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Research Article

Assessment of the Viability of Community-Based Health Insurance Schemes in the Ziguinchor Department from 2016 to 2018 in the Context of Universal Health Coverage (Senegal)

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Abstract

Introduction: This study examines the viability of community-based health insurance schemes in the Ziguinchor department of Senegal from 2016 to 2018, within the context of universal health coverage. Health insurance schemes have emerged as a promising solution to extend social health protection to informal sector workers and rural populations. However, despite political support, these structures face persistent challenges in terms of enrollment, member retention, and management. The study aims to assess the viability of these schemes, as well as the perceptions of various stakeholders on mutual health insurance. *Methodology*: The study adopted a mixed approach, combining quantitative and qualitative methods, based on the theoretical framework developed with the support of the International Labor Office (ILO). This framework evaluates the viability of health insurance schemes according to four dimensions: institutional, technical, functional, and financial/economic. A questionnaire with 87 questions was used to collect quantitative data on these aspects from the seven health insurance schemes in the Ziguinchor department. For the qualitative component, focus groups and individual interviews were conducted with various actors, including beneficiaries, non-beneficiaries, community leaders, scheme managers, and healthcare providers. *Results*: The study's findings reveal a complex situation for the health insurance schemes in the Ziguinchor department. Institutionally, the schemes have a solid foundation with legal status, internal regulations, and affiliation to a departmental union. Technically, membership is voluntary and family-based, with control mechanisms in place, although their effectiveness is limited. Functional viability shows positive signs with a membership growth rate of 20.18%, but the overall penetration rate remains low at 16.99%, and the premium collection rate is very low, averaging 26.78%. The financial situation is particularly of concern: no scheme can meet its short or long-term debts, and the average claims ratio is excessively high at 282%. As for stakeholder perceptions, they are mixed: while the schemes are generally considered beneficial, significant practical difficulties are identified, including lack of information, funding problems, and procedural complexity. *Conclusion*: The study highlights the complexity of the role of health insurance schemes in the quest for universal health coverage. Despite undeniable strengths, the schemes face considerable challenges in terms of functional and financial viability. Corrective measures are necessary, including strengthening management capacities, innovating premium collection methods, and improving communication. An evolution of the model is

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also suggested, potentially towards greater integration into a national social protection system or the development of innovative public-private partnerships.

Keywords

Health Insurance, Mutual Health Insurance, Sustainability, Evaluation

1. Introduction

Health systems in sub-Saharan Africa have undergone major transformations since independence, shifting from a welfare state model to a more participatory and decentralized approach [1]. In Senegal, as in many African countries, economic difficulties in the 1980s and structural adjustment programs led to a drastic reduction in public health spending, resulting in deteriorating services and limited access to care for the most vulnerable populations [2].

The Bamako Initiative in 1987 marked a turning point by promoting community involvement in financing primary health care [3]. This approach led to the gradual abandonment of free care and the emergence of direct payment as the main health financing mechanism. Although this reform brought some improvements, it also exacerbated inequalities in access to care [3].

Faced with these challenges, community-based health insurance schemes emerged as a promising solution to extend social health protection to informal sector workers and rural populations [2]. Senegal integrated the development of these schemes into its national universal health coverage strategy, launched in 2013 [4]. However, despite political support and efforts, these structures face persistent difficulties in terms of enrollment, member retention, and management [5].

Numerous studies have been conducted on health insurance schemes in sub-Saharan Africa, exploring their impact on access to care, financial viability, and determinants of membership [2, 6-13]. In Senegal, the promotion of mutual health insurance has benefited from considerable political support since 1997, with the implementation of a program to support the development of health insurance schemes by the Ministry of Health [9]. However, research conducted in various localities in Senegal [12, 14, 15] has highlighted the challenges related to the financial viability of these structures.

Despite these challenges, perceptions of beneficiary populations generally remain positive, recognizing the usefulness of insurance schemes in accessing care at lower costs [6]. However, factors influencing membership and retention remain complex and vary according to contexts [6, 16]. A recent study conducted in the Oussouye district of Senegal revealed that 80% of the schemes studied had a charge coverage ratio of less than 1, meaning they were unable to cover their expenses without state support [12].

