

*Supplementary Material*

<b>Name and Description and Frequency of use</b>
<p><b>Participation – assessed in 26 studies</b></p> <p>Twenty-six studies assessed participation as part of their process evaluation, including the extent to which individuals or groups who are the target of the intervention engage with and participate in the co-creation process and/or intervention's implementation. Studies assessed the nature and degree of participation (1–4), and more specifically, whether it is voluntary, i.e. the extent to which there was a voluntary shift of responsibilities from providers to users (4) or equitable, ensuring all experiences are listened to, respected and represented at the table (5–8). Some assessed the extent to which there is continued or early engagement of communities throughout the process (1,5,9,10), including whether the objectives were set out and agreed by stakeholders at the start of the process (5), whether they had the chance and time to discuss and continuously revise the action plans (7,11) or whether participants agreed they were targeting the most important problems in the intervention (11,12).</p> <p>Studies also specifically measured the participants' involvement in decision-making (9), participants' feelings regarding the transparency of the process (9) occurrence of joint actions to meet community needs (13), the extent to which participants feel joint ownership (14) or shared responsibility for the intervention (15). Studies also assessed the perspectives of participants on the process (15,16) and, specifically, as to whether they have felt involved in the intervention (14), have established a trustful and open relationship with the working team (5,17) and how they perceived the impact or accomplishment of the engagement process (18). Clark et al. (19) assessed the value of knowledge of exchange while participating. Den Broeder et al. (20) looked at perceived factors facilitating or hindering the development of consensus and perceptions of the level of perceived consensus and actual consensus.</p> <p>Other studies evaluated the benefits and barriers (18,21,22) and implementation determinants related to the engagement process (3). Kelly et al. (1) focused on assessing the degree to which the communicative problematics of participation have been identified and dealt with in a project. Dennehy et al. (23) used Lundy's Model of Participation (24), to operationalise participation, focusing on the evaluation of perceptions related to the creation of an inclusive and safe space for children, facilitation, extent to which their views are listened to and acted upon.</p>
<p><b>Context – assessed in 22 studies</b></p> <p>Twenty-two studies reported an assessment of context as part of their process evaluation examining the broader social, cultural, economic, and political factors impacting the success or failure of the intervention in a specific context.</p> <p>Studies mostly evaluated the contextual factors that might impact or have impacted the intervention planning and implementation (11,25–28). However, there is a wide range of approaches to the definition of context that impact the translatability of the findings. Reeve et al. (29) assessed context as the larger social, political, and economic environment that may influence the implementation of an intervention. Igel et al. (30) included the evaluation of existing social, health, and environmental issues, while Schelvis et al. (31) explored the organisational and the environmental characteristics that affect the intervention. Tolma et al. (32) reviewed aspects related to the larger social, political, and economic environment and Gensby et al. (33) highlighted the</p>

## Supplementary Material

importance of considering the political-administrative context in which rehabilitation programs are practised. Robertson et al. (34) focused on broader community and environmental factors, such as socioeconomic considerations and community participation.

Studies explored implementation barriers and enablers (5,32,35–37), some focusing specifically on existing organisational structures, professional values or socio-political context that enable successful implementation (38,39), environmental factors (7), resources available (34,40) or events that occurred and influenced the content of the execution of the action plan (14). Beckerman-Hsu et al. (41), also specifically looked at moderators and the extent to which their role impacts implementation.

Authors have also mapped the characteristics and distribution of a specific population or health issue in a particular geographical area. Authors identified, analysed and considered the systematic representation of relevant stakeholders (5,39), aimed to clarify context, processes and activities (39), to understand the community (17) and to identify the contextual and procedural drivers of any wanted change (42).

#### **Experience – assessed in 16 studies**

Sixteen studies evaluated the experience of participants and assessed the subjective perception of individuals or groups who participated in the co-creation process and/or intervention implementation. The majority of the studies (48,54–59) assessed overall experience and involvement with the implemented intervention and actions, while others (31,55,60) evaluated how the participants specifically experienced the participatory process, or the coordination and collaboration in the process (59).

