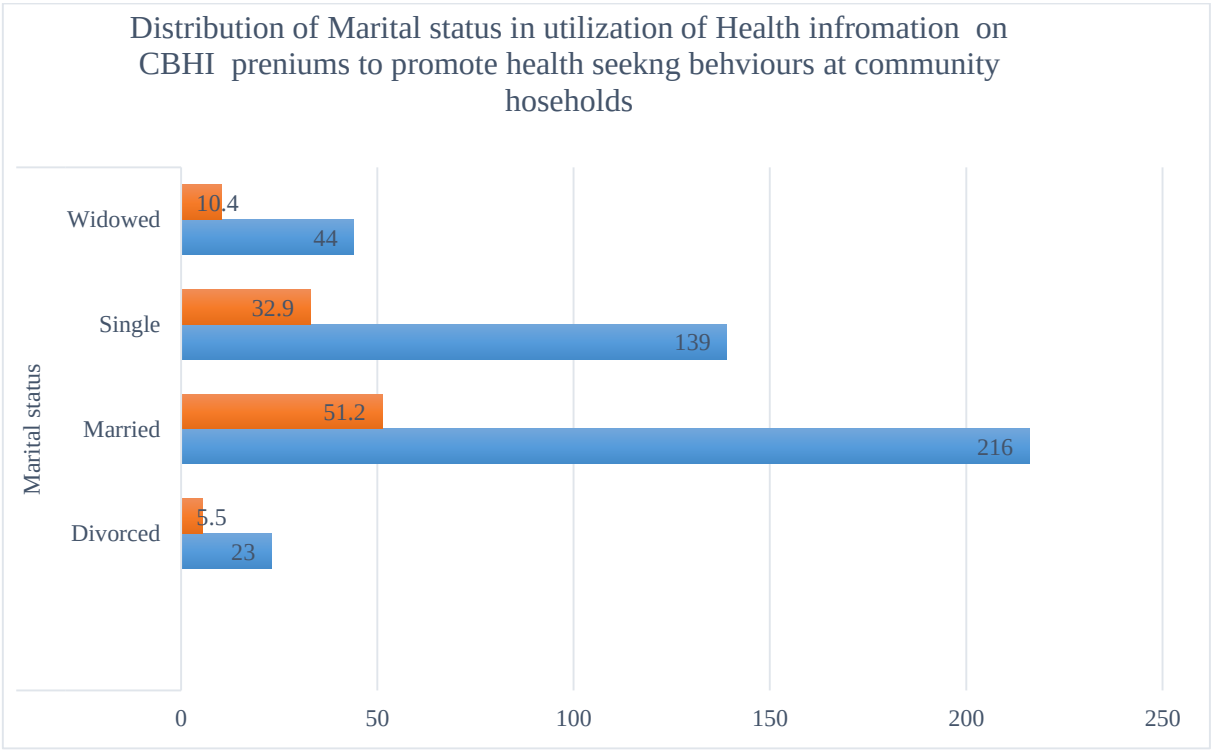

Figure 4.3: Distribution of Marital Status in Utilization of Health Information on CBHI Premiums to Promote Health Seeking Behaviors at Community Households.

Also the study in Gasabo district on Health Information on utilization of community based insurance premiums opined that major occupation on the health information and beneficiaries of CBHI were farmer 151(36%) and least were, 19 (4.5), self-employed with range of 132 (31.3%) in the utilization of health information on CBHI premiums with protective significant of P values 0.023, and RR (0.4, 0.5) on the quality access to health information utilization to promote health seeking behaviors in the district.

