

Supplementary Material 2

Mechanisms of Action in Group-based Interventions (MAGI)

Coding Schema

This is Supplementary Material 2 to accompany the following study report:

Borek AJ, Smith JR, Greaves JC, Gillison F, Tarrant M, Morgan-Trimmer S, McCabe Rose, & Abraham C. Developing and applying a framework to identify and understand “Mechanisms of Action in Group-based interventions” (MAGI) for changing health behaviour: A mixed-methods study. *Efficacy and Mechanism Evaluation*

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This document includes:

1. The MAGI framework table (as reported in *Chapter 2* of the report, with hyperlinks to coding instructions for each of the six overarching categories)
2. Definitions and coding instructions of the framework categories and sub-categories.

The coding schema was derived from the MAGI framework (for description of methods see *Chapter 3* of the report). The coding schema differs slightly from the framework. In particular, coding instructions were not provided for some categories that are unlikely to be found in session transcripts (e.g. the pre-set “1. Group intervention design” elements) and that are unlikely to be identifiable in the single session transcripts (e.g. group development, social facilitation). Moreover, lower-level sub-categories were included to allow for more precise coding of transcripts.

The coding schema can be used to identify the processes and techniques included in the MAGI framework in the transcripts of group sessions. Other researchers may use it to code session transcripts, and may adapt it to their own data and needs. For example, they could use parts of the framework/coding schema that are most relevant to their research questions and focus, and/or develop new sub-categories specific and relevant to the type of groups and data.

General coding guidelines

- Before using the coding schema, familiarise yourself with both the MAGI framework (see *Chapter 2* and *Supplementary Material 1*) and the coding instructions.
- The same parts of the transcript can be coded using multiple codes, and excerpts can be as long or short as needed to illustrate the code. Some codes are more likely to be applied to longer excerpts and sequences of talk (e.g. “providing/exchanging information”), whereas others might be applied to a sentence or even just a word (e.g. “providing praise”).
- Where possible code at the sub-code level. If you are unsure, or an excerpt does not clearly fit with any sub-codes, it can be helpful to use a higher-level code, and then consider whether a new sub-code might be relevant.
- “2. Facilitation techniques” refer to practical strategies used by facilitators so only use these codes to code facilitators’ talk. Other codes can be used regardless of who talks (either group facilitators or participants).
- Code both explicit examples (i.e. when participants or facilitators explicitly talk about something or do something, e.g., talk about sharing experiences or share experiences) and interpretations of processes (i.e. when you think that something is an example of a process, e.g., when social comparisons might be occurring even though they are not explicitly talked about). Some codes are more likely to be explicit, others interpretative, and some might be both; this is indicated in the coding instructions alongside the definitions included below. If this is not stated, the code is most likely to be applied to explicit examples. When using codes interpretatively (i.e. interpreting interaction as a potential example of, or opportunity for, a process), it may be helpful to mark the excerpts as coded interpretatively and discuss the interpretations with others.
- You can also identify and code examples of “good practice”, for example, when facilitators managed a situation particularly well, and examples of “bad practices” or potentially “missed opportunities”, for example, if you think that the facilitators could have or should have managed a situation differently.
- Once you finish coding a transcript, it is helpful to check the coding definitions again and the transcript for any potentially missed examples of processes or strategies.

Abbreviations used in this document:

FAC – group facilitator; GB-BCI – group-based behaviour change intervention; Ps – group participants.

