

Co-designing an intersectoral learning community to address the needs of people living with obesity: a participatory mixed-methods study in a semi-rural region of Quebec, Canada

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Abstract

Background

Obesity is shaped by interacting biological, social, environmental, commercial, and cultural factors. Local responses therefore require collaboration among people living with obesity and stakeholders from multiple sectors. This study evaluated the process and early perceived outcomes of co-designing an intersectoral learning community in a semi-rural region of Quebec, Canada.

Methods

A convergent mixed-methods design process evaluation was embedded in participatory action research. Four co-design workshops were held between March and November 2025. Qualitative data comprised participant observations, field notes, workshop transcripts, recordings, and materials produced during the workshops. Two adapted questionnaires were administered two months after the final workshop. Qualitative data were analyzed deductively using six conditions for effective partnership action; questionnaire data were summarized descriptively. Findings were integrated through side-by-side comparison and triangulation.

Results

Twenty-five people from civil society, healthcare, community, and municipal sectors participated in at least one workshop; 21 completed both questionnaires (84%). Most respondents reported being able to express their views and feeling heard, 95% for each, and 90.5% agreed that diverse perspectives were represented. Participants described greater awareness of other sectors, local resources, and obesity as a societal issue. Personas supported discussion across experiential, professional, community, and institutional perspectives. However, participation varied by workshop format, several strategic sectors remained underrepresented, and organizational decision-making authority was limited. 52% respondents did not know whether integrated solutions had been developed, and 76% did not know whether partners had changed their roles. Governance, dedicated resources, and sustainability remained unresolved.

Conclusions

The co-design process strengthened relational and cognitive foundations for intersectoral collaboration but had not yet produced fully integrated collective action. Moving from dialogue to sustained action requires strategic representation, explicit governance, shared leadership, dedicated resources, and mechanisms for accountability and follow-up.

BACKGROUND

Obesity is a chronic, complex, and multifactorial disease resulting from interactions among genetic, biological, behavioral, environmental, social, commercial, and cultural factors[1]. In Canada, the proportion of adults aged 18 years and older living with obesity increased from 20.6% in 2000–2001 to 29.5% in 2021[2]. In addition to affecting health and quality of life, obesity has major implications for healthcare systems and society[3–5].

The evolving understanding of obesity has led to important changes in how the disease is conceptualized and managed. In 2025, the *Lancet* Commission[6] proposed a revised framework distinguishing clinical obesity, defined as a chronic disease in which excess adiposity has already caused objective signs or symptoms of organ dysfunction or limitations in daily activities, from preclinical obesity, characterized by excess adiposity associated with an increased risk of future disease but without current clinical impairment. This framework emphasizes that obesity results from complex biological, environmental, and societal processes rather than from a simple imbalance between energy intake and expenditure, and supports a shift toward person-centered care focused on improving health outcomes rather than weight alone[6]. Beyond its clinical implications, this framework reinforces the need to address obesity through comprehensive approaches that consider its multiple determinants.

Because the healthcare system addresses only an estimated 20% of the determinants of health that shape the health[7], a comprehensive, collaborative, and intersectoral approach involving other sectors of society is essential to address the broader socioeconomic, environmental and commercial determinants of health. Recognized since the Ottawa Charter (1986)[8] and central to the “Health in All Policies approach”[9], intersectoral action refers to actions undertaken jointly by different sectors to improve health and equity. The World Health Organization (WHO) defines it as action undertaken by sectors outside health, in partnership with the health sector, to influence health outcomes or their determinants[10]. Beyond these determinants, weight stigma and discrimination, including in healthcare settings, also increase morbidity and mortality risks among people living with obesity (PLWO)[11–14]. The complexity of obesity therefore requires collaboration between the healthcare system and other sectors of society.

From this perspective, a partnership-based approach involving PLWO, healthcare professionals, community organizations, municipalities, and other societal stakeholders can foster interventions that are better adapted to local realities, more acceptable, and more sustainable[15]. A learning community, defined as a collaborative group in which members engage in shared learning through reflection, knowledge exchange, and collective problem-solving, represents a relevant mechanism for implementing this approach at the local level[16]. By bringing together individuals with diverse experiences, perspectives, and expertise, learning communities foster mutual learning, critical reflection on practices, and the co-development of contextually relevant solutions[16]. Consistent with learning health systems principles, a learning community mobilizes collectively generated knowledge to support the continuous improvement of practices, organizations, and systems[17]. By fostering trust, recognizing different forms of expertise, and promoting shared responsibility, it can support local stakeholders in developing and implementing concrete solutions[16]. Among the participatory approaches relevant to this type of

initiative, co-design plays a central role[16]. Co-design is a collaborative process in which people affected by an issue contribute to understanding the problem and designing solutions by pooling their knowledge and experiences[18].

In response to these challenges, the participatory research project COLLAB-INTER-360-Obesity[19] was co-governed by a clinician-researcher (GL) and a citizen partner (LB) to address obesity-related issues collaboratively in a semi-rural region of Quebec. The intervention aimed to co-design an intersectoral learning community that brought together people from the healthcare, community, municipal, and civil society sectors to develop concrete solutions tailored to the realities of PLWO before implementation. The project was conducted in the Montmagny Regional County Municipality (RCM), Quebec, Canada, a semi-rural area comprising 14 municipalities and 22,485 residents in 2021[20]. It was organized into three phases: (1) a scoping review supplemented by a bibliometric analysis to identify the key characteristics of intersectoral interventions[21, 22], (2) a qualitative study using semi-structured interviews to better understand the local context and inform the development of the learning community, and (3) co-design workshops to establish an intersectoral learning community.

Focusing on the third phase, this study aimed to evaluate the process and perceived outcomes of co-designing an intersectoral learning community intended to support a local response to the needs of PLWO in a semi-rural region of Quebec. By documenting participation conditions, the quality of collaboration, the balancing of power relations, and the early relational, cognitive, and organizational outcomes of the process, the study contributes to understanding the mechanisms that support the implementation of public health interventions addressing the determinants of obesity. Although conducted in one region, the study was designed to generate insights into collaborative mechanisms and implementation conditions that may be relevant to other settings seeking to develop intersectoral responses to obesity and other complex public health issues. The evaluation therefore focused not on clinical or weight-related outcomes, but on the collaborative mechanisms required to develop collective capacity for action around a complex chronic health issue.

METHODS

Study design and conceptual framework

This study used a convergent mixed-methods design[23] (QUAL + QUAN → INT) with a process evaluation focus[24] within a participatory research approach[25, 26]. It aimed to document the process of co-designing an intersectoral learning community and its perceived outcomes for collaboration among stakeholders. A mixed-methods approach was used to capture complementary dimensions of the process: participant observation, informed by ethnographic methods[27, 28] documented interactions as they unfolded within the implementation context, while self-administered questionnaires assessed participants' retrospective perceptions of stakeholder engagement, the quality of participation and co-design, and the outcomes of the process[29, 30]. Although data collection was temporally staggered, the two components addressed the same process evaluation, neither informed the other, and

they were analyzed separately before being integrated at the interpretation stage [23, 31]. Integration involved triangulating findings across data sources to identify convergence, complementarity, and tensions between observed processes and participants’ perceptions, thereby developing an integrated understanding of the co-design process and its perceived outcomes.

The evaluation was guided by Bilodeau et al.’s analytical framework[32] for intersectoral collaboration, which identifies six conditions associated with effective partnership action: (1) inclusion of diverse perspectives on the situation, (2) early involvement of partners, (3) engagement of stakeholders in negotiation and decision-making, (4) engagement of strategic and pivotal stakeholders, (5) balancing power relations, and (6) co-design of collective action. The framework informed the observation grid, adaptation of the questionnaires, coding of qualitative data, and integrated interpretation of the findings (Table 1).

Table 1
Conditions for effective partnership action and evaluation questions[32]

Condition	Evaluation question
Inclusion of diverse perspectives on the situation	Does the partnership include all relevant perspectives, including those of stakeholders and people directly affected by the issue?
Early involvement of partners	Do partners participate actively throughout the project, including problem analysis, solution development, and implementation?
Engagement of stakeholders in negotiation and decision-making	Are all partners involved in negotiations and able to influence decisions?
Engagement of strategic and pivotal stakeholders	Are the necessary stakeholders and resources mobilized (e.g., strategic stakeholders, expertise, and funding)?
Balancing power relations	Are measures in place to balance power among partners (e.g., reciprocity, equity, and recognition)?
Co-design of collective action	Do partnership arrangements support collective rather than sector-specific action (e.g., combining knowledge, discussing differences, and developing integrated solutions)?