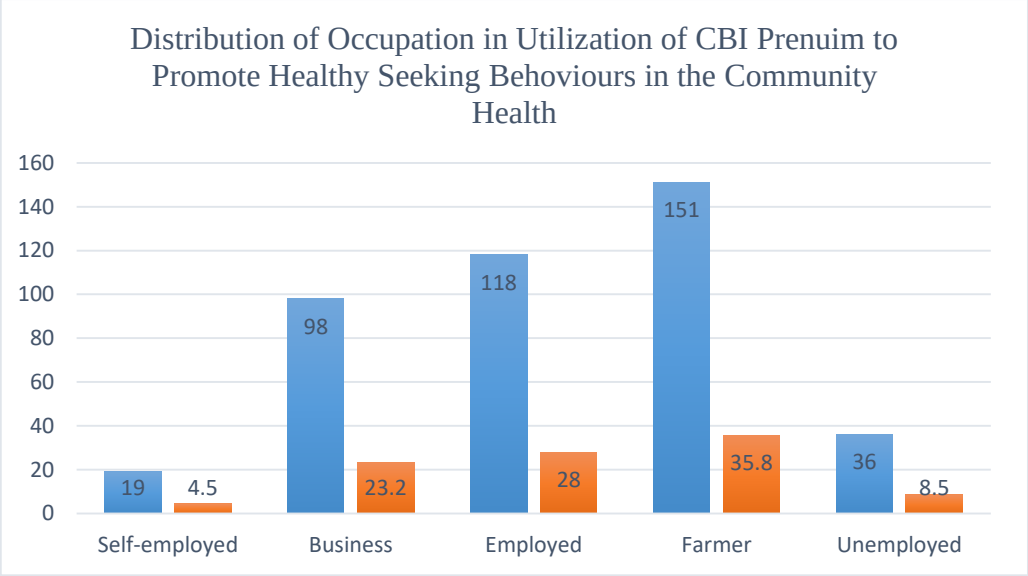

Figure: Distribution of Occupation in Utilization of CBI Premiums to Promote Healthy Seeking Behaviors in the Community Health.

4.2 Prevalence Associated with Increased utilization of Health Information on the Community-Based Insurance to Promote Healthy Community Households

The result opined that the current prevalence on the utilization of community health insurance premiums among the community households in the study area is 82 % (346), with significant protection of the community house on health-seeking behaviors of p values 0.02 and potential protective of RR(0.8, 0.2) utilization

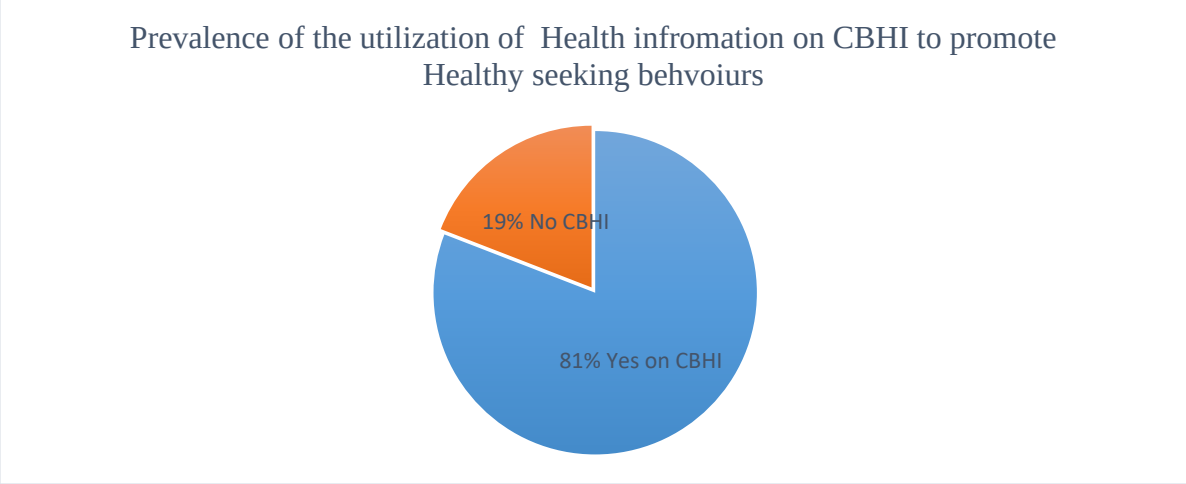

Figure 4.5: Prevalence of the Utilization Health information on CBHI to promote Healthy seeking behaviors in the community health

4.2.2 Affordability of Premiums associated with the utilization of health information community-based insurance premiums to promote health-seeking behaviors

The results show that the majority of respondents, 320 (75.83%) received affordable premium packages of the Community-Based Health Insurance (CBHI), while the least agreed that CBHI was expensive to few community households, 102 (24.17%). Affordability of premiums had a significant association with the utilization of CBHI in in study area. The high proportion of respondents who consider the premiums affordable may explain the relatively high significant enrollment and continued use of CBHI with potential protective of health care of RR (0.8, 0.24). OD 3.3 highlighting no cost-related factors in promoting community participation in health insurance schemes.