Despite this extensive research, few studies have adopted a holistic approach, combining analysis of technical, functional, institutional, and financial viability with an in-depth exploration of perceptions of different stakeholders. Moreover, research specific to the Ziguinchor region, which has particular socio-economic characteristics, is rare. This gap in the literature limits our understanding of the factors that influence the performance of insurance schemes in specific local contexts.

In this context, our study aims to assess the technical, functional, institutional, and financial viability of health insurance schemes in the Ziguinchor department, in southern Senegal. By also analyzing population perceptions of mutual health insurance, this research aims to identify needs and formulate recommendations to support the extension of universal health coverage in Senegal. This assessment is part of the broader global efforts to achieve universal health coverage [17, 18].

2. Methodology

We opted for a mixed design with a quantitative and qualitative approach to measure the viability of health insurance schemes and stakeholder perceptions.

The study is based on a theoretical and conceptual framework jointly developed by the Strategies and Techniques against Social Exclusion and Poverty (STEP) program of the International Labor Office (ILO) and the International Center for Development and Research (CIDR) [19]. The framework proposes numerous indicators aimed at evaluating the determinants capable of influencing the viability of an insurance system. In accordance with this framework, viability was assessed at four levels: institutional, technical, functional, and financial and economic.

Institutional viability focuses on the administrative organization of the entities from a regulatory perspective. Technical viability assesses the scheme's ability to manage risks related to health insurance, such as overconsumption, adverse selection, and over-prescription. Functional viability examines the ability to adhere to the basic principle of insurance operation, namely providing benefits in exchange for contributions. Finally, financial and economic viability directly conditions the autonomy and survival of the scheme. This involves assessing the scheme's ability to sustainably cover expenses with income and meet financial commitments within the

required timeframes.

The study covered all community-based health insurance schemes in the Ziguinchor department. The study population included all seven mutual health insurance schemes in the Ziguinchor district. This was an exhaustive study, encompassing every mutual health insurance scheme within the district. We focused on their activity during the period from 2016 to 2018.

For the collection of quantitative data aimed at measuring the viability of the schemes, a questionnaire containing eighty-seven (87) questions was developed. The questionnaire was first pre-tested and then administered to the chairpersons and managers of the mutual health insurance schemes by trained interviewers, under the supervision of a qualified supervisor. The interviewers, who were well-trained in data collection techniques, conducted the survey through direct interviews.

Data entry and analysis were performed using Epi Info version 3.5.3 and Microsoft Excel software.

As for the qualitative component, we conducted a case study to understand the perceptions of populations on mutual health insurance and the factors associated with their adherence to health insurance schemes. Data were collected from different groups:

1. Agents of the regional service of the public agency in charge of universal health insurance (national agency for universal health coverage).
2. Managers of mutual organizations.
3. Healthcare providers.
4. Beneficiary and non-beneficiary populations of health insurance schemes.
5. Community leaders (religious leaders, association leaders, administrative authorities, traditional authorities).

We organized nine (9) focus groups of ten (10) participants each, including beneficiaries, non-beneficiaries, and community leaders. The methodology was thoroughly discussed and refined in consultation with a senior researcher experienced in qualitative health research. Additionally, upon completion of the study, the entire research process and findings were retrospectively validated by two other senior researchers, who reviewed the methodology, data collection procedures, and analysis to ensure rigor and reliability. Individual interviews were also conducted with agents from the universal health coverage agency, scheme managers, and healthcare providers.

The qualitative analysis was conducted using RQDA. After verbatim transcription of the recordings, two researchers independently coded the transcripts, iteratively developing a codebook. These codes were then grouped into broader themes and subthemes through thematic analysis. A frequency analysis of themes was performed to understand their relative importance among different participant groups. Finally, a comparative analysis was conducted to identify similarities and differences in perspectives between groups. The analysis was carried out using RQDA and Epi Info version 3.5.3 software.

3. Results

Characteristics of Health Insurance Schemes

The study revealed the existence of seven health insurance schemes in the Ziguinchor department. Their average operational age in 2018 was 5.3 (±3.4) years. The youngest was two years old and the oldest twelve years. These health insurance schemes had rural coverage in 42.86% of cases. Both urban and rural coverage was found in 28.57% of cases. Nearly all schemes had state subsidies and member contributions as sources of funding.