Context and intervention

The intervention was developed within a participatory action research[25, 26] project designed to establish an intersectoral learning community. Patient partners contributed throughout the co-design process, bringing experiential knowledge to its development and iterative adaptation. It comprised four co-design workshops held between March and November 2025 using an iterative and adaptive approach; three workshops were held in person and one online. The design of the workshops was informed by the principles and practical guidance outlined in the *Learning Communities Handbook*[16], which provides recommendations for establishing and facilitating learning communities through iterative, participatory

processes. Four members of the research team designed (LB, GL, AL'E, and BL) and facilitated (LB, GL, AL'E) the workshops with support from a professional graphic facilitator (DDC).

The workshops used a range of participatory methods derived from social design approaches[33] to foster collective creativity, dialogue among stakeholders, and the co-design of solutions. Each workshop had a specific objective (Table 2) and used one or more participatory methods, including *World Café*[34–36], *personas*[37–39] (Fig. 1), *participatory validation*[40–42], *future visioning*[43–45], and *backcasting*[46, 47], to progressively support participant engagement, identify priority issues, co-design potential solutions, and structure the learning community. Consistent with the iterative principles described in the Learning Communities Handbook[16], the methods were selected to support a deliberate progression: creating a trusting environment, identifying priority issues, generating solutions centered on those affected, collectively validating proposals, and initiating the planning of governance and future action. Although the workshop sequence was not directly derived from Bilodeau et al.'s framework[32], the different stages of the co-design process provided opportunities to progressively support several conditions associated with effective partnership action, including the inclusion and early involvement of diverse stakeholders, participation in negotiation and decision-making, the engagement of strategic stakeholders, and the co-design of collective action.

Before the first workshop, a member of the research team proposed a participation charter[48] outlining principles intended to support respectful, equitable, and meaningful participation throughout the co-design process. The charter was subsequently reviewed and validated by patient partners. It established shared expectations regarding dialogue, recognition of diverse perspectives, and interactions among participants and served as a common framework for the workshops. As part of the preparatory work, particular attention was also given to the use of weight-inclusive and non-stigmatizing language. Terminology used in the workshop materials, including the expression “people considered to be obese,” was informed by recommendations from the Guide for Using Weight-Inclusive and Non-Stigmatizing Language[49] and reviewed and validated by patient partners.

Between workshops, brief consultation meetings were conducted to support the iterative adaptation of the co-design process. Members of the research team met with patient partners and selected key stakeholders, generally for approximately 30 minutes by videoconference. They focused on practical aspects of the intervention, including whether the previous workshop had met participants' expectations, possible adjustments to the format or content of subsequent workshops, and whether additional individuals or sectors should be invited. Later in the process, similar consultations also informed practical considerations related to the development of the governance framework. Their content was used solely to adapt the intervention and was not included in the qualitative dataset or used in the analysis or interpretation of workshop findings. Table 2 summarizes each stage of the process, and Box 1 describes the participatory methods used.

Table 2
Timeline of the learning-community co-design process

Stages	Main objectives	Methods	Key activities
Preparatory activities	Prepare the process; support participation	Preparatory meetings; synthesis of previous findings and co-design guidance	Meetings with patient partners; use of findings from Phases 1 and 2; drafting and validation of the participation charter
Workshop 1: March 2025; in person; 3 hours	Initiate intersectoral collaboration; identify priority issues	<i>World Café</i>	Introductions and discussion of mental health, weight stigma, and access to resources
Between Workshops 1 and 2	Adapt the process; prepare the next workshop	Meetings; prioritization questionnaire	Meeting with patient partners; consultations with nine key stakeholders to inform the adaptation of subsequent workshops; prioritization questionnaire; recruitment of additional participants
Workshop 2: May 2025; in person; 3 hours	Strengthen collaboration; map stakeholders; generate possible solutions	<i>Personas</i>	Icebreaker; development of responses to four personas; mapping of stakeholders and organizations
Workshop 3: June 2025; online; 2 hours	Validate and refine proposals from Workshop 2	<i>Participatory validation</i>	Review, refinement, and validation of proposals; involvement of strategic stakeholders
Between Workshops 3 and 4	Refine the governance framework; prepare the next workshop	Meetings	Consultations with six key stakeholders to refine the governance framework and inform the preparation of Workshop 4; further recruitment
Workshop 4: November 2025; in person; 3 hours	Structure the learning community	<i>Future visioning</i> <i>Backcasting</i>	Discussion of governance and shared vision; planning of actions over six months, one year, and two years
Post workshop continuation	Support sustainability	Steering committee	Formation of the steering committee; first co-leadership meeting; development of an action plan

Box 1. Participatory methods used in the co-design process

World Café

A participatory method that supports structured dialogue among stakeholders. It creates a welcoming space for exchange, encourages exploration of shared questions, and brings together diverse perspectives to generate collective ideas and foster change.

It was used to identify collectively the main issues experienced by PLWO.

Personas

Fictional but realistic narratives and representations of users developed from the literature, clinical experience, and experiential knowledge contributed by patient partners. This approach supports a person-centered perspective, empathy, idea generation, and participant engagement.

The four personas were co-developed in advance by patient partners and members of the research team using experiential knowledge and evidence from the literature and clinical expertise. Patient partners reviewed and validated the final personas, which were illustrated by a professional graphic facilitator (DDC) before use in Workshop 2 (see Additional file 2). They were used to foster empathy and generate solutions adapted to different realities.

Participatory validation

A method informed by member checking that enables participants to review, supplement, and enrich findings produced collectively.

This step was intended both to strengthen the credibility of the proposals and to continue their co-design.

Future visioning and backcasting

Approaches that help a group define a desired future collectively before identifying the conditions and steps required to achieve it. They are particularly useful for structuring a collective process, clarifying a shared direction, and translating a common vision into implementation steps.

They were used to structure governance and lay the groundwork for sustaining the learning community.

Participants and recruitment

Participants from four sectors - civil society, healthcare, community and municipal - were recruited through purposive and snowball sampling[50] to bring together diverse experiential, professional, organizational, and place-based knowledge. Eligibility criteria were being aged 18 years or older, having an interest in obesity-related issues, and belonging to one of the sectors targeted by the initiative. Initial recruitment drew on the networks of the citizen partner who co-led the project (LB). Throughout the co-design process, participants identified underrepresented sectors and helped recruit additional stakeholders through snowball sampling[50] within their own networks. Variation in participation across workshops was mainly related to scheduling constraints and difficulties traveling to the Montmagny area. The strategy was intended not to achieve statistical representativeness, but to bring together complementary perspectives that could support the co-design of intersectoral action.

Data collection

Qualitative data

Qualitative data were collected through participant observation[27, 28] during the four workshops held in March, May, June, and November 2025. Three members of the research team (BL, AT, and AS) documented interactions, participation dynamics, power relations, co-design processes, and contextual factors using an observation grid structured around the six conditions for effective partnership action[32] (see Additional file 1). The full grid was used during the first three workshops; during the fourth workshop, only the general observation sections were used, as the section specifically addressing the six conditions for effective partnership action was not completed. Observations were supplemented by field notes, audio and video recordings, workshop transcripts, and materials produced during the workshops.

Quantitative data

Questionnaire development

Quantitative data were collected using two questionnaires adapted from Bilodeau et al.'s Diagnostic Tool for Partnership Action[29] (18 items; see Additional file 3) and the Public and Patient Engagement Evaluation Tool (PPEET)[30], developed by McMaster University (29 items; see Additional file 4). The questionnaires documented participants' perceptions of stakeholder representation, the quality of interactions, participation in decision-making, co-design, power relations, and the perceived outcomes of the process[30, 32, 51].

The questionnaires were adapted to the context of the COLLAB-INTER-360-Obesity project[19] by revising item wording, adding the response options “I don't know” and “I prefer not to answer,” and including open-ended comment fields in which participants could explain their responses when relevant. Response options varied by questionnaire and followed the scales used in the original instruments.

Questionnaire administration

The questionnaires were administered in January 2026, two months after the fourth workshop. Everyone who had participated in at least one workshop was invited to complete both questionnaires in Google Forms[52]. To support administration and promote a consistent understanding of the items, the research team held three one-hour online sessions on Microsoft Teams[53] during which participants could complete the questionnaires and ask questions as needed[29, 30, 51]. Those unable to attend received a link to complete the questionnaires independently. Overall, 21 of the 25 eligible participants completed both questionnaires (response rate: 84%). Responses were pseudonymized using a unique numerical identifier assigned to each participant.

