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ORIGINAL ARTICLE

Engaging communities in health promotion through community-based primary care and participatory research during the COVID-19 pandemic in Bolivia

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Background. Most people in low- and middle-income countries work in the informal sector and lack social protection. In Bolivia, the unified family, community, and intercultural health model established universal health coverage for informal workers and their families in 2019. The COVID-19 pandemic, which occurred soon after, exposed both the vulnerabilities and the strengths of this health policy.

Aim. To describe the community-based design of a health promotion strategy based on people-centered and participatory research within a vulnerable community of informal market vendors during the COVID-19 pandemic.

Methods. As part of participatory action research during the COVID-19 pandemic, market vendors collaborated with a multidisciplinary research team, local authorities, and the health network to promote health and safety in their markets. Market vendors developed a health promotion strategy facilitated by a highly structured mixed qualitative-quantitative concept mapping approach and reached a consensus on an operational health strategy with measurable goals, actions, timelines, and actors.

Results. A community health diagnosis together with health education and individualized clinical care, created a common understanding of health and built trust between the community and the research/health team. Market vendors identified health needs related to care access, self-care, market organization, and the social determinants of health, including strategies to prevent infections, reduce cardiometabolic risk, and improve mental health.

Conclusions. Effective strategies to promote health or to manage health crises such as a pandemic can be developed by organized communities in primary care supported by individual and collective health data, health education, and the integration of social scientists, epidemiologists, and health professionals. © 2025 The Authors. Published by Elsevier Inc. on behalf of Instituto Mexicano del Seguro Social (IMSS). This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)

Key Words: Primary health care, Universal health care, Health equity, COVID-19 pandemic, Bolivia, Health care system.

Introduction

The provision of universal health care is an aspiration of many low- and middle-income countries (LMICs), includ-

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ing Bolivia, which has made significant progress in access to health care in recent years. The national health policy framework, the Intercultural Family and Community Health (SAFCI) model was established in 2008 to reduce the exclusion of rural and indigenous populations (1). This ambitious framework is hampered by the population's hospital-centric curative health beliefs (2) and resistance from the medical profession to give up autonomy, but it was strengthened in 2019 with the introduction of universal health care coverage (SUS). SUS represents a significant achievement in Bolivia's public health system, gradually implemented since 2013 with the provision of health services to people over 60 years of age (3). Although SUS does not explicitly prioritize informal workers, it was established to reduce inequalities in access to health care, particularly for those without health insurance or formal employment. Formal workers in Bolivia have access to employer-provided health insurance, while informal workers—who account for 62.3% of the gross domestic product (GDP) in a country with one of the largest informal sectors in the world in relative terms (4)—rely on the SUS. Before the establishment of SUS, informal workers were much more vulnerable to catastrophic health expenditures. Since 2013, demand for primary health care services has increased, accompanied by a decline in out-of-pocket health care costs, as SUS has made essential services more accessible and affordable. However, the substantial increase in public health expenditure that the SUS represents poses a major challenge for the country. While tertiary care is funded by the central government, municipalities must use their resources to provide primary and secondary care for their residents (3). The shortage of health workers, particularly specialists, presents another important challenge for the SUS to function effectively. Although the SUS represents a significant increase in healthcare access and equity in Bolivia, its long-term success will require overcoming these financial and human resource challenges (4,5). Thus, the SARS-CoV-2 pandemic hit Bolivia at a critical time in its attempts to universalize health care. Furthermore, at the time of COVID-19 emergence, Bolivia was experiencing a sociopolitical crisis that led to a transitional and highly contested government (6,7). Besides implementing an extreme lockdown, this government imposed a hospital-centered health approach that contradicted the SAFCI model by removing trusted primary care providers from their communities to manage triage at hospital gates. The absence of primary care services and fragmented government communication at the onset of the pandemic led to high infection rates and the collapse of the health system. From September 2020 onward, primary care services were involved in the COVID-19 response, and decision-making was decentralized to the municipal level (8). The concurrence of these events offers a unique opportunity to learn from some of the ways communities responded to the pandemic, demonstrating the strength of organized communities and the potential of the SAFCI health model (1).

Previous experiences have shown how collaboratively organized health care between the population and the health services facilitates the containment of infectious outbreaks and lifestyle diseases (9). An example in the context of an epidemic was the role of community leaders as trusted sources of information (10) and in "monitoring committees" (11) as part of the efforts to control Ebola outbreaks in West African countries in 2014–2016. In the context of lifestyle diseases, a U.S. community research program to reduce chronic disease risk and multimorbidity in vulnerable communities demonstrated that to address the broad range of causal factors, it is essential to co-develop healthcare solutions directly with and in affected communities (12). These strategies are known as community-oriented primary care (COPC), a model that integrates community health diagnosis, epidemiology, and community participation in primary health care to address the root causes of collective health problems (13). The idea of integrating public health and clinical care was piloted in South Africa in the 1940s (14) and launched globally in 1978 at the International Conference on Primary Health Care (PHC) in Alma-Ata (15). Collaboration between primary care, public health, and communities proved to be a key lever in strengthening the health system response during the COVID-19 pandemic (16).

The current Bolivian national health policy framework, the SAFCI model, is ideally suited for this collaboration. It was developed by an interdisciplinary team of physicians, public health specialists, social scientists, indigenous leaders, and activists, influenced by the 1978 Alma Ata Declaration (1). The model is based on four principles: a) social participation in the development, implementation, and follow-up of health plans, b) interculturality as a respectful collaboration between biomedical and traditional medicine, c) intersectoral collaboration to address social determinants of health and d) comprehensiveness of health services ranging from health promotion to rehabilitation (17). This ambitious framework is hampered by resource constraints (4) and hospital-centered curative health beliefs (1).