Institutional Viability of Health Insurance Schemes

Our study showed that all community health insurance schemes had a status and internal regulations. All visited health insurance schemes were affiliated with a federative structure called the Departmental Union of Health Insurance Schemes of Ziguinchor (UDMS/Z), which regularly provides technical support as needed. In case of referral to hospitals, UDMS/Z covered the related medical expenses.

An organizational chart establishing functional and organizational links between different bodies was available in all schemes, except for the one in Ziguinchor commune. The lack of compensation for scheme managers is often cited as a problem.

Most management bodies stipulated by statutory texts existed in the health insurance schemes of the Ziguinchor department. The general assembly and board of directors existed in all surveyed health insurance schemes. The management committee and auditors or controllers existed in 71.43% of visited schemes, compared to 14.29% that had an executive office.

Most schemes (71.43%) had benefited from various forms of support from local authorities and development partners. Among other contributions, we can mention allocation of premises, equipment provision, subsidization of enrollment for vulnerable individuals and students, training of board members in administrative and financial management, and support for maternal and child health promotion activities as well as scale-up efforts.

Care provision agreements were signed between almost all surveyed schemes and health posts, the Ziguinchor district health center, and some pharmacies in Ziguinchor.

Technical Viability of Health Insurance Schemes

Membership in the schemes was voluntary in Senegal at the time of the study. In 71.43% of schemes, the mode of membership was family-based as opposed to individual membership. The number of beneficiaries per member was not limited in 85.71% of schemes, except for one scheme that limited the number of members to four (4) at most.

All seven (7) schemes in the department offered populations the possibility to join at any time of the year. After joining, a one-month observation period was prescribed in all schemes.

A wide range of services was covered by most health insurance schemes in the Ziguinchor department in 2018. Hospitalization, outpatient care, and primary-level biological and radiological examinations were offered by almost all community schemes in the Ziguinchor department. Furthermore, six out of seven schemes covered medications, dental care, and medical evacuations. And 71.43% of schemes provided coverage for eye care and specialized care.

All health insurance schemes only required paying members to pay the co-payment, which was 20% of the bill amount. Some beneficiaries were covered at 100%. These were notably disabled individuals holding equal opportunity cards. Health posts and centers accepted the third-party payment system for all care provided. The existence of co-payment and mandatory referral in the studied schemes limits overconsumption in principle. However, 28.57% claimed to have observed abuses by the insured.

Most health insurance schemes (85.71%) highlighted difficulties encountered with beneficiaries. Additionally, 71.42% of schemes claimed to have observed individuals joining when they were already ill. A lack of card renewal was also noted.

Functional Viability of Health Insurance Schemes

Only 71.43% of health insurance schemes in the Ziguinchor department had an activity plan. Almost all schemes had planned at least one monthly meeting, and on average, 9.43 (±2.8) statutory meetings were held by these management bodies of health insurance schemes in the Ziguinchor department in 2018.

The member register, contribution register, and benefit tracking register were available in all Ziguinchor schemes in 2018. However, only 85.71% of schemes had membership cards, compared to 42.85% availability of individual records by these schemes.

Most health insurance scheme managers, 71.42%, were trained in administrative and financial management, which they mostly found useful, i.e., 60% of managers.

The income statement and annual balance sheet were available in 85.71% of health insurance schemes, compared to 71.42% that had an annual budget in 2018. Furthermore, the managers of the health insurance scheme in Ziguinchor commune had a cash journal, a bank journal, and budget tracking sheets.

Overall, the number of members in health insurance schemes in the Ziguinchor department had increased from 2016 to 2017 and then from 2017 to 2018. The growth rate was positive at 20.18% at the departmental level in 2018, thus indicating an increase in the size of Ziguinchor's health insurance schemes. However, low gross growth rates were recorded by rural schemes, including that of Adéane at 3.91% and Enampor at 3.90%.