Mechanisms of Action in Group-based Interventions MAGI framework

1. Group intervention design	2. Facilitation techniques					
	2.1. Techniques to start the group/session	2.2. Generic facilitation techniques	2.3. Techniques to facilitate group dynamics	2.4. Techniques to facilitate inter-personal change processes	2.5. Techniques to facilitate intra-personal change processes	2.6. Techniques to end the group/session
1.1. Intended changes & processes 1.2. Purpose & benefits of using group format 1.3. Group characteristics 1.4. Participant selection & group composition 1.5. Facilitator selection & training 1.6. Intervention content 1.7. Setting & venue 1.8. Group set-up & delivery	3. Group dynamic & development processes					
	3.1. Group goals		3.4. Group climate		3.7. Group norms	
	3.2. Identifying with/as a group		3.5. Group engagement		3.8. Group roles	
	3.3. Group cohesion & attraction		3.6. Communication patterns		3.9. Group development	
	4. Inter-personal change processes			5. Intra-personal change processes & targets, e.g.:		
	4.1. Sharing experiences			5.1. Committing to attend		5.13. Developing, practising skills & behaviours
	4.2. Social learning			5.2. Developing understanding		5.14. Individual barriers & problem-solving
	4.3. Social influence			5.3. Self-presenting		5.15. Self-monitoring
	4.4. Agreeing, disagreeing, challenging			5.4. Normative beliefs		5.16. Individual-level feedback
	4.5. Social support			5.5. Attitudes		5.17. Developing self-insight
4.6. Social validation			5.6. Attributions		5.18. Identity shift	
4.7. Social identification			5.7. Cognitive dissonance		5.19. Using self-talk	
4.8. Social comparisons			5.8. Intervention outcome expectations		5.20. Associative learning	
4.9. Accountability to the group			5.9. Motivation		5.21. Forming habits	
4.10. Competition			5.10. Self-efficacy & personal control		5.22. Managing stress, emotions	
4.11. Cooperation			5.11. Setting goals			
4.12. Group problem-solving			5.12. Reviewing progress, goals			
4.13. Group-level feedback						
4.14. Social facilitation						
6. Facilitator and participant characteristics & contextual influences						
6.1. Facilitator characteristics			6.2. Participant characteristics		6.3. Other contextual influences	

Definitions & coding instructions

1. GROUP INTERVENTION DESIGN

Framework categories	Brief definitions	Coding instructions
1.1. Intended changes & processes	Changes and/or processes the intervention and the groups are designed to initiate, and how.	Code any references to what the group programme intends to achieve and how (e.g. programme aims/purpose, intended outcomes). This may overlap with ' 3.1. Group goals ' (if relevant, double code).
1.2. Purpose & benefits of using group format	Purpose or benefits of using a group-based delivery format.	Code any references to why groups are used or what general benefits they might have. Evaluations of the current group (rather than generic benefits of groups) code as ' 3.3.1. Reflecting on the group '.
1.3. Group characteristics	Characteristics of the group(s).	If possible – code under sub-codes; if unsure – code here.
1.3.1. Group size	Number of participants in the group.	Code any references to talk about group size (either as assigned or as present in the session), number of Ps attending or dropping out.
1.3.2. Process of becoming a group member	The process of becoming group members, e.g. Ps may be assigned to groups by FAC/researchers, or self-select a group (e.g. local group).	Code any references to talk about how Ps become / became group members.
1.3.3. Continuity of group membership	Whether participants remain in the same group throughout the programme or can change groups.	Code any references to talk about Ps changing groups, or attending a session(s) with another group.
1.3.4. Pre-set group norms/rules	Pre-planned group 'ground' rules for how the group is intended to work together.	Code references to FAC telling Ps 'ground' rules (pre-set rules for group work), as opposed to rules suggested by the group.
1.3.5. Pre-set group roles	Pre-planned, formal roles and/or responsibilities of group members, e.g. of a facilitator, co-facilitator, visiting expert, participant.	Code references to FAC introducing formal roles and responsibilities in the group, e.g. what FAC/Ps responsibilities are, visiting experts' roles.