A common feature of the SARS-CoV-2 epidemic in LMICs such as Bolivia, where economies are still largely informal (18,19), was the stigmatization of local markets as places of high transmission risk (20). While it is true that local markets, as hubs of social interaction, can greatly facilitate transmission, they are also the place where farmers and producers or their direct intermediaries meet consumers, creating a short supply chain that leads to direct economic benefits for all involved parties. During the pandemic, they helped ensure food security and provided a source of income for vulnerable groups (21). In Bolivia, markets are under the jurisdiction of a municipality, with regulations for their operation and a municipal control body called "Intendencia" (22). Market vendors are orga-

nized from the local to the national level, which guarantees their representation and participation in all relevant policy decisions, giving voice to vulnerable individuals via their organized communities (23). The organizational structure of market vendors, coupled with their historical exclusion from health care and predominant presence in the informal economy, made them vulnerable and stigmatized during the pandemic. This necessitated a tailored, community-oriented approach, such as COPC, to facilitate their integration into the health system amid the challenges posed by COVID-19.

For COPC to work, some preconditions affect both the communities and the health care organization. To work with and involve communities, both legitimate representatives and a clearly defined goal facilitate engagement (24). Community representatives can form a health committee with the primary health care facility (25). This committee can identify and analyze prominent health problems to address their underlying causes (26). Health is related to social, cultural, economic, and environmental factors. An uncoordinated and isolated disease-focused response is unlikely to be effective or comprehensive when trying to deal with a public health emergency (27). These broader factors, the social determinants of health, the circumstances in which people are born, grow, live, work, and age, cause the unfair and avoidable differences in health status seen within and between countries (28) and are more strongly related to diseases such as diabetes than lifestyle choices (29). They worsened during the pandemic, including early childhood development, education, food security, social inclusion, openness to diversity, and access to health services (30).

In Bolivia, the pandemic came at a crucial time in the process of universalizing health care and achieving inclusion of those not employed in the formal economy. In parallel with the collapse of the public health system, people were confronted with all the circumstances mentioned above, exacerbated by social conflicts and a long and extreme lockdown (31). The lack of basic needs forced sectors of society, such as market vendors, to find ways to ensure food security and provide for their families (21). Alongside traditional markets, where both products and money were exchanged, rural farming communities organized solidarity networks and donated food to poor peri–urban communities (32). The partnership between organized communities and primary healthcare provided an opportunity to protect health during a health crisis and to contribute to the universalization of health care in Bolivia.

The primary objective of this study is to describe the community-based design of a health promotion strategy with and in a vulnerable community of informal market vendors in Bolivia using a COPC approach. This work demonstrates the potential of a community-based primary care approach, as envisioned by the Bolivian SAFCI health model, in times of health crisis to mitigate the impact of the SARS-CoV-2 pandemic and beyond. Lessons learned will contribute to the long-term goal of universal health coverage in Bolivia and the implementation of similar strategies in other settings.

Methods

Study context

Sacaba, the second most populated municipality of Cochabamba, Bolivia, with 218,502 inhabitants (2024 census), was selected for this study. It is one of the fastest-growing municipalities in Bolivia and serves as a commercial center due to its geographic location between the tropical productive region of Cochabamba and Santa Cruz on one side and the metropolitan region of Cochabamba on the other side. Moreover, Sacaba was the site of a clash between the predominantly rural population from the tropical regions and the military during the post-election conflicts in 2019, which resulted in the death of 10 civilians and more than 120 injured (33). In 2012, the most recent data available, 18.7% of Sacaba's population had access to health services through employer-provided social security, while 63.5% relied on the public health system, which at that time offered free services only for children under five, pregnant women, and some selective programs such as those for Chagas and tuberculosis. The municipal public health network consisted of 21 primary care centers and two secondary care centers. With the expansion of free services to people over 60 in 2013 and then to the entire population through the SUS in 2019, a larger proportion of the population was using the public health system at the time of this study (8).

Overall approach

This study is embedded in a participatory action research project to mitigate the impact of COVID-19 in the Municipality of Sacaba, a mixed rural peri–urban community in the department of Cochabamba, Bolivia, between November 2020 and March 2023. The activities of this project were centralized in the largest food market of the municipality, Mercado Abasto, and a second smaller market, Mercado Quintanilla. However, the project also provided health services to market vendors and their families from other markets in the community, and their representatives were involved in the market health committee and the development of the strategy for a "healthy market". The goal of the project was to co-create solutions to mitigate the impact of the pandemic and to promote the health of market vendors and their customers.

To address this challenge, an interdisciplinary team of researchers worked with the local authorities and market vendors of the municipality toward this common goal. Promoting health and safety in the markets was essential to support their continued operation, which was critical to lo-

cal livelihoods. Alliances were created with the municipal authorities, the health network, and the Federation of Market Vendors. These alliances led to the co-creation of two health posts in two separate markets, the implementation of vaccination, health education, and health promotion campaigns, and the inclusion of members of the research team on the medical advisory board of the municipal pandemic health committee. The project team supported the community epidemiologic surveillance of COVID-19, which included a serologic survey to assess previous exposure of market vendors to SARS-CoV-2, followed by a community health assessment including COVID-19 and general health (34). The results of this diagnosis were communicated to the market vendors, and health education was provided to address the identified health problems and risk factors. Details on this assessment are beyond the scope of this paper.

The approach used to bring people together and co-design solutions to promote health is a universally applicable mixed qualitative-quantitative approach, supported by the concept mapping method developed by Trochim (35). Researchers facilitate the work of the participants in building a consensus and structuring their operational health plan based on their shared vision of a "healthy market". The construction of the plan consists of five stages: building alliances with relevant stakeholders towards a common goal, conducting a community health diagnosis and sharing it with health education institutions, identifying needs and actions that address the identified problems, structuring the needs and actions and consolidate them into an operational plan. These stages are illustrated in Fig. 1. This paper focuses primarily on stages three through five.