Data analysis

Qualitative data

Qualitative data were analyzed using framework analysis[54] in NVivo 14[55]. The coding framework was based on the six conditions for effective partnership action from Bilodeau's analytical framework[32]. Workshop transcripts, field notes, and observation grids were coded according to these six predefined categories. All workshops were conducted in French, and qualitative materials were analyzed in their original language. Workshop transcript excerpts selected for publication were translated into English using DeepL[56] and reviewed by a member of the research team to ensure that their meaning was preserved.

Quantitative data

Quantitative data were analyzed descriptively in Microsoft Excel[57] by a team member (MB) who had not participated in the online questionnaire-completion sessions. Closed-ended responses were summarized using frequencies and percentages. Open-ended questionnaire responses were analyzed by MB using a simple content coding approach. All 21 participants responded to at least three of the seven open-ended questions, yielding a total of 106 open-ended responses. Recurring ideas were grouped into thematic categories and counted; more than one theme could be assigned to the same response. Coding decisions were reviewed with GL and BL, and any disagreements were resolved by consensus.

Data integration

Qualitative and quantitative data were integrated after separate analyses using a triangulation approach[23, 31]. Findings from observations, workshop transcripts, questionnaires, and open-ended comments were compared to identify convergence, complementarity, and tensions across data sources. These comparisons were conducted iteratively over several rounds of interpretation and were reviewed and discussed by members (BL, MB, GL) of the research team to refine and validate the integrated findings. Observation data primarily documented processes and interactions, whereas questionnaires captured participants' individual perceptions. Integration occurred at the interpretation stage by examining how qualitative findings helped explain and contextualize patterns observed in the quantitative data, and how participants' quantitative assessments complemented or contrasted with the processes documented qualitatively. Open-ended questionnaire responses were used to further contextualize and qualify these comparisons. Through this iterative comparison across data sources, related patterns were grouped into cross-cutting themes, providing a more comprehensive interpretation of the co-design process and its perceived outcomes.

Researcher reflexivity and methodological rigor

BL, a student researcher supervised by the principal investigator (GL), held a dual role in the study. She contributed to the design of the co-design workshops and was also involved in participant observation and qualitative analysis. She did not have a formal facilitation role and intervened only occasionally for

practical purposes. This positioning provided contextual understanding of the process but may also have influenced her observations and interpretations, creating potential confirmation and interpretive biases.

Several procedures were used to strengthen qualitative rigor and reflexivity. Before data collection, the three observers (BL, AT, and AS) discussed the observation grid and aligned their understanding of the six conditions for effective partnership action, drawing on the literature and AT's previous experience with participant observation. BL conducted the initial deductive coding, which was subsequently reviewed and discussed with AT, AS, and GL to refine interpretations and consider alternative explanations. Triangulation across observation grids, field notes, workshop transcripts, recordings, and workshop materials further supported the analysis.

To promote consistency in questionnaire administration, the same procedural information and explanations were provided during each online completion session. Quantitative analyses were conducted by MB, who had not participated in these sessions, and findings were subsequently reviewed alongside the qualitative results by several members of the research team during integrated interpretation.

Ethical considerations

This study was approved by the Research Ethics Board of the Centre hospitalier de l'Université de Montréal (CHUM; MP-02-2024-11521, 23.307). Before participating in the co-design workshops, all participants received detailed information about the study and provided written informed consent to participate and for their data to be used for research purposes. Data used for analysis, including questionnaire responses, observation materials, and workshop transcripts, were de-identified. Audio and video recordings, transcripts, questionnaires, and analytical databases were stored in a secure environment in accordance with institutional procedures and were accessible only to authorized members of the research team.

RESULTS

Participant characteristics and workshop attendance are first described to provide context for the interpretation of the findings. The integrated analysis generated five cross-cutting themes: (1) stakeholder diversity and representation (2) interaction and participation dynamics, (3) participation in co-design, (4) perceived outcomes of the learning community, and (5) challenges identified by participants. Together, these themes describe the collaboration process, the perceived outcomes of the initiative, and the conditions requiring further development to support the transition from collective learning to structured intersectoral action. Each theme was interpreted using the data sources most relevant to the phenomena examined and their complementarity. Observations from the first three workshops primarily documented the progressive development of collaboration, participation dynamics, and co-design processes, whereas observations from the fourth workshop focused more specifically on participants' vision for the structure and sustainability of the learning community. Questionnaire data complemented these observations by capturing participants' perceptions of the initiative as a whole,

particularly regarding stakeholder engagement, the quality of interactions, participation in decision making, and perceived outcomes.

Participant characteristics and workshop attendance

A total of 25 distinct individuals participated in at least one of the four co-design workshops. Attendance varied across workshops, with 18 participants attending Workshop 1, 16 attending Workshop 2, 7 attending Workshop 3, and 18 attending Workshop 4. Participants represented civil society, including PLWO and citizen partners, as well as the healthcare, community, and municipal sectors (Table 3). Eighteen participants lived in the Chaudière-Appalaches region of Quebec, Canada, and seven came from other regions of Quebec, Canada. Overall, 21 of the 25 eligible participants completed the two questionnaires (84% response rate).

Table 3
Participant attendance by sector across co-design workshops Note: Counts represent attendance at each workshop. The same participant may therefore be represented in more than one column.

Sector	Workshop 1	Workshop 2	Workshop 3	Workshop 4
Civil society	7	7	1	7
Healthcare	5	7	3	7
Community	4	1	3	2
Municipal	2	1	0	2
Total	18	16	7	18

Stakeholder diversity and representation

Although the co-design process brought together stakeholders from four sectors, participants identified remaining gaps in stakeholder representation. In the questionnaires, 38% respondents considered that all essential stakeholders had been involved; 33% reported that additional stakeholders would have been useful; 24% considered that some essential stakeholders had not been involved; and 5% did not know (Fig. 2A). Participants particularly identified the education sector, local elected officials, the municipal sector, and some community organizations as requiring greater representation.

The involvement of PLWO emerged as an important dimension of stakeholder diversity and representation. Overall, 81% of respondents recognized the involvement of PLWO in the partnership and their contribution to decision-making. This finding was consistent with workshop observations: PLWO played an active role in the discussions, including by initiating some exchanges and grounding the group's reflections in lived experience.

“I’ll break the ice.” - Civil society participant, Workshop 1

Interaction and participation dynamics

Questionnaire findings indicated that participants generally perceived the workshops as supportive of participation and the expression of diverse viewpoints. Overall, 95% of respondents reported being able to express their views, and 90.5% agreed or strongly agreed that diverse views were represented during the workshops (Fig. 2B). In addition, 95% felt heard, and 81% considered that their social position had not influenced how their views were considered. Several respondents described the workshops as safe spaces that supported the expression of different perspectives:

“I found that our discussions always took place in a supportive environment characterized by active listening. For me, it was a ‘safe space’.” - Municipal sector participant, PPEET questionnaire

The observations nevertheless qualified this overall perception. Although participants described a climate conducive to discussion, participation varied by workshop, facilitation format, and group composition. During the first workshop, some participants, particularly those from the healthcare sector and PLWO, spoke more often, whereas others from the community and healthcare sectors were more likely to listen. During the second workshop, participation became more evenly distributed, particularly during small-group work with personas. During the third, online workshop, spontaneous participation was more limited, and one participant left before the end. By contrast, the fourth workshop was characterized by active participation across attendees and sectors, particularly during the activity to envision the future learning community, which engaged the whole group. Some participants also assumed leadership roles by proposing courses of action, responding to ideas, or sharing their vision for the future learning community.

Observations from the final workshop also highlighted concerns about continuing the initiative. Several participants questioned whether engagement could be sustained across stakeholders and whether the ideas generated could be translated into concrete action.

“I don't think the local community has the capacity to take on another steering committee with additional resources and tasks. That is one of my biggest concerns. I believe in the project - don't get me wrong - and I find it very interesting, but I am really concerned about duplication. This is an important issue, so I wanted to raise it as we discuss the structure.” - Municipal sector participant, Workshop 4

Divergent views were also expressed, particularly regarding weight stigma in healthcare and clinical practice.

“I feel as though we are airing our dirty laundry and generalizing about family physicians when we discuss weight stigma in healthcare. [...] It is not true that I should not raise it. We need to stop stigmatizing.” - Healthcare sector participant, Workshop 1

In the questionnaires, 48% of respondents indicated that compromises could be reached, whereas 38% did not know whether differences could be resolved.