Framework categories	Brief definitions	Coding instructions
1.3.6. Group presentation	How the group is presented to potential participants.	<i>(May not be relevant for coding transcripts, but may be useful for coding intervention materials).</i>
1.3.7. Incentives, rewards, payments	Use of incentives or rewards to encourage group attendance, performance of particular actions/behaviours, or achievement of certain outcomes.	Code references to any types of incentives or rewards for attendance or performance of health behaviours.
1.4. Participant selection & group composition	How the group is composed in terms of participants' characteristics.	If possible – code under sub-codes; if unsure – code here.
1.4.1. Participants' demographics	Participants' demographic characteristics (e.g. age, gender, ethnicity).	Code any references to, or indicators of, participants' demographic characteristics (e.g. retired). If Ps suggest identification with these categories, or with others in the group with similar characteristics, consider also coding ' 4.7. Social identification '.
1.4.2. Condition-related characteristics & needs	Participants' health or condition-related characteristics and/or needs.	Code any references to participants' reports of their health condition, including its impact on them and behaviour change. If Ps suggest identification with these categories, or with others in the group with similar characteristics, consider also coding ' 4.7. Social identification '.
1.4.3. Attendance of accompanying persons	Whether other accompanying persons and supporters (e.g. partners, family members, translators etc.) can attend the sessions with the participants.	Code any references to talk about accompanying persons.
1.5. Facilitator selection & training	Details related to pre-planned facilitators' characteristics and training.	If possible – code under sub-codes; if unsure – code here.
1.5.1. Number of facilitators	Number of facilitators delivering a group session.	<i>(May not be relevant for coding session transcripts).</i>

Framework categories	Brief definitions	Coding instructions
1.5.2. Continuity of facilitator to group	Whether the same or different facilitator(s) deliver different sessions to the same group.	<i>(May not be relevant for coding session transcripts).</i>
1.5.3. Professional background & skills	Facilitators' professional background (e.g. dietician), or whether they are lay/peer FACs, and their professional skills, expertise and competence.	Code any references to FAC professional background, experience, expertise or competence, e.g. FAC introducing themselves or Ps commenting on these aspects.
1.5.4. Personal characteristics & interpersonal skills	Facilitators' personal characteristics (e.g. age, gender) and interpersonal skills (e.g. communication skills, relatedness, empathy).	Code any references to FAC personal characteristics or interpersonal skills, e.g. Ps commenting on how FACs' personal qualities (e.g. being understanding, supportive).
1.5.5. Training	Training of facilitators to deliver the intervention and/or to facilitate groups.	<i>(May not be relevant for coding session transcripts).</i>
1.6. Intervention content	The content of the intervention and group sessions.	If possible – code under sub-codes; if unsure – code here.
1.6.1. Pre-session information & contact	Pre-session information about the programme and/or pre-session contact with the facilitators or researchers.	Code any references to pre-session information or contact (in person or through email/ phone) between Ps and FACs/ researchers.
1.6.2. Participant materials	Materials and/or tools for participants to use in the programme, e.g. participant booklet/manual, self-monitoring diary, pedometer.	Code any references to participant materials, e.g. when given out to Ps, when discussed or referred to.
1.6.3. Facilitator materials / delivery instructions	Materials and/or tools for facilitators to use when delivering the programme, e.g. facilitator manual, slides, flipcharts.	<i>(May not be relevant for coding session transcripts, but could be identified in manuals or session observations).</i>
1.6.4. Session content & sequencing of content	Content of the sessions in terms of themes or topics covered, and whether there is (or is not) a sequential progression of the content.	Code references to outlines of content of the sessions in the programme.
1.6.5. Group activities	Specific, structured, distinguishable group activities, with a specific start and end.	If possible – code under sub-codes; if unsure – code here. Don't code general, on-going group discussions. Multiple sub-