The proportion of contributions collected was very low at the departmental level. Overall, the contribution recovery rate was very low at 26.78% across the Ziguinchor department. The only scheme that barely exceeded 50% was that of Enampor in rural areas. The lowest rates were recorded by the Niaguis scheme (18.31%) and the Adéane scheme (20.70%) respectively.

In accordance with agreements signed with health structures, the visited health insurance schemes showed a good capacity to meet their commitments in 2018. Indeed, the average payment time for providers was 12.86 (±3.06) days, with extremes ranging from 5 to 15 days at most.

Financial and Economic Viability of Health Insurance Schemes

None of the studied health insurance schemes had the capacity to pay its short-term debts across the Ziguinchor department in 2018 due to immediate liquidity ratios below 1, where 1 is considered the minimum acceptable norm. An immediate liquidity ratio of 1 or above indicates that a scheme has sufficient liquid assets to cover its short-term liabilities.

Six out of seven surveyed health insurance schemes had a zero-expense coverage ratio. They had no accounting reserves. The minimum acceptable norm for this ratio is 1, which would indicate that the scheme has sufficient reserves to cover one year's worth of expenses. This result suggests a significant vulnerability in the financial stability of these schemes. Regarding the ratio of earned contributions to operating expenses, it was 0.3 across the Ziguinchor department (contributions only cover 30% of expenses). In most health insurance schemes, this ratio was less than 1, except for the Sant Yalla and Enampor health insurance schemes where it was greater than 1.

Table 1. *Distribution of mutual health insurance companies in the department of Ziguinchor according to the ratio of earned contributions to operating expenses in 2018.*

Mutual health insurance companies	Contributions collected	Costs related to care services	Operating costs	Ratio of earned contributions to operating expenses
MSC de Ziguinchor	5 425 000	26 055 220	4 565 900	0,2
MSC of Adéane	1 113 000	884 985	781 400	0,7
MSC de Nyasia	701 500	1 835 915	964 795	0,3
MSC of Santa Yalla	2 453 500	465 500	1 502 246	1,2

Mutual health insurance companies	Contributions collected	Costs related to care services	Operating costs	Ratio of earned contributions to operating expenses
MSC of Niaguis	798 000	2 720 001	850 000	0,2
MSC of Boutoupa	389 500	828 135	737 725	0,2
MSC Enampor	896 500	509 636	141 450	1,4
Total department Ziguinchor	11 777 000	33 299 392	9 543 516	0,3

The claims ratio (health expenses to contributions) was too high (282.7%) for all the mutual health insurance companies in the Ziguinchor department. Ideally, this ratio should fall between 75-80% for optimal performance. The majority of mutuals had loss ratios ranging from 212.6% to 480.3%. Only the Adeane mutual had a ratio close to 75%. However, this ratio was too low for the Sant Yalla (19%) and Enampor (56.8%) mutuals.

The ratio of gross operating expenses was 45.1% for the department as a whole, thus higher than the desirable 15%. Indeed, this ratio was very high in the majority of community health mutuals, ranging from 37.9% to 134.1%. Only the Enampor mutual health organization had an operating expense ratio of 12.9%, thus meeting the set standard.

Regarding financing from own resources, only the Enampor (37.7%) and Sant Yalla (114.1%) mutuals had ratios more than 100% and were therefore in a position to finance all their expenses from their own resources.

Table 2. *Summary of the viability of mutual health insurance companies in the department of Ziguinchor from 2016 to 2018 by type of size in accordance with ILO 2001 standards (n = 7).*

Mutual health insurance	Dimensions of Institutional viability			
		Technique	Functional	Financier
CBHI of Ziguinchor	Viable	Barely viable	Barely viable	Not viable
CBHI of Adéane	Viable	Barely viable	Not viable	Not viable
CBHI of Nyasia	Viable	Barely viable	Barely viable	Not viable
CBHI of Santa Yalla	Viable	Barely viable	Barely viable	Not viable
CBHI of Niaguis	Viable	Barely viable	Barely viable	Not viable
CBHI of Boutoupa	Viable	Barely viable	Barely viable	Not viable
CBHI of Enampor	Viable	Barely viable	Not viable	Not viable

We can thus conclude that all health insurance organizations in the Ziguinchor department were viable from an institutional and technical standpoint. From a functional perspective, the organizations in Enampor and Adéane struggled either to expand their membership base or to collect member contributions, which compromised their functional viability. In terms of financial viability, no organization in the department was viable without state subsidies.