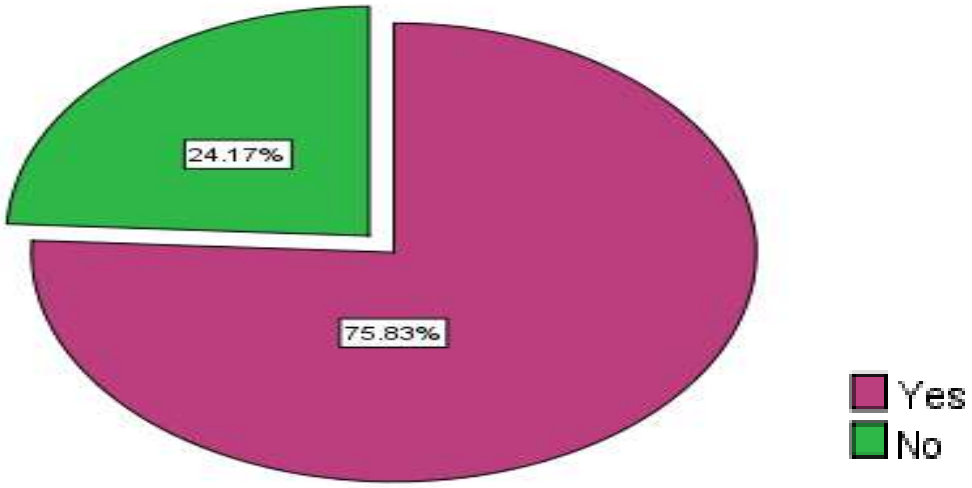

Figure 4.7: Afordability of Insurance Prenuim In assocaition with Utilizatioen health information By Community House Holds

"Affordability of community-based insurance has helped us elerlypopuation to aceess quality healthcare due to disease burden that is aways following uu aage years advances" FGD held in the study area with elderly elder on 6/1/2026.

4.2.3 Community Participation With The Elderly Population's Health In Utilization Of CBHI

The results showed that community participation in supporting the health of the elderly population through the utilization of Community-Based Health Insurance (CBHI) protective, where majority 328 (77.73%) elderly respondent were active community participation in CBHI, and only few 94 (22.27%) indicated no such participation but significant p value of 0.004, 95% CI. This high level of involvement suggests that community engagement plays an important role in promoting CBHI utilization among elderly populations. Active participation may enhance awareness, social support, and trust in the insurance scheme, thereby facilitating elderly health seeking behaviors to healthcare services in the study area. Which was also echoed in a FGD in the study are:

"Community based insurance has enabled to improve our held seeking behaviors to various health facilities in the District, most prefer come to our referral district." KII , held 23/01/2026.

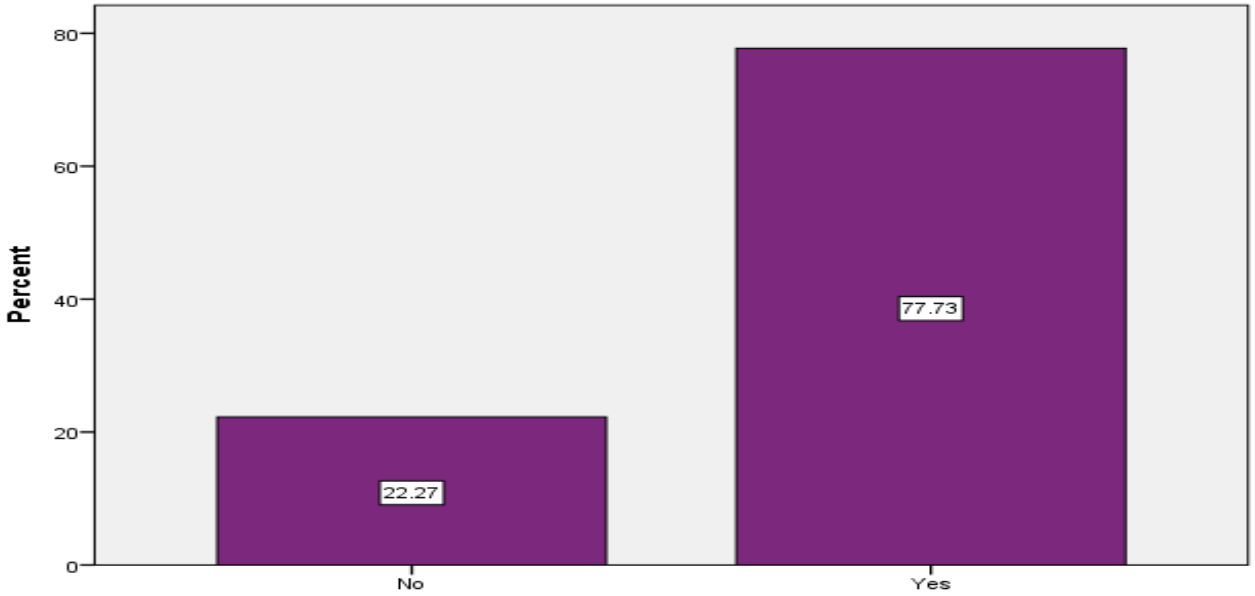

Figure 4.8: Community Participation with the Elderly Population's Health in Utilization Of CBHI