Community participants

The Federation of Market Vendors of Sacaba, the central actor in this project, is the umbrella structure of 17 market vendor associations in the municipality. A representative from each of these 17 associations was invited to participate in the design of a "healthy market" strategy. An initial workshop aimed to identify and structure needs or actions that can improve the health situation in the markets was organized on September 28, 2021; 14 of the 17 associations were represented. How the group organized the ideas generated during the first workshop into conceptual clusters was validated by the individual organization of the statements by six members of the Board of Directors of the Federation of Market Vendors. This was followed by a second workshop to consolidate the health strategy, held on May 3, 2022, with the representation of 15 of the 17 associations.

First workshop

At the beginning of the first workshop, the market vendors received a summary of the health assessment of their members, after which the methodology of the workshop was explained. The generation of needs and actions for the health plan is guided by a nominal group technique (36) that facilitates equal involvement of all participants. The participants were encouraged to individually write down one idea on each of the three papers given to them, answering the following statement: *To be a "healthy market," an example for the country and the world, what do we need to improve, change, or implement to guarantee the health of the market vendors and the community of Sacaba?* The participants were given 10 min to write down their ideas, which were later shared with the group one by one.

The facilitator explained that discussion of the validity or importance of each statement must be avoided during this sharing phase and that this would be done individually at the end of the workshop. Each participant was expected to share one idea during each round, and additional ideas could be formulated based on the ideas expressed by the group. Only if the content of a statement was not well understood by the other group members or if a statement contained two separate ideas, it was reformulated with the consent of the person who wrote it down. All ideas were displayed by sticking the cards next to ideas that, in the opinion of the group, seemed related. Participants were then asked to review the grouping of the notes, adjust the groupings where necessary, and give each group a thematic name.

At the end of the session, all the ideas generated were printed as a questionnaire so that each participant could rate them on a Likert scale from 1 to 5 in importance (1 = Not important at all, …, 5 = Essential [success is unlikely without it]) and presence (1 = Not implemented, …, 5 = 100% implemented).

Data synthesis and visualization

To validate the organization of the needs and actions into thematic groups, 10 people (six market vendors and four researchers) were asked to individually sort the generated statements, printed on cards, into groups in a way that made sense to them.

The statements, the ratings of their importance and presence, and the sorting data were analyzed using the open-source concept mapping application R-CMap (https://haimbar.github.io/RCMap/) (37) implemented in R version 4.2.0. The Euclidean distance metric, the ward.D clustering method, the median misplacement index, and the intra-cluster sum of squares were used to generate a cluster map with 14 clusters. The distances between statements on the map are related to the times the ideas were sorted together and thus represent the degree of conceptual similarity. R-CMap uses a two-dimensional nonmetric multidimensional scaling to represent the similarity matrix obtained by aggregating the sorted data (38). Based on Ward's algorithm for cluster analysis (39), ideas are