Perception of Health Insurance Beneficiaries

From a sample of thirty interviewed beneficiaries, 58% were men and 42% were women. The average age of respondents was 48 ±4.9 years, with ages ranging from 27 to 72 years. 63% lived in urban areas. 78% had secondary level education, while only 1.7% had no formal education. Commerce was the main activity for 34% of these respondents, compared to 9.7% for housewives and 4.6% for the unemployed.

The duration of membership in health insurance organizations ranged from 1 to 5 years, with an average of 3 years. Among them, 60% claimed to have learned about their insurance organization during information meetings organized by neighborhood delegates, 19% during awareness sessions (discussions, home visits, etc.), and the rest through relatives, health workers, and the media (radio and/or television). 38% of respondents said they had been enrolled by a relative, while 35% stated they paid their own membership fees.

Almost all beneficiaries maintained that the insurance organizations were a very good opportunity for the population,

facilitating access to care at lower costs. Fifty eight percent (58%) of respondents claimed to have never encountered problems since joining the organizations, however, 19.6% stated otherwise.

Perception of Non-Beneficiaries of Health Insurance

Thirty non-beneficiaries of health insurance were interviewed, of which 63.3% were men and 36.7% were women. The average age was 34 ± 3.2 years, with ages ranging from 26 to 67 years. The average level of education was the most representative at 64% of interviewees, compared to 1.4% with no formal education. Those without fixed income employment represented 92%, compared to 4% housewives.

89% of non-beneficiaries claimed to be unaware of the existence of insurance organizations. The main reasons for non-membership were lack of information (72%) and fear of being unable to continue paying membership fees over time (12%). Moreover, a minority maintained that the insurance organizations were a ruse by politicians to extract money from them for political activities.

Perception of Community Leaders on Health Insurance

Three focus group sessions were organized. Participants were divided into three groups of 10.

Almost all leaders maintained that health insurance organizations are very beneficial and help the population. Among the benefits cited were reduction in care costs, improved access to care, and aid to the needy. However, they stated that much remains to be done to improve the membership rate of the population through awareness-raising. In response to the question about obstacles and barriers to population membership, 92% of leaders mentioned lack of means for contributions and lack of information. Some of them (7%) maintained that in addition to lack of information, there were too many procedures and poor awareness of these procedures.

Regarding services offered by health insurance organizations, 78% of community leaders maintained that they were of good quality, beneficial, and of valuable help to the population. However, some leaders (3.6%) felt that while services were good, procedures for acquiring medication needed to be simplified, chronic diseases should be considered, and user reception at headquarters needed improvement.

Perceptions of Health Insurance Organization Leaders

A total of 20 insurance organization leaders were interviewed, consisting of 45% men and 55% women. Their average age was 47 ± 5.3 years, with ages ranging from 39 to 64 years. General secretaries represented 42% of the sample, followed by presidents of administrative councils at 27%, managers at 25%, and control commission members at 6%. Most of these leaders (71%) lived in urban areas.

Overall, interviewees stated that the insurance organizations were very beneficial for the population, advantageous for them, and provided an opportunity to improve access to quality care at lower costs.

Addressing the amount of contribution, 66% of surveyed insurance organization leaders maintained that it is reasonable. Only 15% stated that this amount is high and should be lowered to allow the poor to enroll.

Furthermore, several problems were mentioned by the leaders, including lack of equipped premises serving as dedicated headquarters for insurance organizations, lack of motivation (due to volunteerism) of organization leaders, delay in payment of state subsidies, and insufficient means to implement awareness-raising activities for the expansion of insurance organizations.

Regarding the ability of insurance organizations to sustainably meet the costs of services, most leaders (90%) responded affirmatively, subject to support from local authorities, massive population membership, regularity of member contributions, and state subsidies. On the other hand, 10% of them maintained the opposite view.