#### **Impact – assessed in 16 studies**

Sixteen studies assessed impact-related measures related to the extent to which the intervention had achieved one or more of its desired outcome(s) and its overall impact. This included evaluating the impact of the intervention on the collaborative and equitable involvement of its members (43), patient health and well-being (44), employee engagement and participation in work (45), line manager attitudes and actions (31), and personal impact on advisory group members (23).

Reeve et al. (29) evaluated patients' perceptions of the overall impact they perceived as a result of taking part in the intervention. Heggdal et al. (44) specifically reported on whether the intervention had the intended effect on patient health and well-being and whether the intervention had prompted individuals to be more active or had led to changes in their health behaviours (12,16,31).

Chrisman et al. (13) assessed the concrete achievements of the intervention, such as the number of publications, programs, evaluations, and grants that have been produced. Others have evaluated the institutional and organisational changes taking place among and beyond the group of participants (31,42,45) and outcomes that were a result of the engagement process between several parties involved (3,46,47).

Some studies focused on evaluating mechanisms of impact and examined how the intervention produced its intended outcomes. Some studies aimed to identify the specific causal mechanisms or pathways that linked the intervention to the observed changes in health-related behaviours, health outcomes, or other targeted outcomes (25,30) and one study specifically looked at factors and mechanisms which contributed to citizen participation and intersectoral collaboration (48).

#### **Satisfaction – assessed in 14 studies**

Fourteen studies assessed the level of satisfaction among the individuals or populations who received or participated in a public health intervention. The evaluation of satisfaction was assessed through the overall

<p>intervention, its design, and implementation, partnership, research process, products, team building process, and dialogues, as well as the progress of the co-creation group.</p> <p>Satisfaction was evaluated in various aspects of the intervention, such as the overall intervention (14,16,26,43,49,50), design and implementation (50) and more specifically, the partnership (43), the research process (43), products (43), or team building process (50) and dialogue (51) and the progress of the co-creation group (16). Some studies assessed satisfaction with specific stages of the process, including satisfaction with the needs assessment phase and the developed action plan (14). Lelie et al. (15) registered satisfaction with the appropriateness of tools and materials, intervention activities and intervention approach. Schelvis et al. (31) aimed to capture satisfaction levels with the participatory process.</p>
<p><b>Fidelity – assessed in 13 studies</b></p>
<p>Fidelity was assessed in thirteen studies and refers to the process of measuring and assessing the extent to which an intervention was delivered as intended, according to the original program design or protocol. Studies evaluated fidelity by determining whether the intervention was implemented consistently and faithfully across different settings and to identify any variations or adaptations that may have been made during implementation (14,25–28,31–33,47,52–54).</p>
<p><b>Reach – assessed in 11 studies</b></p>
<p>Reach, was assessed within process evaluation by eleven studies, assessing the extent to which a program, intervention, or campaign had successfully reached its intended audience or target population. The purpose of evaluating reach was to determine whether the program had effectively reached the people who it was designed to serve or influence (14,15,26–29,31,32,35,53,55).</p>
<p><b>Recruitment – assessed in 8 studies</b></p>
<p>Eight studies evaluated recruitment and referred to the process of assessing the effectiveness of a recruitment strategy and its outcomes. One aspect of evaluating recruitment was assessing the procedures used to interest workers and participants and identifying reasons for non-participation (31). Two studies (27,46) explored potential barriers to participation and how to improve recruitment strategies while others (4,26,28,32) evaluated the effectiveness of recruitment strategies at the individual, organisational, or community levels. As part of recruitment, three studies reported on the characteristics of individuals who participated in the intervention (4,33,56).</p>
<p><b>Dose delivered– assessed in 7 studies</b></p>
<p>Six studies assessed the dose delivered by referring to the extent to which the intervention components or services were delivered as intended. The majority of studies (26–29,32,53) sought to understand to what extent the intervention components were delivered. In Schelvis et al. (31), facilitators reflected on how many steps of the participatory process were delivered by the facilitator.</p>
<p><b>Readiness for change – assessed in 6 studies</b></p>
<p>Six studies assessed readiness for change and looked at the degree to which individuals or organisations were prepared to adopt and implement new interventions or changes in behaviour (14,15,31,39,53,57).</p>
<p><b>Delivery – assessed in 10 studies</b></p>
<p>Ten studies looked at how closely the intervention was implemented according to the intended plan (25,35,55) and received by the participants as intended (25,27). Studies investigated intervention delivery (58) and quality of the intervention delivery (41) and aimed to detect whether there have been changes in program delivery during the intervention period (33). Some authors focused on assessing the degree to which the</p>

## Supplementary Material

activities were implemented as intended and achieved the desired outcomes (21,33,46,56). Schelvis et al. (14) explored whether the action plan was implemented by implementors in the way it was intended by the delivery team while Svartengren et al. (45) looked at delivery by assessing specifically the extent to which the intervention was implemented as intended by the facilitators.