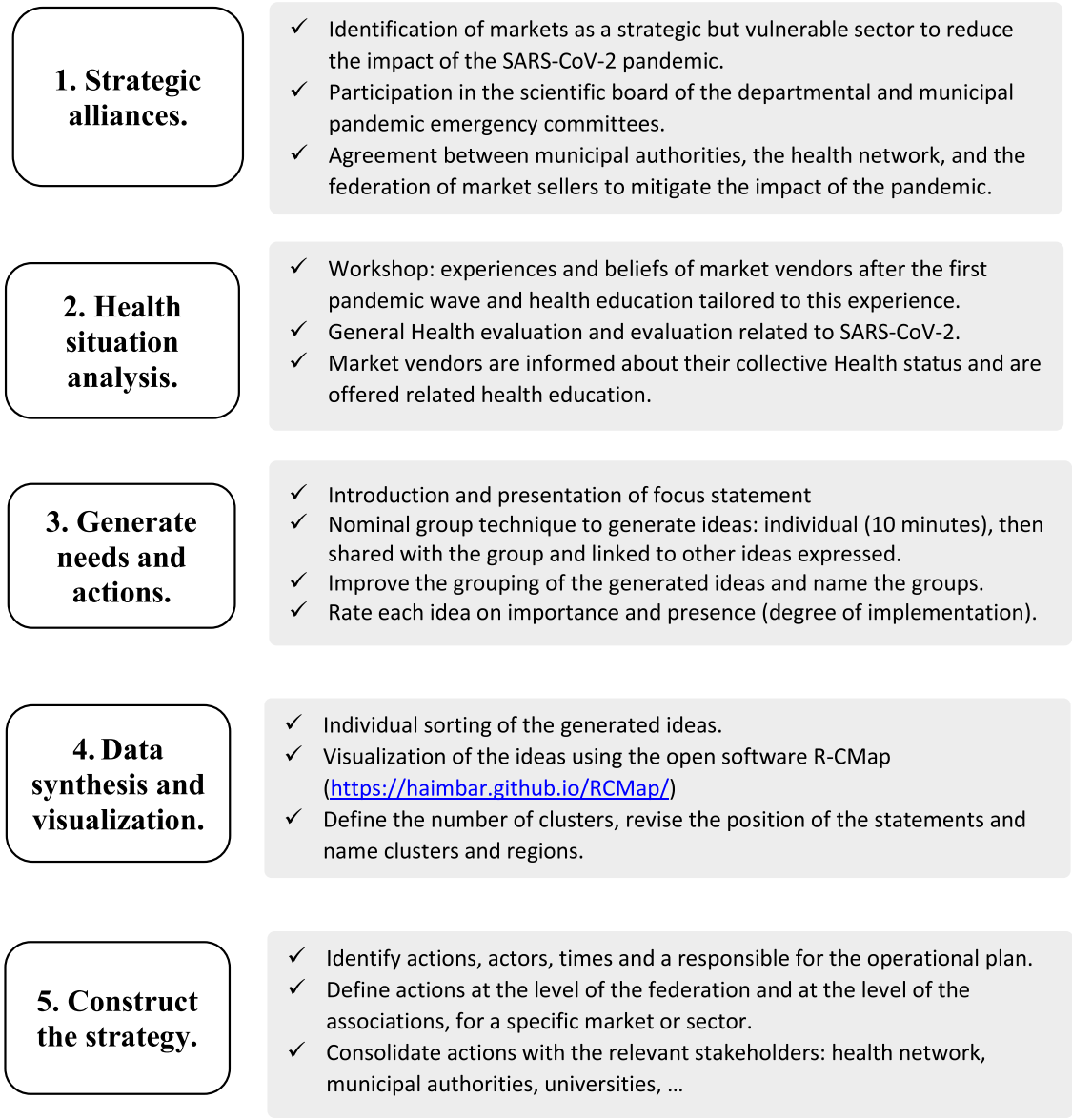

Fig. 1. The stages to build a health promotion plan with a community of market vendors in Sacaba, Bolivia, using a COPC approach to mitigate the impact of the SARS-CoV-2 pandemic.

grouped into clusters. This map facilitates the visual representation and interpretation of the data. The researchers decided on the ideal number of clusters by examining the hierarchical cluster tree, which shows how statements group together with each reduction in the number of clusters. There is no single "correct" number of clusters; the decision is based on the level of detail needed for operational planning (38).

The evaluation of the importance and presence of each idea is used to calculate average rating values for each statement, cluster, and the map as a whole. The averages for the entire map are used to design a graph that divides the statements around the overall importance and presence averages. This helps to identify statements that are rated as more important and less present than the overall mean, making them potentially more relevant to include in the operational strategy. The area of the graph where these statements are located is referred to as the "go-zone" (Fig. 2).

Second workshop

In the second workshop, the conceptual map of the "shared vision", Fig. 3, was socialized as a basis to define goals, specific activities, involved actors, and responsibilities. The structured data were presented to the participants and related to their "shared vision". An introduction to the development of the "healthy market" strategy was given. The

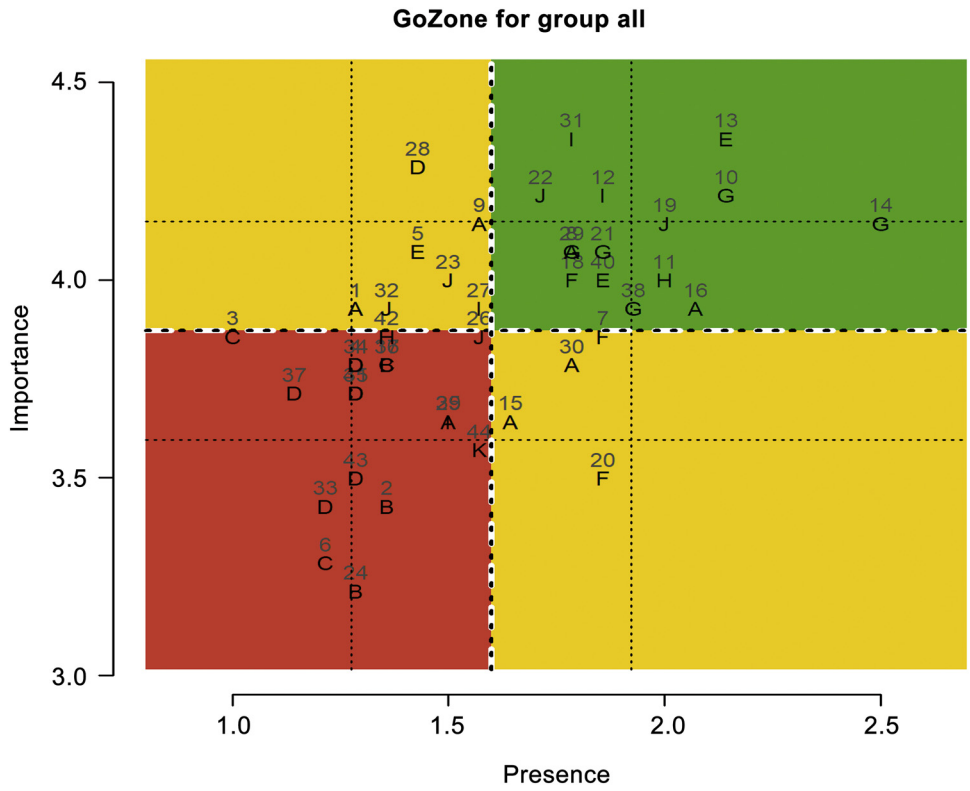

Fig. 2. The Go Zone shows the position of each generated idea relative to the average importance and presence of all ideas, based on participants' ratings of each idea.