Participation in co-design

Participation in co-design occurred at several levels: preparing the workshops, framing problems and courses of action, validating proposals, and envisioning the future learning community.

First, some participants contributed to framing the problems. The themes addressed in the first workshop - mental health, weight stigma, and access to resources - had been prioritized using findings from Phase 2. Participants considered these themes relevant.

"I see myself in all of these areas: stigma [...], access to resources [...], and mental health." - Civil society participant, Workshop 1

However, municipal-sector participants noted that the proposed themes did not include an environmental dimension.

Co-design was also reflected in participants' ability to respond to the issues discussed by proposing ideas, resources, and courses of action. The first workshop generated a range of proposals, some general and others drawing on existing resources. The second workshop extended this work using personas developed in advance by patient partners. A community-sector participant said that the personas helped participants "better understand the problems" and "individualize a problem." Discussions around the personas also supported the sharing of experiential, professional, and organizational knowledge. Participants identified a range of resources, including programs offered by the Integrated Health and Social Services Centre, community organizations, body-image promotion initiatives, and support services already available locally. These ideas were refined, expanded, or validated during Workshop 3:

"Well, they have already been mentioned, but I had definitely been thinking along those lines: physical activity, getting moving, and reducing isolation. Before you mentioned it, I had aqua fitness in mind, and I can see that this was exactly what was proposed." - Healthcare sector participant, Workshop 3

Participants also identified other local resources that could be engaged, including existing support groups.

The co-design process continued as participants envisioned the future learning community. During Workshop 4, they jointly developed actions to be undertaken within six months, one year, and two years.

"What role do we want to play at the community level? Is it our role to go door to door to raise awareness, or should we engage the public health coordination team, managers, or a key steering committee within the institution so that we can make them aware of our situation? We need to decide at what level we want to act, with whom we want to work, and which issues bring us together. Are we addressing all of these issues?" - Municipal sector participant, Workshop 4

The questionnaire findings reflected this progression. Just over half of respondents (52%) reported being involved in defining problems and solutions. However, 43% indicated that they were mainly involved in

implementation or in decisions whose direction had already been set. Only 38% felt that they occupied a position that enabled them to make decisions or commit resources.

“I observe the interventions; I do not have decisions to make or actions to carry out. I am a [civil society participant]. Some questions therefore do not apply to me.” - Civil society participant, Diagnostic Tool for Partnership Action questionnaire

The questionnaires also indicated that co-design had begun but was not yet fully established. Most respondents (67%) considered that all stakeholders were mobilizing their resources in the interests of PLWO (Fig. 2C). In addition, 38% felt that workshop participants had worked together to co-design new, integrated actions for PLWO.

By contrast, 52% of respondents did not know whether workshop participants had rallied around integrated solutions that went beyond coordination among the different parties. Similarly, 76% did not know whether participants had changed their roles to develop new solutions.

Perceived outcomes of the learning community

The perceived outcomes of the learning community were primarily related to engagement, understanding, and satisfaction. Questionnaire respondents reported strong engagement with the initiative: 95% indicated that they understood the project objectives (Fig. 3A), 81% considered that the objectives had been achieved (Fig. 3B), and 90% were satisfied with their participation (Fig. 3C).

The workshops also improved participants' understanding of the roles, resources, and sectors involved in the lives of PLWO. In the questionnaires, 81% of respondents reported feeling better informed about the sectors and people that should be engaged to support PLWO throughout their life course.

“The project has helped change my perspective and my approach to this issue. I am bringing this new perspective back to my team. I feel better equipped to positively influence my group of professionals.” - Healthcare sector participant, PPEET questionnaire

Qualitative observations also suggested that participants' understanding of obesity evolved, with obesity increasingly framed as a systemic and societal issue extending beyond the healthcare system.

“We need to realize that these are people perceived as having obesity, but it goes beyond that! [An obesity science expert] shows that this is not only a healthcare-system issue; it is also related to how our society lives. The healthcare sector does not bear all the responsibility.” - Municipal sector participant, Workshop 2

This shift was accompanied by a desire to strengthen intersectoral collaboration. Several participants emphasized the importance of better understanding available resources and developing collaboration across sectors to improve the care pathways of PLWO.

“I will say it again and again: I think it is in all of our interests to work together.” - Community sector participant, Workshop 3

Some participants also described outcomes more directly related to practice and changes in perspective. Over the course of the workshops, some accounts shifted from a focus on professional roles toward the sharing of personal experiences that were contextualized and adapted to the group's needs. In addition, a healthcare-sector participant reported that discussions during the first workshop had led her to reconsider aspects of her clinical practice:

“I have thought a great deal about diagnosis, identification, and how we approach these issues in clinical practice. [...] I made a point of taking a little more time to measure waist circumference, so it has changed my practice somewhat.” - Healthcare sector participant, Workshop 2

Finally, strengths identified in the questionnaires included the diversity of perspectives and sectors (n = 11), the richness of the discussions and plurality of voices (n = 11), and the climate of openness, respect, and nonjudgment (n = 7).

Challenges identified by participants

Despite these positive outcomes, participants identified several challenges. The first concerned the underrepresentation of some sectors. Observations and questionnaire responses suggested that the education and municipal sectors, local elected officials, and some community organizations should be more actively engaged. The education sector was identified as particularly important for prevention.

“That is why schools need to be involved in the community, to focus on prevention and establish healthy habits early.” - Healthcare sector participant, Workshop 2

The second challenge concerned knowledge of available resources. Although participants identified several resources during the workshops, these remained fragmented and unevenly known.

“I know about community action through my work at the [Integrated Health and Social Services Centre], but I always wonder what I do not know. We do not make enough use of these resources because, ultimately, we do not know them well enough.” - Healthcare sector participant, Workshop 1

The third challenge concerned the transition from dialogue to collective action. Overall, 52% of respondents did not know whether integrated solutions had been developed, and 76% did not know whether roles had changed. Suggested improvements in the questionnaire responses included prioritizing actions (n = 3) and sharing information (n = 3).

Finally, the sustainability of the learning community was a concern. In the questionnaires, some respondents identified a need for dedicated funding to implement and sustain the community (n = 2), as well as more frequent activities (n = 4).

“The sustainability of the project. I feel that, although the ideas raised are extremely relevant, supporting such a project without a framework or budget for what comes next is, in a way, setting it up to fail.” - Healthcare sector participant, PPEET questionnaire

The main challenge, therefore, was not participants' commitment to the process, but transforming a valued space for dialogue into sustainable collective capacity supported by decision-making mechanisms, resources, and clearly shared governance.

DISCUSSION

Summary of key findings

This study evaluated the process and early perceived outcomes of co-designing an intersectoral learning community intended to support a local response to the needs of PLWO. The initiative brought together people from different sectors and supported recognition of the experiential knowledge of PLWO in a space perceived as safe and supportive. It primarily strengthened relationships among participants, their understanding of other stakeholders' roles, resources, and perspectives, and their willingness to work together. It also deepened understanding of obesity by highlighting its social, organizational, and place-based dimensions. Participation nevertheless varied, and some sectors required for implementation were absent or insufficiently engaged.

Preparatory and relationship-building work as a prerequisite for engagement

Our findings suggest that participant engagement depended on preparatory and relationship-building work that began before the workshops and continued throughout the process. Preparatory work with PLWO, preliminary meetings with stakeholders, a participation charter, non-stigmatizing language, structured facilitation, and a supportive climate created conditions in which experiential, professional, and place-based knowledge could be expressed.

These findings are consistent with Bisson et al.[58], who suggest that patient-partner engagement requires prior preparation, accessible language, involvement in decision-making, and teams that are prepared to collaborate with patient partners. Jagosh et al.[59] identify trust as a central mechanism of partner engagement. Rubino et al.[60] and Healy et al.[61] further show that, in contexts where stigma is a risk, including obesity, respectful language can foster trust, communication, and the sharing of lived experiences.

Our study shows how these conditions can transform the presence of participants from different sectors into meaningful collaborative contributions by strengthening their legitimacy to contribute and supporting a more balanced distribution of participation. Preparatory work helped create a space in which experiences of stigma, the limitations of weight-centered approaches, and the broader

determinants of obesity could be discussed collectively. Variation across workshops also showed that participation depended on facilitation formats. Small-group work, structured instructions, and participatory activities appeared to support a more equitable distribution of speaking opportunities. Future initiatives should allocate time and resources to prepare participants, clarify expectations and roles, recognize the value of different forms of knowledge, and establish processes that support respectful and equitable participation.