Perception of Service Providers on Health Insurance

A total of thirty service providers were surveyed, of which 60% were female and 40% male. The average age was estimated at 38 ±6.4 years, with ages ranging from 30 to 57 years. Head nurses represented 83.3%, compared to 10% for midwives and 0.7% for social workers. 70% practiced in urban areas compared to 30% in rural areas.

Unanimously, providers recognized that health insurance organizations were a good, beneficial initiative helping the population and relieving the poorest. They had mostly cited, among other elements of the service package offered: general consultation, prenatal consultation, care, hospitalization, analysis, x-ray, etc., except for the coverage of chronic diseases.

On obstacles related to population membership: contribution costs, lack of information for the population, lack of means and motivation of insurance organizations, as well as cultural reasons were mentioned. Regarding the amount of contribution, 83% of providers estimated that it was acceptable and affordable for the population, against 17% who proposed a reduction due to household poverty.

Regarding the ability of insurance organizations to bear the costs of services in the long term, 86.6% of providers maintained that it was possible, against 13.4% who thought otherwise due to the slow pace of memberships and contribution payments, but also the delay in payment of state subsidies.

4. Discussion

Satisfactory Institutional and Technical Compliance of Health Insurance Organizations

The evaluation of health insurance organizations in the Ziguinchor department reveals a generally solid institutional and technical foundation, although it is not without challenges.

From an institutional standpoint, all studied organizations have legal status and internal regulations, in accordance with Senegalese legislation on health insurance organizations and UEMOA (West African Economic and Monetary Union) regulations on social insurance organizations. This legal compliance constitutes an important foundation for their operation and sustainability. Moreover, they have a defined

organizational structure. These results are encouraging and align with the International Labor Organization (ILO) recommendations for managing health insurance organizations in Africa [19].

The affiliation of all organizations to a departmental union (UDMS) that provides them with technical and financial support strengthens this institutional base. This grouping can be seen as an application of the reinsurance principle, recommended by UEMOA to enhance the viability of insurance organizations [20]. Furthermore, the support from local authorities, which benefits 71.43% of the organizations, is in line with the decentralization and local partnership logic advocated by the strategic plan for the development of Universal Health Coverage in Senegal [4].

On the technical front, voluntary and family-based membership, observed in 71.43% of the organizations, complies with the fundamental principles of community health insurance organizations in Senegal [2]. This mode of membership promotes population enrollment and increases the size of the risk pool, as highlighted by Alenda-Demoutiez [2].

The control mechanisms in place, such as copayment (20% moderating ticket) and mandatory referral, are classic tools for managing moral hazard in health insurance [21]. Nevertheless, their effectiveness seems limited, with some organizations reporting abuse of consumption. This situation underscores, as Ly, Bassoum, and Faye remind us [22], the need to find a delicate balance between accessibility to care and the financial viability of insurance organizations.

Despite these structuring efforts, challenges persist. The lack of compensation for managers, often mentioned, could eventually affect the quality of management and the motivation of those in charge. This observation aligns with Defourny and Failon's [6] observations on the importance of professionalization in the management of health insurance organizations.

Fragile Functional Viability

The analysis of the functional viability of health insurance organizations in Ziguinchor reveals a contrasted situation, marked by positive signs of growth but also by significant challenges in terms of penetration and contribution recovery.

The growth rate of memberships (20.18%) is an encouraging indicator. It is an index of the growing interest of the population in these social protection mechanisms. This growth could be attributed to awareness efforts and a progressive recognition of the importance of health coverage. However, this growth rate must be tempered by the low overall penetration rate (16.99% on average), which remains well below the national target of 45% set for 2021 [23]. This situation is common to different localities in Senegal [10-12]. This gap underlines the magnitude of the road still to be traveled to achieve significant population coverage.

The significant disparities observed between urban and rural areas in terms of penetration rates (ranging from 13.44% to 35.31%) highlight persistent inequalities in access to health protection. These gaps can be explained by several factors, including lack of information, late involvement of rural populations in the process, and more pronounced financial constraints in these areas, as highlighted by other studies conducted in Senegal and Africa on mutual insurance [6, 12, 14, 16]. This situation calls for reflection on the need to adapt strategies for developing insurance organizations to the specificities of rural contexts.