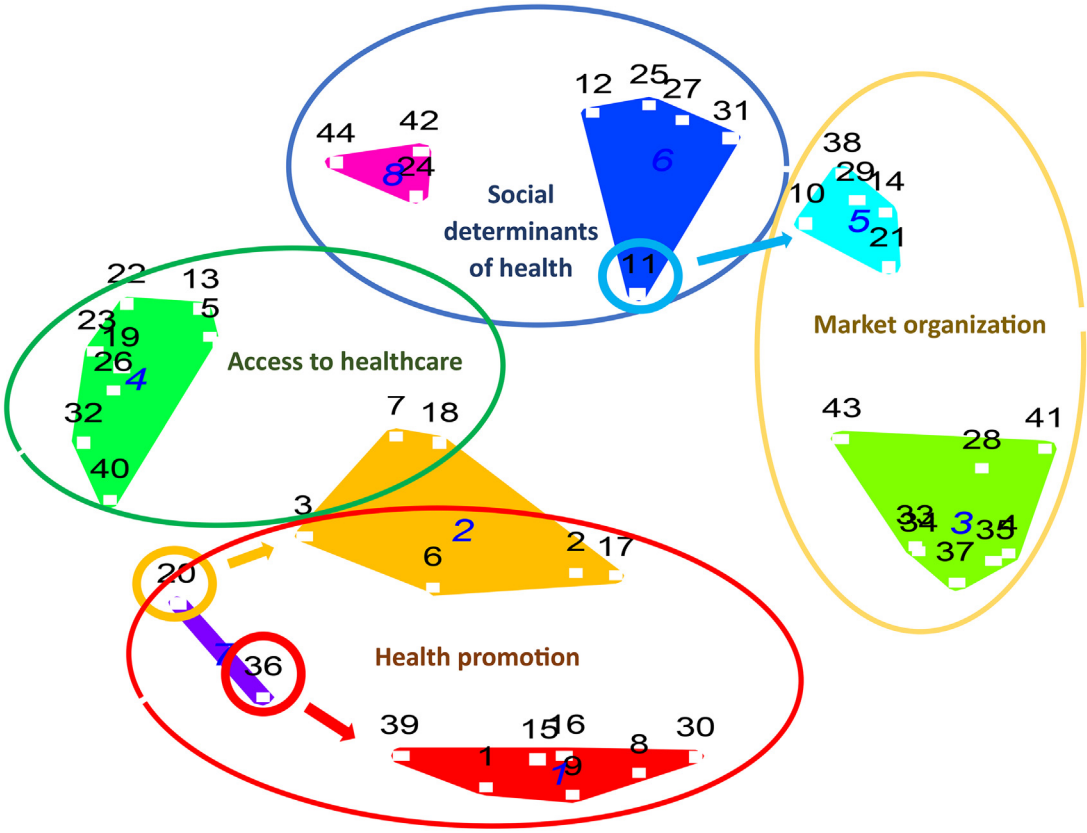

Fig. 3. The conceptual map calculated on needs and actions to achieve a "healthy market" is based on the conceptual groups created by the participants.

group was then divided into two, giving both groups half of the map to work on and then presenting to the whole group (Table 3).

Results

Most market vendors had some degree of immunity to SARS-CoV-2 before their first vaccination, indicating that they had been infected, and most also had a higher cardiovascular risk profile compared to available data for the region (8,34). The results of the individual health assessments were shared with each individual, who received relevant information tailored to their health situation. The collective diagnosis of the community was shared with the board of directors of the different participating market vendor associations. These data motivated community leaders to seek solutions to improve the health of their members and to reduce the risk of SARS-CoV-2 transmission in the markets. Decisions about what preventive measures were needed during the COVID-19 pandemic were made at the municipal level, where the Federation of Market Vendors is one of the social organizations represented in the municipal emergency committee. The health promotion strategy focused on the specific needs of this community, which they could address directly, with or without the help of external actors.

Since almost 90% of the market sellers are women, most of the association presidents are also women. The participants of the first workshop included three men (21%) and 11 women (79%), and only one man (7%) and 14 women (93%) participated in the second workshop.

As a basis for the intended health promotion strategy, the researchers decided that eight was the ideal number of clusters for this concept map to organize the 44 unique statements that were generated. The eight clusters were grouped into four regions on the map (Fig. 3). Each number on the map represents one statement. The clusters are represented by eight different colored polygons, which are grouped into four named regions. The original cluster 7 is split up and divided between two neighboring clusters, clusters 1 and 2, and cluster 2 in the middle is split into two clusters grouped under two different regions. This results in a final number of eight clusters. The structure of the statements organized into clusters and domains with their mean scores and standard deviations is presented in Table 1.

The areas and clusters of the healthy market "Shared vision" concept map

The areas "market organization" and "health promotion" contain the most actions or needs. The "need for hygiene" is identified in public spaces, "the market and market stalls," and "the toilets." The cluster related to administrative capacity in the markets contains the needs that are least implemented, such as "commercial knowledge" (presence: $\bar{x} = 1.29$, $\sigma = 0.47$), "skills to pay by smartphone or mobile banking" (presence: $\bar{x} = 1.21$, $\sigma = 0.58$) and "skills in digital marketing" (presence: $\bar{x} = 1.14$, $\sigma = 0.53$). One statement in this cluster was rated as very important 4–essential 5: the need for "publicity to attract more people to the market" (importance: $\bar{x} = 4.29$, $\sigma = 0.47$).

Health promotion includes one statement that was not rated as implemented by all participants, "to combat stress or anxiety in the markets" (presence: $\bar{x} = 1$, $\sigma = 0$). Other needs that are rarely present are "time to exercise or be physically active" (presence: $\bar{x} = 1.21$, $\sigma = 0.58$) and "a space for healthy food in the markets" (presence: $\bar{x} = 1.29$, $\sigma = 0.61$). The most valued needs in this area are: "knowing how to prepare healthy meals" (importance: $\bar{x} = 4.14$, $\sigma = 0.95$) and "knowledge about healthy eating" (importance: $\bar{x} = 4.07$, $\sigma = 0.73$).