Personas as a catalyst for intersectoral co-design

The use of personas[37–39] during the second workshop appeared to mark an important shift in the co-design process. Grounded in scenarios informed by the experiences of PLWO, the personas helped move discussions beyond general or sector-specific observations by contextualizing needs in relation to life trajectories, stigma, access to resources, and social and place-based constraints. They also provided a concrete basis for participants to recognize the roles, expertise, and constraints of other stakeholders and to identify how these perspectives could complement one another. In this way, the exercise appeared to support a shift from parallel contributions toward a more collective understanding of the issues and an emerging capacity to envision joint action.

This finding extends observations from Dominello et al.[38], who found that personas can foster empathy, contextualize user experiences, stimulate discussion, and support the development of user-centered solutions. Valaitis et al.[62] further showed that persona-scenario methods used with multiple stakeholder groups can help develop a shared understanding of complex interventions and bring different stakeholder perspectives into dialogue. More recently, Dominello et al.[63] highlighted the relational role of personas in providing a common basis for discussion, facilitating communication, and supporting the development of shared, person-centered solutions among participants with different experiences and roles.

In our study, personas appeared to serve an additional relational function within an intersectoral group by connecting lived, professional, community, and institutional knowledge around concrete situations. Our findings further suggest that the contribution of personas may depend partly on when they are introduced in the co-design process. By the second workshop, participants had already met, exchanged perspectives, and generated a range of possible solutions. The challenge was therefore less one of generating ideas than of organizing them around the needs and circumstances of PLWO and identifying how different actors could contribute. The personas provided a shared frame through which these existing ideas could be structured, connected, and reconsidered from a person-centered perspective. Their value may therefore lie not only in representing user needs, but also in providing a shared object[64] around which diverse stakeholders can develop common language, recognize complementary contributions, and begin to construct a basis for collective action.

Intersectoral collaboration requires strategic representation and local grounding

This study shows that intersectoral collaboration depended not only on the diversity of sectors represented, but also on participants' ability to mobilize local knowledge, relationships, and resources. The involvement of PLWO and stakeholders from the healthcare, community, and municipal sectors enriched understanding of the problem and helped the group move beyond a response centered primarily on healthcare and individual behavior. However, limited participation from some municipal and community stakeholders, along with the absence of the education sector and local elected officials, reduced opportunities to translate proposed courses of action into integrated initiatives.

Alderwick et al.[65] emphasize that involving people directly affected by an issue and members of the community helps tailor interventions to local realities, whereas institutional leaders can mobilize resources, address conflicts, and support decisions. Broader representation alone, however, does not ensure partnership effectiveness. Super et al.[66] show that decision-makers should be joined by managers and frontline stakeholders who can translate broad project directions into the practices of partner institutions and organizations. Bernstein et al.[67] recommend mapping stakeholders according to their relationships, support for the initiative, and role in implementation rather than sectoral affiliation alone.

Our findings therefore highlight a gap between the richness of the perspectives brought together and the group's capacity to authorize, fund, or implement the proposed solutions. Representation should be considered in terms of the functions required for action, not only the sectors to be represented. Future initiatives would benefit from mapping, from the outset, the stakeholders needed to understand the problem, make decisions, implement actions, and sustain them, and then reassessing their engagement throughout the process.

Moving from dialogue to action through explicit governance and dedicated resources

The engagement conditions, participatory methods, and diversity of knowledge described above created a strong foundation for co-design. Translating this foundation into action, however, also requires explicit organizational mechanisms - including decision-making processes, allocation of responsibilities, and dedicated resources - that had not yet been clearly defined in this study. This finding is consistent with the literature on intersectoral partnerships.

Corbin et al.[68] emphasize that such partnerships require not only a shared vision, but also appropriate governance structures and sufficient human and financial resources. Grootjans et al.[69] similarly show that collective capacity for action depends on shared objectives, facilitative leadership, and accountability mechanisms.

Our findings therefore show that the presence of several conditions favorable to co-design is not sufficient to generate collective capacity for action. The time available may have been insufficient to formalize governance and engage additional stakeholders who could commit their organizations to implementation. The initiative was still driven mainly by the research and community sectors, without

sufficiently established intersectoral governance to support shared leadership. Continuing this type of initiative requires beginning this structuring work earlier, prioritizing a limited number of actions, clarifying the responsibilities of participating organizations, and establishing shared monitoring mechanisms.

Strengths and limitations

This study has several strengths, including its grounding in participatory research, the active involvement of PLWO, use of an explicit theoretical framework for partnership action, and triangulation of multiple qualitative and quantitative data sources. Another strength was the deliberate alignment and adaptation of participatory methods with the objectives of successive stages of the co-design process, allowing the approach to evolve in response to emerging needs and the development of collaboration within the group. It therefore provides a detailed account of the conditions involved in implementing intersectoral collaboration around a complex public health issue.

Several limitations should also be acknowledged. First, the study was conducted in one semi-rural RCM, which limits the direct transferability of the findings to other settings. Transferability instead depends on the detailed description of the context, collaboration mechanisms, and implementation conditions. Second, participation varied across workshops, particularly during the online workshop, which may have influenced co-design dynamics. Third, the questionnaires measured participants' perceptions and may have been affected by social desirability bias or by greater engagement among respondents. Fourth, the evaluation focused on the early development of the learning community and could not determine whether the observed outcomes would translate into sustainable action. Fifth, the research team's dual role in facilitation and evaluation enriched the participatory process but required explicit reflexivity when interpreting the data.

Implications for public health practice

The findings suggest that learning communities can support responses to complex chronic health issues such as obesity when their purpose is to build shared understanding, connect fragmented resources, and prepare for intersectoral action. To produce lasting effects, however, these communities require preparatory work that supports participant engagement, a shared vision among stakeholders, strategic engagement of local actors, participatory methods adapted to the group's evolution, and explicit governance that clarifies responsibilities, mobilizes the resources required, and ensures follow-up on agreed actions.

CONCLUSION

This study shows that an intersectoral learning community co-designed with PLWO and local stakeholders from multiple sectors is a promising approach for supporting a local response to a complex public health challenge. Beyond creating a space for dialogue, it can foster the gradual

development of shared understanding, recognition of complementary forms of knowledge, and conditions conducive to collective action. However, this progression does not automatically lead to integrated action, which also requires strategic representation, explicit governance, dedicated resources, and shared leadership. The study therefore helps clarify the conditions required to transform a participatory process into sustainable intersectoral collaboration, while also identifying lessons that extend beyond obesity.

Abbreviations

PLWO, people living with obesity; WHO, World Health Organization; RCM, regional county municipality; PPEET, Public and Patient Engagement Evaluation Tool; CHUM, Centre hospitalier de l'Université de Montréal (University of Montreal Hospital Centre).

Declarations

Ethics approval and consent to participate:

This study was approved by the Research Ethics Board of the Centre hospitalier de l'Université de Montréal (CHUM; project no. MP-02-2024-11521; local reference 23.307) and was conducted in accordance with the Declaration of Helsinki and local ethical standards. Written informed consent was sought and obtained from all participants after briefing them on the study's objectives and assuring confidentiality. Participants were also informed that their participation was entirely voluntary, and they could withdraw at any point without any repercussions.

Consent for publication:

All participants provided written informed consent for the publication of the results.

Competing interests:

The authors declare that they have no competing interests.

Additional file 1 (.pdf)

Title: Personas used during co-design Workshop 2.

Description: English versions of the four personas used during the second co-design workshop to support participant discussion.

Additional file 2 (.pdf)

Title: Observation grid used for participant observation.

Description: Observation grid used to document the context and course of the co-design workshops and to assess six dimensions of effective partnership action.

Additional file 3 (.pdf)

Title: Observation grid used for participant observation.

Description: Observation grid used to document the context and course of the co-design workshops and to assess six dimensions of effective partnership action.

Additional file 2 (.pdf)

Title: Public and Patient Engagement Evaluation Tool (PPEET) – participant questionnaire.

Description: Participant questionnaire used to assess perceptions of communication and participation supports, sharing of views and perspectives, impacts and influence of the engagement initiative, and overall experience.

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Author Contribution

GL and LB conceived and co-led the COLLAB-INTER-360-Obesity project. BL, GL, AL'E, and LB contributed to the design of the co-design workshops. BL, AS, and AT collected the observational data. BL conducted the initial qualitative analysis, and MB conducted the quantitative analysis. BL, AT, AS, and GL reviewed and refined the qualitative interpretations. BL, MB, AS, and GL contributed to the integrated interpretation of the findings. BL drafted the manuscript. AL'E, NS, J-BG, MS and AC aided in developing the research question and study methods. GL is the guarantor of this manuscript. All authors critically revised the manuscript, and approved the final manuscript.