The most concerning point regarding the functional viability of insurance organizations lies in the very low contribution recovery rate, averaging 26.78%. This rate, varying from 18.31% to 52.38% depending on the organization, indicates that a large majority of members do not pay their contributions, jeopardizing the financial balance of the organizations. This recovery problem, also observed in other African contexts [12, 24], can be attributed to several factors. It may be due to the economic precariousness of households, particularly in rural areas where incomes are often seasonal [6, 16]. It is also caused by a lack of understanding or adherence to the principle of prepayment and risk pooling [6]. Logistical difficulties in collecting contributions, especially in remote areas, are also put forward in the literature to explain the weakness of contributions [10, 11]. Finally, potential dissatisfaction with the services offered has been noted as a cause of irregular payment of contributions. As indicated in the literature, this is a frequent determinant of membership in insurance organizations [6].

This situation of low recovery is more critical in a context where state subsidies often experience payment delays, as highlighted by the interviewed insurance organization managers. It raises fundamental questions about the viability of the current model [25] and the need to rethink contribution collection mechanisms [2].

In comparison, the Rwandan health insurance system, often cited as a success model in Africa, displays a recovery rate of 89% in 2011 [26]. This notable difference invites us to question the success factors that could be transposed to the Senegalese context, while considering local specificities.

Alarming Financial and Economic Situation

The analysis of the financial and economic situation of health insurance organizations in Ziguinchor reveals a worrying precariousness that threatens their long-term viability and their ability to fulfill their social protection mission.

The first alarming finding is that none of the studied organizations can honor its short-term or long-term debts. This situation is reflected by an immediate liquidity ratio of 0.1, well below the recommended threshold of 1. This means that the studied health insurance organizations are unable to meet their immediate financial commitments. This lack of liquidity exposes them to a high risk of payment default and compromises their ability to reimburse healthcare providers within agreed timeframes, which could ultimately affect the quality of care offered to members. This situation has also been noted in other studies on health insurance organizations in Senegal [2, 12].

The average loss ratio of 282% is particularly concerning.

This figure means that for every franc of contribution received, the organizations must pay out 2.82 francs in healthcare benefits. This situation is clearly unsustainable in the long term and indicates either an underpricing of contributions or an over-consumption of health services, or a combination of both. As a comparison, the loss ratios for viable health insurance systems required by UEMOA since 2022 range between 70% and 80% [27].

The strong dependence on state subsidies exacerbates this financial fragility. Although these subsidies are essential to support accessibility to care, particularly for vulnerable populations, they create a situation of dependence that exposes the organizations to budgetary and political contingencies. The frequent delays in the payment of these subsidies, mentioned by the organizations' managers, aggravate cash flow difficulties. Literature on the extension of health insurance to the informal sector has shown that state participation is essential for the sustainability of systems [18].

It is notable, however, that two organizations, Enampor and Sant Yalla, manage to cover their operating and benefit costs through the contributions received. This exception deserves in-depth analysis to identify success factors potentially transposable to other organizations.

This precarious financial situation is not unique to Ziguinchor. Studies conducted in other regions of Senegal, notably in Thiès [14], have also highlighted similar financial difficulties in community health insurance organizations. The main explanatory factors identified include adverse selection, where high-risk individuals are more likely to join [21], the low contribution recovery rate already discussed in the previous section, limited use of financial management tools [2], and the difficulty in mobilizing sufficient financial resources in a context of widespread poverty [22].

The high ratio of operating expenses (45.1% on average, against a recommended standard of 15%) [27] also highlights a problem of operational efficiency. This situation could be explained by high fixed costs spread over a still too limited membership base or by inefficiencies in administrative management.

The financial viability of community health insurance organizations is a recognized challenge in the literature. A study conducted in Burkina Faso [28] emphasized the importance of reaching a critical size of members and diversifying funding sources to ensure financial viability. In the case of Ziguinchor, it appears clear that these conditions are not yet met.

Mixed Perceptions of Actors

The analysis of perceptions of different actors involved in the health insurance system in Ziguinchor reveals a nuanced image, where the general positive appreciation of the concept encounters significant practical difficulties.