The most important needs identified for social determinants of health (SDH) and access to health care were "a permanent health post" (importance: $\bar{x} = 4.36$, $\sigma = 0.50$) and "water in the markets" (importance: $\bar{x} = 4.36$, $\sigma = 0.74$).

"Healthy market" strategy

To begin designing the operational plan and identifying priorities, it can be helpful to focus on needs or actions that were rated as both highly important and less present. These can be found in the "Go Zone" (Fig. 2). Examples of statements that are more important than the mean and less present than the mean are statements 28 ("advertisement so that more people visit the markets"), 9 ("knowing how to prepare a healthy meal"), and 5 ("a market union hospital").

The identified needs were formulated into goals, activities, a person responsible for implementation, and a tentative start date. Table 3 illustrates how this was done for the Access to Healthcare cluster. The time frame to achieve a "healthy market" – defined as the social, physical, and psychological well-being of market vendors and their customers – was set at five years. Table 2 shows the specific goals and activities.

During the pandemic, there was a strong interest in promoting health through healthy lifestyles and in the prevention of diseases such as COVID-19, diabetes, hypertension, and cervical cancer. People were interested in their health and how to improve it. As the more critical periods of the pandemic passed, interest in healthy lifestyle activities dropped, while activities with economic returns, such as waste management and toilet hygiene, were maintained. Efforts to ensure the sustainability of the project health posts were made to facilitate access to health care for people with chronic health conditions and for future preventive campaigns such as Papanicolaou testing or vaccinations.

Table 1. The organization in domains and clusters of the generated statements, needs and actions towards a "healthy market".

Card Nr	Cluster new	Cluster old	Domains, Clusters and Statements	Importance $\bar{X}$	Importance σ	Presence $\bar{X}$	Presence σ
			Social Determinants of Health	**3.83**	**0.99**	**1.56**	**0.97**
	6	6	Basic services	4.04	0.91	1.68	0.96
12	6	6	Access to clean water in the market	4.21	0.70	1.86	1.17
25	6	6	Drinking water for human consumption available at different points in the market	3.64	1.28	1.50	0.94
27	6	6	Good drainage and sewage	3.93	0.92	1.57	0.76
31	6	6	Water in the markets	4.36	0.74	1.79	0.97
	8	8	Social rights	3.55	1.11	1.40	0.96
24	8	8	A kindergarten for the children of the market vendors	3.21	1.05	1.29	0.83
42	8	8	A decent retirement plan for the market vendor	3.86	1.17	1.36	1.08
44	8	8	A society we can sustain	3.57	1.09	1.57	1.02
			Market organization	3.88	0.85	1.60	0.84
	3	3	Administrative capacity	3.74	0.92	1.8	0.74
4	3	3	Commercial knowledge in the markets	3.79	0.97	1.29	0.7
28	3	3	Publicity so that more people visit the market	4.29	0.47	1.43	0.94
33	3	3	Ability to pay via cell phone or mobile bank	3.43	0.94	1.21	0.58
34	3	3	Online sales skills	3.79	0.80	1.29	0.83
35	3	3	Knowledge about economic management in markets	3.71	0.61	1.29	0.83
37	3	3	Digital marketing skills	3.71	1.07	1.14	0.53
41	3	3	Creation of advertising spots	3.71	1.14	1.29	1.07
43	3	3	Workshops to strengthen the capacities of vendors like reading and other skills	3.50	1.09	1.29	0.61
	5	5	Cleaning	4.07	0.80	2.04	0.99
11	5	6	Order in the markets	4.00	0.88	2.00	0.78
10	5	5	Hygiene and cleanliness in the city	4.21	0.58	2.14	1.29
14	5	5	Cleaning the market stalls	4.14	0.66	2.50	0.85
38	5	5	Cleaning in market and sales stalls	3.93	0.83	1.93	0.92
21	5	5	Have bathroom staff trained so that there is good hygiene	4.07	1.14	1.86	1.10
29	5	5	Cleanliness of the bathrooms	4.07	0.73	1.79	0.97
			Health promotion	3.75	0.88	1.52	0.79
	1	1	Healthy nutrition	3.87	0.86	1.63	0.93
1	1	1	A space with healthy food in the markets	3.93	0.92	1.29	0.61
8	1	1	Knowledge about healthy eating	4.07	0.73	1.79	0.70
9	1	1	Know how to prepare healthy food	4.14	0.95	1.57	0.65
15	1	1	Change eating habits of the vendors	3.64	1.01	1.64	1.01
16	1	1	Consume more vegetables and less fried foods	3.93	0.83	2.07	1.49
30	1	1	Talks/ workshops on nutrition	3.79	0.89	1.79	1.12
39	1	1	Market vendors have more capacity to socialize healthy eating	3.64	0.74	1.50	0.76
36	1	7	Health fairs on the dates of trade fairs, Christmas, All Saints' Day, …	3.79	0.80	1.36	1.08
	2	2	Physical activity and stress control	3.57	0.90	1.36	0.57
2	2	2	A space to do free or low-cost physical activity in the markets	3.43	0.85	1.36	0.74
3	2	2	Combat stress anxiety in the markets	3.86	1.10	1.00	0.00
6	2	2	Time to do exercises physical activity	3.29	0.91	1.21	0.58
17	2	2	Gym to control overweight	3.79	0.80	1.36	0.74
20	2	7	More dynamic workshops with participatory activities	3,50	0.85	1.86	0.77
			Access to health	4.04	0.76	1.72	0.86
	7		Knowledge about diseases	3.93	0.82	1.82	0.73
18	7	2	Talks regarding diseases that are not known	4.00	0.88	1.79	0.80
7	7	2	Learn more about diseases	3.86	0.77	1.86	0.66
	4	4	Health services	4.07	0.77	1.70	0.92
5	4	4	A market union hospital	4.07	1.14	1.43	0.76
13	4	4	Permanent medical office	4.36	0.50	2.14	1.17
19	4	4	Equip the medical office in our markets	4.14	0.77	2.00	0.88
22	4	4	Have a specialist doctor	4.21	0.58	1.71	1.14
23	4	4	Have more doctors	4.00	0.55	1.50	0.65
26	4	4	Health care with SUS (universal public health security) in our medical offices	3.86	1.10	1.57	0.76
32	4	4	Have a psychologist in the market to address stress, family problems, …	3.93	0.73	1.36	0.93
40	4	4	Periodic health check of market vendors	4.00	0.55	1.86	0.86

Table 2. Goals and activities to create a "healthy market".