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Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available because the workshop transcripts, observation notes, recordings, and open-ended questionnaire responses contain potentially identifiable information from participants in a small semi-rural community. De-identified data may be available from the corresponding author on reasonable request, subject to approval by the CHUM Research Ethics Board and an appropriate data-sharing agreement.

References

1. Williams EP, Mesidor M, Winters K, Dubbert PM, Wyatt SB. Overweight and obesity: prevalence, consequences, and causes of a growing public health problem. *Curr Obes Rep.* 2015;4(3):363–70.
2. Public Health Agency of Canada. Obesity statistics in Canada. Ottawa (ON): Public Health Agency of Canada; 2024.
3. Blouin C. L'obésité et l'embonpoint: quels sont les impacts économiques au Québec ? Québec (QC). Institut national de santé publique du Québec; 2016.
4. Obesity Canada. Cost of inaction in treating obesity. <https://obesitycanada.ca/news/cost-of-inaction-in-treating-obesity/>. Accessed 16 Jul 2025.
5. World Obesity Federation. The economic impact of overweight & obesity in 2020 and 2060: 2nd edition with estimates for 161 countries. World Obesity Federation; 2022.
6. Rubino F, Cummings DE, Eckel RH, Cohen RV, Wilding JPH, Brown WA, et al. Definition and diagnostic criteria of clinical obesity. *Lancet Diabetes Endocrinol.* 2025;13(3):221–62.
7. Institute for Clinical Systems Improvement. Going beyond clinical walls: solving complex problems. 2014. https://www.icsi.org/wp-content/uploads/2019/08/1.SolvingComplexProblems_BeyondClinicalWalls.pdf. Accessed 10 Mar 2025.
8. World Health Organization. Ottawa Charter for Health Promotion. Geneva: World Health Organization; 1986.
9. World Health Organization. Health in All Policies: Helsinki statement. Framework for country action. Geneva: World Health Organization; 2014.
10. World Health Organization. Public Health Agency of Canada. Health equity through intersectoral action: an analysis of 18 country case studies. Ottawa (ON): Public Health Agency of Canada; 2008.
11. Gupta N, Bombak A, Foroughi I, Riediger N. Discrimination in the health care system among higher-weight adults: evidence from a Canadian national cross-sectional survey. *Health Promot Chronic Dis Prev Can.* 2020;40(11–12):329–35.
12. Obesity Canada. La stigmatisation, la discrimination et les préjugés liés au poids. <https://obesitycanada.ca/fr/pour-les-patients/prejuges-poids/>. Accessed 16 Jul 2025.

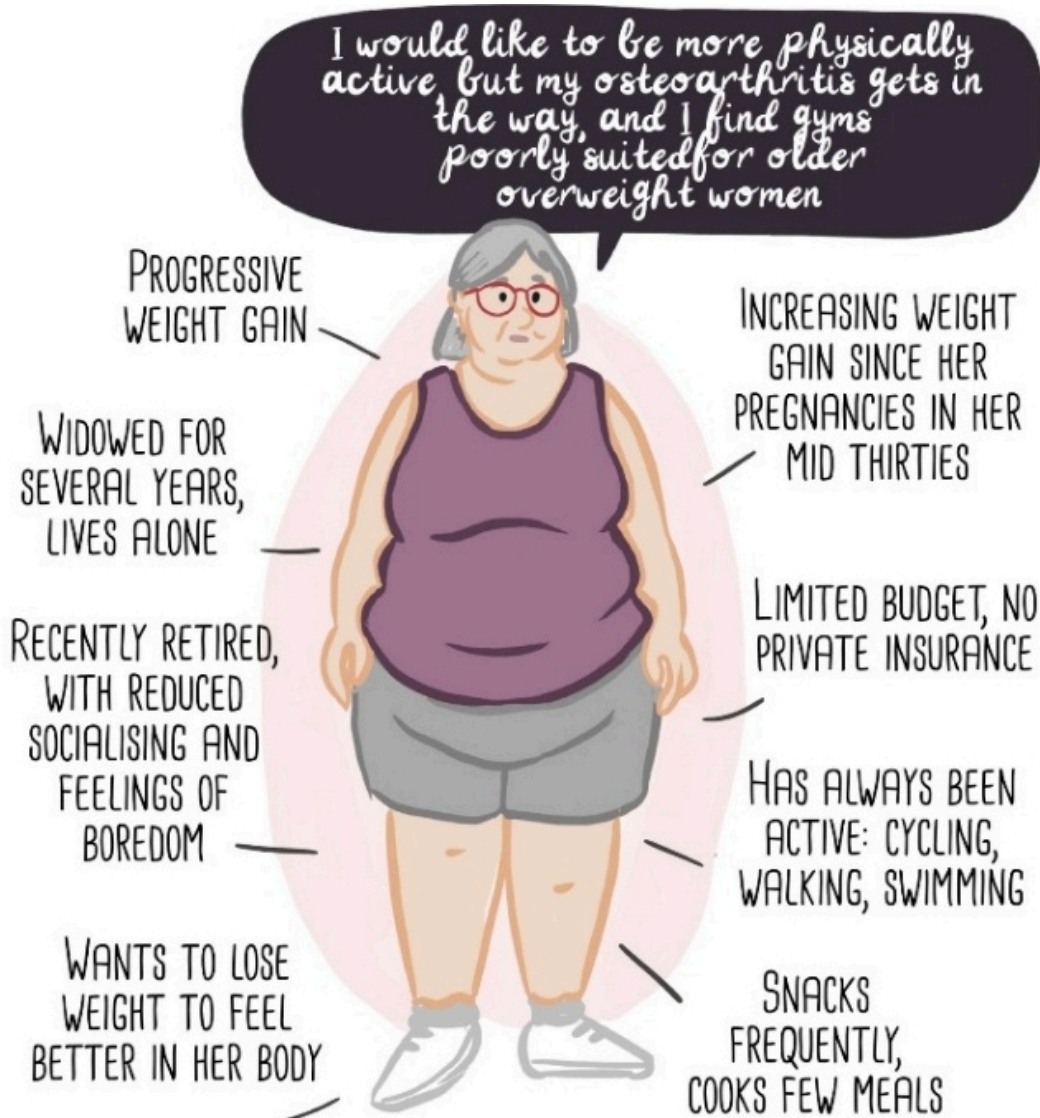
13. Sutin AR, Stephan Y, Terracciano A. Weight discrimination and risk of mortality. *Psychol Sci*. 2015;26(11):1803–11.
14. Wu YK, Berry DC. Impact of weight stigma on physiological and psychological health outcomes for overweight and obese adults: a systematic review. *J Adv Nurs*. 2018;74(5):1030–42.
15. Salas XR, Forhan M, Caulfield T, Sharma AM, Raine K. A critical analysis of obesity prevention policies and strategies. *Can J Public Health*. 2017;108:5–6.
16. Wilson L, Lowe T. *The Learning Communities Handbook: collective improvement in complex environments*. Newcastle: Newcastle University; 2018.
<https://www.humanlearning.systems/uploads/The-Learning-Communities-Handbook.pdf>. Accessed 18 Feb 2025.
17. Foley T, Vale L. A framework for understanding, designing, developing and evaluating learning health systems. *Learn Health Syst*. 2023;7(1).
18. Vargas C, Whelan J, Brimblecombe J, Allender S. Co-creation, co-design and co-production for public health: a perspective on definitions and distinctions. *Public Health Res Pract*. 2022;32(2).
19. Fonds de recherche du Québec. Co-construction d’une intervention de COLLABoration INTERsectorielle pour soutenir le parcours de vie des personnes qui vivent avec l’obésité et améliorer leur santé physique et mentale: l’intervention COLLAB-INTER-360-Obésité.
<https://frq.gouv.qc.ca/projet/co-construction-dune-intervention-de-collaboration-intersectorielle-pour-soutenir-le-parcours-de-vie-des-personnes-qui-vivent-avec-lobesite-et-ameliorer-leur-sante-physique-et-mental/>. Accessed 10 Aug 2026.
20. Duchaine C, Montminy J, Niyigena C, Paquet-Gagnon PA, Veilleux S. 4e Caractérisation des communautés locales de Chaudière-Appalaches: portrait de la MRC de Montmagny. Sainte-Marie (QC): Centre intégré de santé et de services sociaux de Chaudière-Appalaches; 2025.
21. Layani G, Schweitzer A, Yapi SM, Balasingam T, Berthelet L, Pierre M et al. Identifying characteristics of intersectoral health interventions between the primary care and community settings for people living with obesity: an environmental scan protocol. *BMJ Open*. 2025;15(3).
22. Layani G, Yapi SM, Schweitzer A, Balasingam T, Berthelet L, Bergeron F, et al. Intersectoral interventions for people living with obesity: a scoping review and bibliometric analysis. *BMC Public Health*. 2026;26(1):2249.
23. Creswell JW, Plano Clark VL. *Designing and conducting mixed methods research*. 3rd ed. Thousand Oaks (CA): SAGE; 2018.
24. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W et al. Process evaluation of complex interventions: Medical Research Council guidance. *BMJ*. 2015;350.
25. Baum F, MacDougall C, Smith D. Participatory action research. *J Epidemiol Community Health*. 2006;60(10):854–7.
26. Wallerstein NB, Duran B. Using community-based participatory research to address health disparities. *Health Promot Pract*. 2006;7(3):312–23.