**Empowerment - assessed in 5 studies**

Five authors included an evaluation of empowerment as part of their process evaluation and referred to assessing the extent to which an intervention had achieved its goal of empowering individuals or communities.

Anselma et al. (59) focused on how the involvement of children in decision-making and community change influenced their health behaviour and empowerment while Poland et al. (8) planned to evaluate the ability of the project team to provide an empowering environment for youth to accomplish goals. Kteily-Haw et al. (60) assessed the extent to which knowledge was acquired about the subject matter and the personal growth that derived from engagement in the process. Nomura et al. (61) assessed empowerment at the individual, community and group levels. Chrisman et al.'s (62) assessment of empowerment included the community's ability to understand and control social forces for improvement and finds the group's belief in the capability to succeed in future actions to be the indicator of it.

**Motivation - assessed in 5 studies**

Five studies assessed underlying motivations of individuals for engaging in various activities. Most studies looked at motivations for engagement (4,16,23). Svartengren & Helmann et al. (45) also identified incentives that influenced the decision to join the project while Kelly et al. (63) assessed reasons for members to stay engaged in the process throughout.

**Dose received - assessed in 5 studies**

Five studies evaluated the extent to which the target population received the intended components of the intervention. Yearly et al. (27) assessed the extent to which participants were engaged in the intervention and both Yearly et al. (27) and Dean et al. (26) extended to which sessions were completed and received by participants.

Wilcox et al. (28) explored to what extent training and follow up activities prepare participants to carry out the post-intervention activities. Tolma et al. (32) plan to evaluate dose delivered as the extent to which the participants engaged with the intervention, while Reeve et al. (29) gathered participants' perceptions of service received.

**Communication - assessed in 5**

The evaluation of communication in selected studies included the assessment of whether information about an intervention or project has been effectively conveyed to the intended audience. It involved measuring how well the message was understood and received by the recipients, as well as identifying potential barriers or gaps in communication.

Schelvis et al. (31) focused on the manner in which the project was communicated to the participants, including specifically assessing whether the project was effectively communicated to employees at the start, as well as whether the results of each step were communicated to the participants. Hatfield et al. (57) set to understand the extent to which the message successfully reached diverse community segments, while Gibbons et al. (18) assessed asks participants their perceptions regarding the best means of increasing awareness of the project. Harper et al. (64) focused on specifically monitoring program promotion and outreach as part of their process