Goal	Activities
Market vendors strengthen their social organization and reach agreements on how to improve working conditions and optimize customer service.	-Basic agreements on respect. -Socialize the workshop discussion with their members.
The market vendors know how to build up a retirement income.	-A workshop coordinated with the administration for the retirement funds.
Market vendors have a sales management and administration training certificate.	-Establish agreements with technical institutions to offer courses. -Family members of market vendors share knowledge on managing online banking and payment by QR.
Nurseries are in place and market vendors can access them.	-Establish agreements with the local territorial organizations.
Markets are enjoyable places and responsible centres for the provision of food, goods and services in hygienic and safe conditions.	-Establish a schedule to thoroughly clean the whole market. -Periodic reorganization and ordering of market stalls. -Development of a project to improve the market environments. -Incorporate the maintenance of the market's infrastructure (paint, spare parts, lighting, others) in the annual operational plan
Basic services such as water and sanitation function optimally in the markets.	-Establish agreements with municipal authorities to improve the water system, sewage, and toilets in the markets. -Educated committed cleaning staff to guarantee toilet hygiene.
Market vendors comply with regulations to handle food (meat, vegetables, meals and others).	-The meals offered in markets are prepared in hygienic conditions. -There is a hygiene control in the meat sale.
The healthy market project health posts continue to function in coordination with the municipal authorities and the health network.	-Open consultation to the general population. -Establish an agreement to include the health post as a district health post.
Each market has a health committee, and an activity plan coordinated with the health system.	-Periodic health control of the market vendors including Papanicolaou, vision and cardiometabolic health -Agreement with nursing/nutrition career, for internships in the markets. -Participatory workshops on disease prevention and healthy nutrition. -Education for people with chronic diseases to manage their health.
Include mental and social care in the health post of the market.	-Coordinate with the NGO Wiñay Pacha for psychological care. -Establish agreements with the Faculty of Psychology to receive trainees.
There is a free or low-cost offer for physical activity for the market vendors.	-Establish agreements on internships with the physiotherapy career. -Buy equipment for spinning. -Zumba courses (A knowledgeable market vendor can teach classes)
The markets have a "healthy meal" offer (at least one stall per market).	-Make list of market vendors interested in preparing and learning how to prepare healthy meals. -Organize cooking workshops. -Coordinate with the "Intendencia" a space to sell healthy meals. -Encourage the consumption of healthy foods.

Table 3. A part of the operational "healthy market" plan developed during the second workshop with concrete goals, actions, actors, and times based on the initially generated and organized ideas (those related to the cluster access to healthcare).

Item	Goals	Activities	Responsible per secretary	Start date
A permanent medical office Specialist physician SUS health services More physicians Equipment for the medical office	-Being part of the district health centre -Self-sufficiency -Healthy market takes care of vendors and clients	-Open the health office to the general population -Meeting with the district health center directory -Health plan for the market -Meeting with the municipal secretary of human development -Agreement with the Faculty of Physiotherapy to send trainees	The Secretary of Health	From May onward

Discussion

During the pandemic, the health posts in the markets brought health care as close as possible to where people live and work (15), in contrast to the trend toward mainly contact-less telemedicine, which exacerbated existing inequalities and access to care (40).

The Healthy Market plan demonstrates the ability of laypeople of vulnerable communities to develop a comprehensive health strategy through a process of diagnosis, education, and facilitation. Essential elements of this process were a relationship of trust between the community and the research team, individual contacts between market vendors and health care providers, a collective health

diagnosis, health education to understand the causes and consequences of this diagnosis, and the facilitation of the process from needs identification to plan development. The health emergency, the fear of getting sick, and the direct support of the project team during this pandemic increased the willingness of community members to participate.

Bolivia's national health policy, the unified model of Family, Community, and Intercultural Health (25), helped create the conditions for this study (41) by emphasizing the central role of primary health care and community participation (1). Although community demands are generally focused on illness, curative care, and the construction of health facilities (42), this study demonstrates that a community can identify needs related to prevention and health promotion that can be partially self-managed within the community. The actions and needs they identified demonstrate their comprehensive understanding of health and its underlying determinants (43).

Building trust and a willingness to engage in learning, development, and change to promote health is a process that requires both professionalism in practice and continuity of service and care (44). This was later ensured by the health posts installed in the markets, which, in addition to primary health care services, provided emergency medical care related to COVID-19 (45). Professionalism was based on shared knowledge about the management of COVID-19 and other prevalent health problems, and on leadership skills that facilitated a horizontal collaboration with the community, the health network, and local authorities (46).

To facilitate the development of a health strategy, the health diagnosis was shared, as was the knowledge to understand its causes and future consequences, Collaborative decision-making requires the sharing of both power and knowledge (47). Studies tend to collect community health needs, design interventions with the research team, and implement them in the community (48). In this study, the whole process was community-based, limiting the role of the research team to facilitating the process (49).