27. Howard PN. Network ethnography and the hypermedia organization: new media, new organizations, new methods. *New Media Soc.* 2002;4(4):550–74.
28. Schensul SL, Schensul JJ, LeCompte MD. Exploratory or open-ended observation. *Essential ethnographic methods: observations, interviews, and questionnaires.* Walnut Creek (CA): AltaMira; 1999. pp. 91–120.
29. Bilodeau A, Galarneau M, Fournier M, Potvin L. L'Outil diagnostique de l'action en partenariat: fondements, élaboration et validation [Diagnostic tool for action in partnerships: foundation, development and validation]. *Can J Public Health.* 2011;102(4):298–302.
30. Abelson J, PPEET Research-Practice Collaborative. Public and Patient Engagement Evaluation Tool (PPEET), Version 2.0. Hamilton (ON). McMaster University; 2018.
31. Östlund U, Kidd L, Wengström Y, Rowa-Dewar N. Combining qualitative and quantitative research within mixed method research designs: a methodological review. *Int J Nurs Stud.* 2011;48(3):369–83.
32. Bilodeau A, Parent AA, Potvin L. Les collaborations intersectorielles et l'action en partenariat, comment ça marche ? Montréal (QC). Chaire de recherche du Canada Approches communautaires et inégalités de santé; 2019.
33. Tromp N, Vial S. Five components of social design: a unified framework to support research and practice. *Des J.* 2022;26(2):210–28.
34. Brown J, Isaacs D. World Café Community. *The World Café: shaping our futures through conversations that matter.* San Francisco (CA): Berrett-Koehler; 2005.
35. Burton AE, Owen A, Taylor J, Dean SE, Povey R. A World Cafe approach to exploring perspectives on diabetes stigma in the United Kingdom. *Health Expect.* 2024;27(5).
36. Recchia V, Dodaro A, De Marco E, Zizza A. A critical look to community wisdom: applying the World Cafe method to health promotion and prevention. *Int J Health Plann Manage.* 2022;37(Suppl 1):220–42.
37. Cooper A. *The inmates are running the asylum: why high-tech products drive us crazy and how to restore the sanity.* Indianapolis (IN): Sams; 1999.
38. Dominello A, Cheek C, Clay-Williams R. The use of personas to involve consumers in healthcare co-design: a scoping review. *BMC Health Serv Res.* 2025;25(1):649.
39. Salminen J, Guan KW, Jung SG, Jansen BJ. Use cases for design personas: a systematic review and new frontiers. In: *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22).* New York (NY): Association for Computing Machinery; 2022. Article 543. pp. 1–21.
40. Birt L, Scott S, Cavers D, Campbell C, Walter F. Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qual Health Res.* 2016;26(13):1802–11.
41. Creswell JW, Miller DL. Determining validity in qualitative inquiry. *Theory Pract.* 2000;39(3):124–30.
42. Lincoln YS, Guba EG. *Naturalistic inquiry.* Beverly Hills (CA): Sage; 1985.

43. Godet M. Creating futures: scenario planning as a strategic management tool. 2nd ed. London: Economica; 2001.
44. Iwaniec D, Wiek A. Advancing sustainability visioning practice in planning—the General Plan Update in Phoenix, Arizona. *Plan Pract Res*. 2014;29(5):543–68.
45. Wiek A, Iwaniec D. Quality criteria for visions and visioning in sustainability science. *Sustain Sci*. 2014;9(4):497–512.
46. Carlsson-Kanyama A, Dreborg KH, Moll HC, Padovan D. Participative backcasting: a tool for involving stakeholders in local sustainability planning. *Futures*. 2008;40(1):34–46.
47. Quist J, Vergragt P. Past and future backcasting: the shift of stakeholder participation and a proposal for a methodological framework. *Futures*. 2006;38(9):1027–45.
48. Institut du Nouveau Monde. Charte de participation. <https://inm.qc.ca/charte-de-participation/>. Accessed 3 Feb 2025.
49. Association pour la santé publique du Québec. Guide for using weight-inclusive and non-stigmatizing language. Positive Weight-Related Communications Toolkit. Montréal (QC): Association pour la santé publique du Québec; 2023.
50. Biernacki P, Waldorf D. Snowball sampling: problems and techniques of chain referral sampling. *Sociol Methods Res*. 1981;10(2):141–63.
51. Bilodeau A, Galarneau M, Fournier M, Potvin L, Sénécal G, Bernier J. Outil diagnostique de l'action en partenariat. Montréal (QC). Chaire de recherche du Canada Approches communautaires et inégalités de santé; 2014.
52. Google LLC. Jan. Google Forms. <https://docs.google.com/forms/>. Accessed 7 2026.
53. Microsoft Corporation. Microsoft Teams. <https://www.microsoft.com/microsoft-teams/>. Accessed 9 Jan 2026.
54. Ritchie J, Spencer L, O'Connor W. Carrying out qualitative analysis. In: Ritchie J, Lewis J, editors. *Qualitative research practice: a guide for social science students and researchers*. London: Sage; 2003. pp. 219–62.
55. QSR International Pty Ltd. NVivo (Version 14) [computer software]. Burlington (MA): QSR International Pty Ltd; 2023.
56. DeepL SE. DeepL Translator. <https://www.deepl.com/translator>. Accessed 13 Jul 2026.
57. Microsoft Corporation. Microsoft Excel. <https://www.microsoft.com/microsoft-365/excel>. Accessed 7 Jan 2026.
58. Bisson M, Aubrey-Bassler K, Chouinard MC, Doucet S, Ramsden VR, Dumont-Samson O, et al. Patient engagement in health implementation research: a logic model. *Health Expect*. 2023;26(5):1854–62.
59. Jagosh J, Bush PL, Salsberg J, Macaulay AC, Greenhalgh T, Wong G, et al. A realist evaluation of community-based participatory research: partnership synergy, trust building and related ripple effects. *BMC Public Health*. 2015;15:725.

60. Rubino F, Puhl RM, Cummings DE, Eckel RH, Ryan DH, Mechanick JI, et al. Joint international consensus statement for ending stigma of obesity. *Nat Med.* 2020;26(4):485–97.
61. Healy M, Richard A, Kidia K. How to reduce stigma and bias in clinical communication: a narrative review. *J Gen Intern Med.* 2022;37(10):2533–40.
62. Valaitis R, Longaphy J, Ploeg J, Agarwal G, Oliver D, Nair K, et al. Health TAPESTRY: co-designing interprofessional primary care programs for older adults using the persona-scenario method. *BMC Fam Pract.* 2019;20(1):122.
63. Dominello A, Lu S, De Los Santos A, Murphy M, Clay-Williams R, Cheek C. There was a light bulb moment: using persona dyads to empathise, explore and develop person-centred solutions in mental health service co-design. *Health Expect.* 2026;29(4).
64. Star SL. This is not a boundary object: reflections on the origin of a concept. *Sci Technol Hum Values.* 2010;35(5):601–17.
65. Alderwick H, Hutchings A, Briggs A, Mays N. The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health.* 2021;21(1):753.
66. Super S, Klerkx LWA, Hermens N, Koelen MA. A multilevel transition perspective on embedding intersectoral action in local health policies. *Health Promot Int.* 2021;36(4):1050–61.
67. Bernstein SL, Weiss J, Curry L. Visualizing implementation: contextual and organizational support mapping of stakeholders (COSMOS). *Implement Sci Commun.* 2020;1:48.
68. Corbin JH, Jones J, Barry MM. What makes intersectoral partnerships for health promotion work? A review of the international literature. *Health Promot Int.* 2018;33(1):4–26.
69. Grootjans SJM, Stijnen MMN, Kroese MEAL, Ruwaard D, Jansen MWJ. Collaborative governance at the start of an integrated community approach: a case study. *BMC Public Health.* 2022;22(1):1013.