4.2.4 Health Education Associated with the Utilization of Community Health Insurance Premiums among Community Households

The main source of health information on community based health insurance premiums awareness was by community health workers and least source were from the TV/ radio social Medias which was significant with chi square 3.279 and p values of 0.023 protective. Which was also discussed in FGD:

"Community health workers are most reliable source health information at both district and community households" FHD held on 6/1/2026

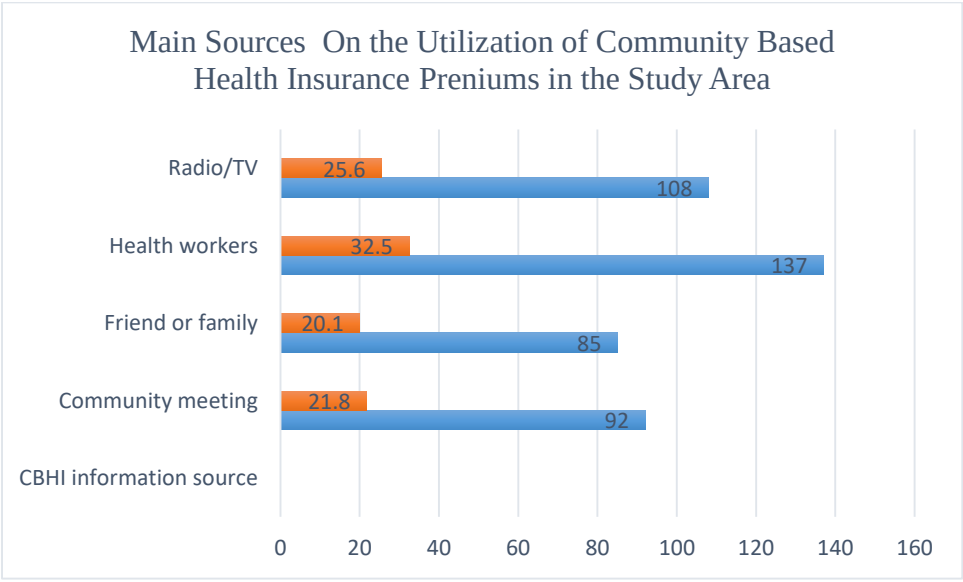

Figure 4.6: Main Sources on the Utilization of Community Based Health Insurance Premiums in the study area

4.3 Discussion

The present study revealed a high level of Community-Based Health Insurance (CBHI) utilization in

Gasabo District, with 82.46% of households enrolled. This finding is consistent with national estimates indicating that CBHI coverage in Rwanda reached approximately 87% between 2020 and 2022 (Muremyi et al., 2023a). Similarly, national evidence shows that insured households were 2.76 times more likely to utilize health services than uninsured households (Muremyi et al., 2023b). In this study, 81.6% of respondents who used CBHI for care reported that health education influenced their utilization (χ^2 = 128.023; $p < 0.001$), supporting findings from Burkina Faso, where insurance coverage significantly improved health-seeking behavior (Robyn et al., 2012). These results align with Getahun et al. (2023), who emphasized the role of risk-sharing mechanisms in improving access to care in developing countries. Overall, the high utilization rate observed in Gasabo reflects effective policy implementation but also highlights the continued importance of health information in sustaining insurance use.

Affordability of premiums emerged as one of the strongest determinants of CBHI utilization in this study. Descriptive findings showed that 75.83% of respondents perceived premiums as affordable, while bivariate analysis indicated a strong association between affordability and utilization (χ^2 = 237.162; $p < 0.001$). In multivariate analysis, perceived affordability remained a significant predictor (These results are consistent with findings from Southern Rwanda, where unaffordable premiums were significantly associated with low adherence (Mukangendo et al., 2018). Similar evidence from Ethiopia showed that affordable premiums increased enrollment (Fite et al., 2021a), while households perceiving premiums as expensive were less likely to enroll (Nageso et al., 2020a). Furthermore, low-income status was significantly associated with utilization in this study reinforcing the argument that financial capacity remains a central determinant of CBHI use.

Community participation, particularly in elderly-focused activities, was another important factor influencing CBHI utilization. In this study, 77.73% of respondents reported active participation in community activities supporting elderly health, and bivariate analysis showed a strong association Multivariate results confirmed this relationship, with participation in elderly community meetings remaining significant. These findings align with global and regional evidence highlighting insurance as a protective factor for elderly health utilization (Mao et al., 2020; Zhou et al., 2020). Similar policies in Nepal, including full subsidies for older adults, have demonstrated improved access through community engagement (M. Silali et al., 2021). However, studies in Nepal also report limited awareness of elderly benefits despite available services (Bisht et al., 2012), which supports the current study's emphasis on participation as a channel for improving awareness and utilization among older populations.