The strength of this method is full community ownership, while its weakness is that actors, such as the public health network and local authorities, which are needed to implement some of the actions of the health plan, were not involved in its design. Market vendors were aware of the challenges of accessing public resources, particularly during the pandemic and post-pandemic period, and took this into account when developing their strategy. Where possible, they identified actions with no long-term incremental costs or those that could improve the market's image, generating economic benefits.

We recognize that a comprehensive public health plan would typically require more detailed operationalization, including specific objectives, timelines, and budgeting. In this project, we were able to initiate the basic steps of a health promotion strategy, but fully operationalizing or piloting the plan was beyond the scope due to limited time and resources. In addition, certain needs, such as sanitation and water supply, were identified as requiring public funding and collaboration with municipal authorities, which needed a prioritization process involving all relevant stakeholders.

The approach enabled the recognition of community needs and assets in terms of knowledge about nutrition and health problems, activities to facilitate healthy eating, physical activity, and the image of their markets, as well as needs to be negotiated with other actors. This community ownership that characterizes the community-based plan (50) may facilitate sustainability compared to a plan in which the community is only one of many actors (51,52). As part of the healthy municipality plan 2023–2024, the market vendors presented the local authorities with cooking classes to prepare tasty, healthy meals and a waste management solution for the largest market (53), and negotiated the continuity of their market health post with the local public health center. The latter conditionally agreed to guarantee continuity if the demand for health care justified its presence.

A challenge for action projects targeting change lies in the limited time allotted for implementation, which contradicts the time needed for sustainable change (52), and the need for further steps to assess the feasibility of the health promotion strategy amidst other emerging priorities of market vendors. Although infrastructure is available throughout the municipality and in the markets, human and financial resources are limited and can only be redirected if the initial outcome of a small-scale intervention leads to measurable and relevant progress. Focusing on health promotion with community participation has the potential to curb rising healthcare costs associated with increasing lifestyle-related diseases. A limitation of this study is that no specific indicators were identified, although the baseline health diagnosis data provide a potential starting point.

The community-centered primary care strategy presented in this study is consistent with the SAFCI health model and can be used as a strategy to advance the implementation of the SAFCI model at the level of communities, primary care facilities, and municipalities. It can facilitate community participation at the level of health committees and municipal health plans, an implementation that is often hampered by the imbalance of knowledge, leadership skills, and power in the actors involved (41,46). The nominal group technique used in this study may help control power relations or tensions in the group by preventing some participants from dominating the session. Future studies can explore the opportunities and barriers to the development and implementation of multisectoral local health plans based on this method in other settings.

In addition to its role in promoting health and engaging vulnerable communities, the COPC model of integrat-

ing public health into trusted primary health care services makes health systems better prepared for future health crises and changing health needs. Involving well-informed communities and their social determinants in pandemic preparedness and rapid response strategies is essential to reduce, or at least not exacerbate, existing health inequities (54). Giving primary health care and organized communities a central role in the management of future health care crises can facilitate a proportionate universal response, i.e., universal action at a scale and intensity commensurate with the level of need or deprivation, leaving no one behind (28).

A limitation of the final strategy is that it relies heavily on input gathered during the initial brainstorming workshop. Although participants were encouraged to think as broadly as possible and to write down their ideas individually to avoid group thinking and reductive communication, responses may still have been influenced by earlier discussions or perceived priorities within the group. To mitigate this, all participants were leaders within their association, and additional input of actions was encouraged in the second workshop to construct the plan. Another limitation is the minimal variance observed in the rating of the importance of statements. To address this, the group collectively decided on the urgency and importance of proposed strategies and actions during the second workshop. While this approach does not produce a finished product, it effectively helps participants think collaboratively and organize their ideas within an interpretable map. For the sorting task, although the minimum number of sorters recommended for a reliable concept map is five, we included ten participants in this study to increase the reliability of the results. Analysis of the content of the resulting clusters suggests that the groupings provided a manageable division of planning efforts into subtopics or strategies, with individual statements functioning as actionable items. Another limitation is that, while we refer to the final product as a "health plan", it is more of an operational framework or strategy than a fully detailed plan. Given the time and resource constraints of the project, it was not feasible to produce a comprehensive health plan with specific timelines, budgets, and fully operationalized actions. Instead, this approach allowed for the integration of a wide range of needs and their prioritization by multiple actors, making it particularly suited to the planning and evaluation of health strategies as envisioned in the SAFCI health model.

Conclusions

By adopting a community-based approach, it was possible to systematically identify the main concerns of market vendors and their leaders and translate them into a health strategy that is owned and implemented by the Federation of Market Vendors. This process demonstrated that community members are highly aware of how their living and working conditions impact health. The community-based primary care approach adopted in this project, intended to mitigate the impact of COVID-19 in the complex environment of a traditional market in a low-income area, demonstrates the power of primary care co-produced by healthcare professionals, individuals, and communities. This approach successfully broadened the focus from addressing a single disease to addressing broader health and social determinants. The pandemic provided a critical opportunity to recognize the need to integrate public health and primary health care, to emphasize the essential role of primary health care located close to vulnerable populations, and to encourage people to view health as a valuable asset. The process of developing a health plan is complex and requires a thorough identification and analysis of needs based on the current health status of the population. Involving local stakeholders from the initial conceptualization to concrete actions fosters accountability and ownership, which are essential for the plan's success. A similar process could be applied at the health center, municipal, and even national level as a means to implement the current Bolivian SAFCI health model. Community participation is essential in health policy and planning. Processes like the one described here can make health systems more inclusive and relevant to those traditionally excluded, and more resilient in the face of future health crises and evolving health needs.

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Availability of data and materials

The full results of both concept mapping workshops are available from the authors upon reasonable request.

Conflicts of Interest

None of the authors declare any conflict of interest.

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