evaluation analysis and Ham et al. (9) degree to which information about the intervention was made available to stakeholders and the public (9).
<b>Support – assessed in 4 studies</b>
Four studies assessed the level of assistance and guidance provided by management and other stakeholders to ensure the successful implementation of an intervention or process. Studies evaluated the existence of a supportive environment (65), the intervention support activities provided (56), and support received within the organisational settings, by the managerial (53), senior, and middle management support (14).
<b>Capacity building – assessed in 4 studies</b>
Four studies evaluated the extent to which a public health intervention has built the capacity of individuals, organisations, or communities to deliver or sustain the intervention. Capacity building was referred to as the capacity increase overtime and empowerment (6), skill enhancement (64) and processes in place with the intention to train staff (7,39).
<b>Perceptions – assessed in 4 studies</b>
Four studies examined how various stakeholders perceived the intervention, including participants, providers, and other key individuals involved in the implementation and delivery of the intervention (14,31,37,60).
<b>Maintenance – assessed in 4 studies</b>
Four studies assessed the extent to which the intervention outcomes and/or collaborative relationships formed during the intervention implementation were maintained. Some authors focused on an evaluation of whether, and if so, to what degree, the program components were followed (55,58), including the log of workshop attendance (46), and whether the partnership formed during the program was sustained over time (35). Tolma et al. (32) focused on asking the following questions: a) what do we do to keep participants involved?; b) what makes people keep coming to the meetings? and c) what do we do that get people at each meeting?.
<b>Facilitation - assessed in 4 studies</b>
Four studies looked at evaluating the nature, type and quality of facilitation (5,9,19,41).
<b>Adoption – assessed in 4 studies</b>
With the evaluation of adaptation, studies assessed the extent to which individuals, organisations, or communities decided to adopt and implement a new behaviour or practice promoted by the intervention (35,55,56,58).
<b>Adherence – assessed in 3 studies</b>
Evaluation of adherence in public health interventions was intended by some authors as the adherence to the original plan, by others as adherence to health advice and solution and adherence to guiding principles. Beckerman-Hs et al. (41) looked at adherence levels to the elements of content, duration, frequency and reach, and more specifically adherence to guidelines, the extent to which components were fulfilled, balanced representation, meetings structure, and community member commitment to sustain the intervention. Falletta et al. (43) explored the extent to which the program adhered to referenced principles of community-based research approaches (CBPR) while Cedstrand et al. (53) aimed to investigate barriers and facilitators related to participant's adherence.
<b>Feasibility – assessed in 3 studies</b>

## Supplementary Material

<p>Studies assessed the assessment of the practicality and potential for successful implementation of an intervention in a particular setting (66,67), while Berge et al. (50), looked specifically at whether the feasibility of CBPR methods to carry out the intended activities.</p>
<p><b>Exposure - assessed in 3 studies</b></p>
<p>Three studies evaluated the extent to which the target population is exposed to the components of the intervention (14,15,31).</p>
<p><b>Knowledge integration and evidence - assessed in 3 studies</b></p>
<p>Knowledge had been assessed as part of their process evaluation by Cameron et al. (5), which explored the level to which there has been an integration of local and scientific knowledge and by Greer et al. (65) looking at the origin and nature of the underlying constructs of evidence. Greer et al. (65) aimed to understand how evidence informed the protocol development, analysis, and outputs of the intervention and assessing the evidence of progress or opportunities for improvement, such as knowledge translation and sharing of findings, peer-facilitated data collection, collaborative data analysis, and diverse knowledge translation.</p>
<p><b>Partnership - assessed in 3 studies</b></p>
<p>The evaluation of partnership involved assessing the effectiveness of collaborations between organisations, agencies, and individuals in achieving common goals (36,43) or assessing the social bonds and networks of interpersonal and interinstitutional links among stakeholders (62).</p>
<p><b>Resources - assessed in 2 studies</b></p>
<p>The evaluation of resources in studies involved assessing the adequacy and availability of resources required for implementing the intervention. Schelvis et al. (14) focused on whether the organisation had the capacity to implement the action plan while Cameron et al. (5) wonder whether the resources were adequate to enable all participants to take part in the program activities.</p>
<p><b>Future organisation - assessed in 2 studies</b></p>
<p>Evaluation of the future organisation referred to the studies' intention to collect suggestions for the future organisation of the intervention (16) and future projects or issues on which the collaboration should focus (18).</p>
<p><b>Policy-change - assessed in 2 studies</b></p>
<p>The assessment of policy/procedure change involved the evaluation of the impact of changes to policies and procedures (13,65).</p>
<p><b>Methods - assessed in 2 studies</b></p>
<p>In selected studies, the evaluation of methods involved assessing the appropriateness and effectiveness of the methods used to identify the target population (5,65).</p>
<p><b>Expectations - assessed in 2 studies</b></p>
<p>Two studies evaluated the expectations of stakeholders regarding the intervention and the extent to which these have been met (2) and in regards to participation in the co-creation group (16).</p>
<p><b>Acceptability - assessed in 2 studies</b></p>

Two studies evaluated acceptability evaluation, referring to the extent to which the intervention was perceived as suitable, agreeable, and satisfactory by the target population or stakeholders (58,66).

**Retention - assessed in 2 studies**

Evaluation of retention involved assessing the factors that influence the continued participation of stakeholders in the planning process (32), including the log of workshop attendance (46).