Framework categories	Brief definitions	Coding instructions
		codes below can be used together (e.g. sub-group + practical activity, whole group + discussion).
1.6.5.1. Whole group activities	Structured group activities in which a whole group takes part and interacts.	Code explicit, distinguishable beginnings of a whole group activity.
1.6.5.2. Sub-group activities	Structured group activities involving splitting participants into sub-groups or pairs.	Code explicit beginnings of sub-group activities.
1.6.5.3. Individual activities	Structured group activities in which individuals complete a task/activity individually.	Code explicit beginnings of an individually-based activity facilitated in the group.
1.6.5.4. Discussion-based activities	Activities based on group discussions facilitated by the FAC, either involving a whole group or sub-groups.	Code explicit beginnings/initiation of a group discussion.
1.6.5.5. Practical activities	Practical activities facilitated by the FAC, either involving a whole group or sub-groups; e.g. games, quizzes, ordering foods by sugar content, placing foods on the Eat Well plate board etc.	Code explicit beginnings of/instructions for practical group activities.
1.6.6. Other contact outside the group	Other, additional contact that participants have with the facilitator and/or with each other outside the group (e.g. between group sessions).	Code any references to talk about (or suggestions for) participants' contact outside/between sessions.
1.6.7. Access, signposting to expert advice, facilities, classes	Providing information on, or access to, additional expert advice (e.g. individual support, counselling), facilities (e.g. gym), classes (e.g. exercise, walking groups) or offered as part of, or in addition to, the intervention.	If possible – code under sub-codes; if unsure – code here.
1.6.7.1. Access to resources as part of the intervention	Providing access to additional resources (facilities, classes or additional expert advice) that are part of the intervention, for use alongside group sessions, e.g. access to a gym, vouchers for classes, individual counselling.	Code any references to additional facilities, classes or expert advice offered alongside group sessions, or after group sessions end, that are part of the intervention.

Framework categories	Brief definitions	Coding instructions
1.6.7.2. Signposting to external resources	Providing information on external resources (facilities, classes or expert advice) that may be available outside group sessions, not as part of the intervention.	Code references to providing/exchanging information on available external facilities, classes or expert advice that are not part of the intervention.
1.6.8. Take-away tasks	Take-away tasks for the participants to do between group sessions.	Code any references to take-away ('homework') tasks to do outside the sessions.
1.6.9. Post-group information & contact	Information about what happens (if anything), and about any contact, after the group sessions or the programme end.	Code any references to what happens after the programme ends (or after the core group sessions end).
1.7. Setting & venue	Type of the setting, venue characteristics, set up and accessibility.	Code any references to the setting and/or venue, e.g. Ps opinions about the venue or setting.
1.7.1. Setting type	Type of setting where group sessions take place, e.g. community, university.	<i>(May not be relevant for coding session transcripts.)</i>
1.7.2. Venue characteristics & set up	Characteristics of the venue where group sessions talk place, e.g. room set up.	<i>(May not be relevant for coding session transcripts.)</i>
1.7.3. Accessibility of the venue	How accessible the venue is for group participants, or any barriers to accessing the venue.	Code any references to talk about venue accessibility, e.g. Ps talk on how they get to the sessions.
1.8. Group set-up & delivery	Practical, pre-set elements of group set-up and delivery.	If possible – code under sub-codes; if unsure – code here.
1.8.1. Time structure of intervention	Time structure of the group programme, such as the number, frequency and length of group sessions, and programme duration.	Code any references to talk about time structure of the programme, frequency or length of sessions.
1.8.2. Time structure of group sessions	Time structure and format of the sessions, how time is allocated to different activities within sessions.	Code any references to talk about how the time is allocated in the sessions.
1.8.3. Tailing off of group contact / follow-up group sessions	Pre-planned reduction of frequency of group sessions, their termination, or any follow-up sessions (after the core sessions).	Code any references to terminating or tailing off of group sessions, or talk about follow-up sessions.