Figures



JOHANNE
68-YEAR-OLD WOMAN



Figure 1

Example of a persona used during the second co-design workshop.

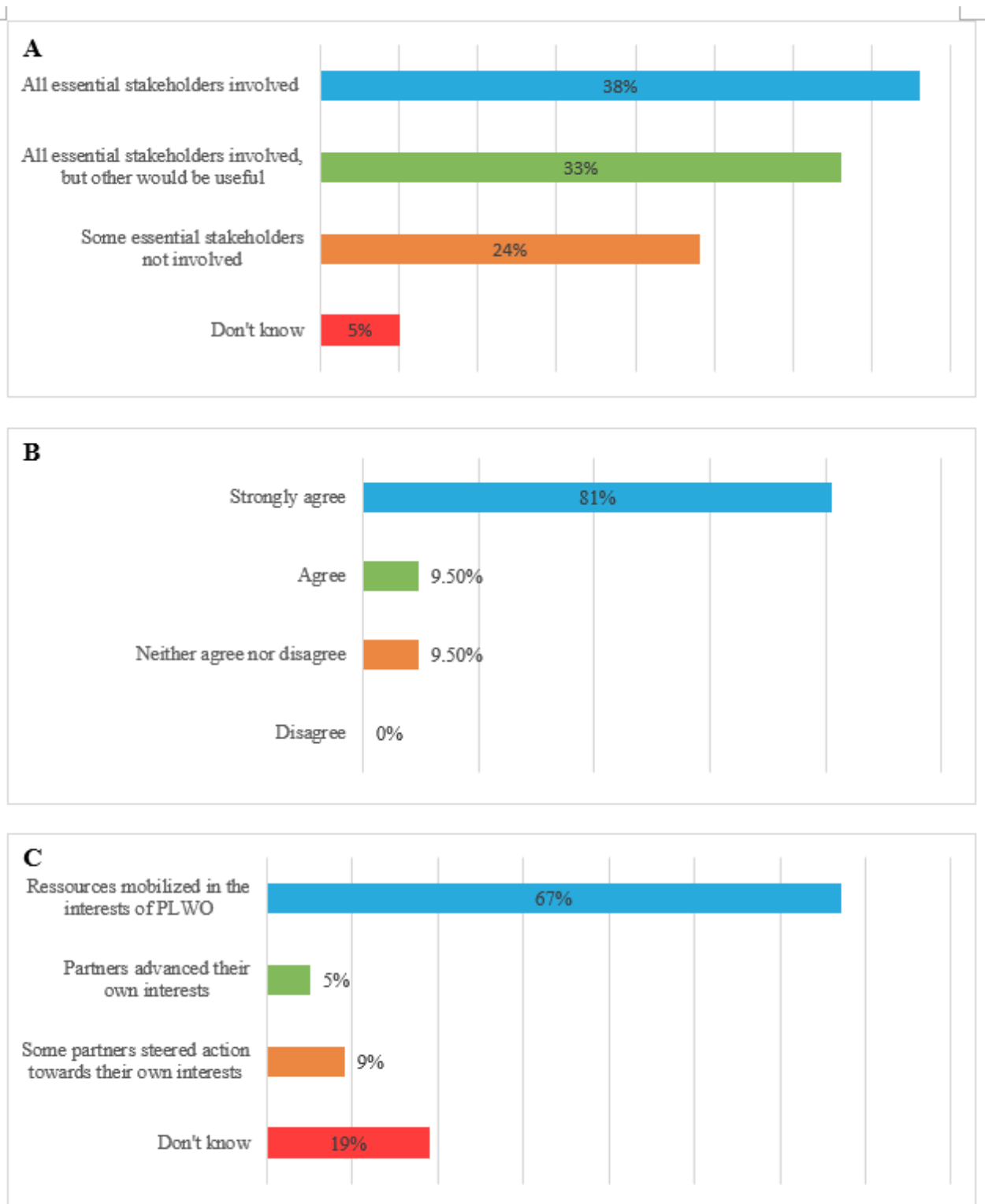


Figure 2

Participant perceptions of partnership conditions. Panel A shows perceived stakeholder involvement; Panel B shows agreement that diverse viewpoints were represented during the workshops; Panel C shows perceived alignment of partners' interests. Values are percentages with counts in parentheses (n = 21). PLWO, people living with obesity.

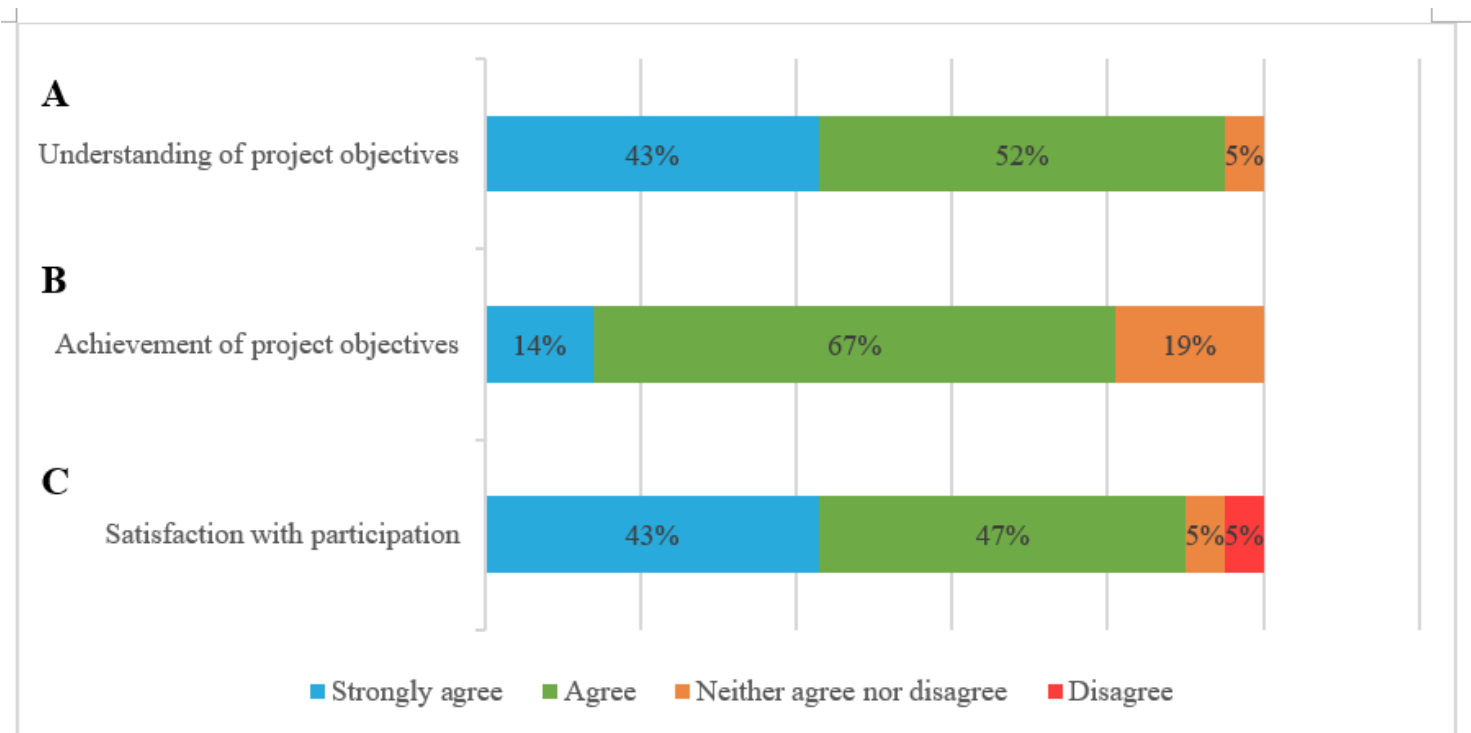


Figure 3

Participant-reported project experience. Panel A shows participants’ understanding of the project objectives; Pane B shows perceived achievement of the objectives; and Panel C shows satisfaction with participation. Values are percentages with counts in parentheses (n = 21).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Additionalfile1Personasworkshop2.pdf](#)
- [Additionalfile2Observationgrid.pdf](#)
- [Additionalfile3SelfEvaluationToolforActioninPartnership.pdf](#)
- [Additionalfile4PPEETparticipantquestionnaire.pdf](#)