Health education and access to information were strongly associated with CBHI utilization in Gasabo. In this study, 81.4% of respondents who had received health education reported that it influenced their use of CBHI, and this association was highly significant in both bivariate (χ^2 = 130.806; $p < 0.001$) and multivariate analyses.

These findings are consistent with Ethiopian studies reporting very strong associations between awareness and enrollment. (Fite et al., 2021b) and between knowledge and utilization. (Girmay & Reta, 2022). Additionally, research in Rwanda showed that health insurance was associated with improved health knowledge among adolescents (Kawuki et al., 2023). These findings suggest that health education not only improves knowledge but also strengthens perceived value and trust in CBHI, supporting theoretical models that emphasize information as an enabling factor for health service utilization (Kaso et al., 2022). Finally, perceptions of CBHI benefits and duration of enrollment significantly influenced utilization. Respondents who believed that CBHI improves access to healthcare were more likely to use services and this association remained significant in multivariate analysis Years of enrollment were also significant in

bivariate analysis, indicating that long-term participation enhances responsiveness to health information. These findings are consistent with Ethiopian evidence showing that longer membership increased utilization (Dagnaw et al., 2022) and systematic reviews reporting higher service use among CBHI members (Bayou et al., 2024). However, unlike studies among men in Gasabo that found strong effects of age and education, (Uwimana et al., 2023a), socio-demographic factors such as age, sex, and education were not significant in this study. This suggests that, in Gasabo, enabling factors such as affordability, information, and community engagement may outweigh individual characteristics in shaping CBHI utilization, consistent with Social Determinants and Andersen's utilization models.

4.4 Conclusion

This study assessed patient-related factors associated with increased health information influencing the utilization of community-based health insurance (CBHI) premiums to promote health-seeking behaviors among community households in Gasabo District. The findings indicate that CBHI utilization is influenced by a combination of socio-demographic, economic, informational, and community engagement factors. While most socio-demographic characteristics were not significantly associated with CBHI utilization, marital status showed a significant relationship at the bivariate level, suggesting that household structure may affect responsiveness to CBHI-related health information.

The study further revealed that economic factors play a critical role in CBHI utilization. Perceived affordability of CBHI premiums and income-related constraints were strongly associated with increased utilization, even after adjusting for confounders. Although the amount of annual premium paid was not independently significant in the multivariate analysis, affordability remained a key determinant, highlighting the importance of households' financial capacity rather than the nominal cost of premiums.

In addition, exposure to health information and community participation were significant predictors of CBHI utilization. Receipt of health education, participation in elderly community meetings, and the perception that CBHI improves access to healthcare services were independently associated with increased utilization of CBHI. These findings underscore the role of effective health education and community-based platforms in enhancing understanding and acceptance of CBHI, ultimately promoting timely and appropriate health-seeking behavior among households.

Overall, the study concludes that strengthening health information dissemination, improving affordability mechanisms, and enhancing community engagement particularly through elderly-focused initiatives are essential to increasing CBHI utilization and improving access to healthcare services in Gasabo District.

4.5 Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. **Strengthen health education and information dissemination** Health authorities and CBHI implementers should intensify community-based health education programs, with a particular focus on explaining CBHI benefits, coverage, and referral procedures. Health workers should be further empowered as key information providers, and regular health education sessions should be integrated into routine community meetings.
2. **Improve affordability and financial support mechanisms** Policymakers should consider strengthening premium subsidy schemes and flexible payment options for low-income households and large families. Social protection programs should be aligned with CBHI to reduce financial barriers and prevent missed payments that hinder continued enrollment and utilization.
3. **Enhance community participation and elderly engagement** Community and local leaders should promote regular elderly community meetings and actively involve older adults in CBHI mobilization

activities. Given their influence at household and community levels, elderly participants can serve as key agents in encouraging CBHI enrollment and utilization.

4. **Promote positive perceptions of CBHI benefits** Efforts should be made to improve service availability, referral efficiency, and patient experience at health facilities to reinforce the perception that CBHI improves access to healthcare. Positive user experiences should be leveraged in communication strategies to build trust and confidence in the CBHI system.
5. **Further research** Future studies should explore health system–related and provider-related factors influencing CBHI utilization using longitudinal or mixed-methods designs. Qualitative research is also recommended to better understand perceptions of affordability, leadership challenges, and community motivation related to CBHI.

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