Generally, health insurance organizations are perceived as a beneficial initiative, improving access to healthcare. This positive perception is shared by a large majority of beneficiaries, community leaders, and healthcare providers interviewed. Beneficiaries highlight the opportunity offered by insurance organizations to access healthcare at lower cost. This appreciation aligns with observations made in other African contexts, where health insurance organizations are generally considered a promising tool to improve access to care [9, 14].

However, this overall positive perception is tempered by the identification of several major difficulties.

Lack of communication and information is the first difficulty. A significant proportion of non-beneficiaries (89%) claim to be unaware of the existence of insurance organizations or lack information about their functioning. This information deficit constitutes a major obstacle to membership and reflects gaps in communication and awareness strategies. This observation aligns with Jütting and Tine's [29] observations in Senegal, which indicated that 15% of the population was unaware of the existence of health insurance organizations in the Thies region.

Funding problems are another identified barrier. The difficulty in paying contributions is frequently mentioned, particularly by rural populations and low-income households. This perception corroborates the low recovery rates observed and underlines the need to adapt payment modalities to local economic realities [2].

The complexity of procedures is another identified difficulty. Beneficiaries often describe a "long, complicated, and difficult circuit" to access services. This perceived complexity can discourage the use of services and, ultimately, membership in insurance organizations [6]. It is necessary to simplify administrative processes and improve user experience.

Management problems are finally and above all another negative factor noted. Criticisms are made regarding delays in payment to providers and difficulties related to the renewal of membership cards. These problems, which reflect the financial and operational difficulties discussed previously, can erode the trust of beneficiaries and providers in the system [2].

It is interesting to note that the perception of insurance organization managers sometimes diverges from that of beneficiaries. For example, 66% of managers believe that the amount of contributions is reasonable, while many beneficiaries and non-beneficiaries consider it an obstacle to membership. This divergence in perception shows the need for dialogue between insurance organization managers and the populations they serve.

These mixed perceptions highlight a paradox. While the concept of health insurance is widely appreciated, its practical implementation encounters significant obstacles. This gap between adherence to the principle and practical difficulties partly explains the low penetration rate observed [6].

Limitations of the Study

Our study, while providing valuable insights into the viability of health insurance organizations in Ziguinchor, has several limitations that should be considered in interpreting

the results. Firstly, the lack of evaluation of the evolution of average costs did not allow for an in-depth exploration of the potential phenomenon of over-prescription. Secondly, some crucial determinants such as the quality of services, beneficiary satisfaction, patient pathway, and manager profiles were not examined, which could have enriched the analysis of viability problems and offered a more complete vision of the functioning of insurance organizations. Finally, the specific context of the Ziguinchor region, marked by a long-lasting armed conflict, may limit the generalization of results to other regions of Senegal. All this underlines the need for complementary research for a more comprehensive understanding of the viability of health insurance organizations in different contexts in Senegal.

5. Conclusion

Our study highlights the complexity of the role of health insurance schemes in the quest for universal health coverage (UHC). Despite considerable challenges, these schemes present undeniable strengths: they promote community participation, potentially adapt to local contexts, and contribute to a culture of health preparedness.

However, the persistent difficulties in terms of functional and financial viability cannot be ignored. To capitalize on the advantages of these schemes while overcoming their weaknesses, corrective measures are necessary. These could include strengthening management capacities, innovating contribution collection methods, and improving communication to stimulate membership.

Concurrently, it is crucial to consider an evolution of the model. This could involve a deeper integration of these schemes into a national social protection system, increased state support, or the development of innovative public-private partnerships. These approaches would allow combining the advantages of the schemes' community anchoring with greater financial stability and broader coverage.

Ultimately, while health insurance schemes remain a potentially valuable tool for progressing towards universal health coverage, their success will depend on the ability of stakeholders to reinvent them and integrate them into broader and more inclusive public health strategies.

Abbreviations

CIDR	International Center for Development and Research
ILO	International Labor Office
STEP	Social Exclusion and Poverty
UDMS/Z	Departmental Union of Health Insurance Schemes of Ziguinchor
UEMOA	West African Economic and Monetary Union
UHC	Universal Health Coverage

Conflicts of Interest

The authors declare no conflicts of interest.

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