Framework categories	Brief definitions	Coding instructions
1.8.4. Facilitation / communication structure & style	Plans for how the interaction/ communication are organised in the session, and what the intended facilitation/ communication style is; e.g. FAC – Ps interaction, interactive sessions.	<i>(Refers to the intended design, so not relevant for coding session transcripts; it could be identified in the facilitation manuals. Use '3.6. Communication patterns' to code the structure & style of interaction / communication in the sessions.)</i>
1.8.5. Tailoring of intervention delivery	Degree of flexibility of session delivery and tailoring of intervention delivery to individuals or to the group.	Code examples of tailoring to individual (e.g. one-to-one advice in group sessions) and any evidence of tailoring to the group (e.g. FAC commenting on adapting the delivery script to the needs of the group).
1.8.6. Fidelity & adaptation	Degree to which the intervention and its key components were delivered as intended and/or as specified in the facilitator materials/ delivery instructions.	<i>(Assessing fidelity/adaptation would/can be only coded by comparison with the manual or a checklist of key intervention components, so cannot be coded using one category.)</i>

2. FACILITATION TECHNIQUES

Framework categories	Brief definitions / coding instructions
2.1. Techniques to start the group/session	Techniques or tasks for facilitators to use or complete at the beginning of a group (e.g. first session) and/or at the beginning of a session (especially if it is an open group that participants can join in any session). Code using sub-codes if possible.
2.1.1. Introducing people, ice-breaking	Facilitators and participants introducing themselves; it may also involve any ice-breaking activities.
2.1.2. Managing expectations	Managing, discussing participants' expectations of the group and the intervention.
2.1.3. Identifying / specifying & agreeing group goals	Identifying or specifying group goals, which the group agrees on; either a common goal for the group or individual goals that group participants have in common.
2.1.4. Prompting & facilitating group / social identification	Prompting and enhancing identification with the group and with each other.
2.1.5. Identifying / specifying & agreeing group rules	Identifying or specifying rules for how the group is going to work together, and agreeing on them.

Framework categories	Brief definitions / coding instructions
2.1.6. Negotiating & managing group roles, responsibilities	Developing, negotiating and managing group roles and responsibilities.
2.1.7. Establishing a positive group climate	Establishing a positive group climate, such that participants feel comfortable, safe, engaged, and the group has an intended ethos (e.g. of empathy and support). E.g. ensuring participants feel comfortable in the venue (e.g. having enough space), encouraging/promoting informal interaction, building rapport and making associations with each other and the facilitator (e.g. asking how people are, how their journey to the group was).
2.1.8. Explaining the intervention	Explaining what the intervention is about, and what it isn't, and how it is going to work.
2.1.9. Recapping any previous session(s)	Reviewing previous session(s) (if there were any), e.g. recapping key content covered in the previous session(s), checking understanding and correcting any misunderstanding.
2.1.10. Outlining the current session	Introducing and outlining the current session.
2.2. Generic facilitation techniques <i>For example:</i>	Generic techniques to facilitate group interaction, regardless of content or processes.
2.2.1. Encouraging participation	Explicitly encouraging participation or engagement of particular participants or groups of participants, or comments on (lack of) participation, e.g. when a group is silent.
2.2.2. Managing time/activities	Managing progression of group activities and discussions, managing available time (e.g. re-focusing on topic).
2.2.3. Checking understanding	Checking participants' understanding of the covered content.
2.3.4. Requesting elaboration	Asking participants to elaborate on or clarify something they said (probing).
2.3.5. Providing clarification	Providing clarification, or elaborating.
2.3.6. Directing a question back to the group	Asking if the group can answer a participant's question in the first instance (rather than the facilitator answering it).
2.3.7 Providing illustration	Providing concrete examples, visual or other illustrations that Ps can relate to; e.g. showing a pound of fat or amount of sugar in different foods.
2.3.8. Summarising	Summarising what participant(s) or facilitator(s) said.
2.3.9. Paraphrasing	Paraphrasing what participants said to draw out a point or highlight a key message.

Framework categories	Brief definitions / coding instructions
2.3.10. Referring to what participants said before	Referring specifically to something that Ps said earlier (e.g. earlier in the session or in previous sessions).
2.3.11. Reframing	Focusing on, or drawing out, the positive aspect of what participants say (e.g. during progress review); re-interpreting it as a positive.
2.3.12. Reinforcing	Highlighting the key messages or positive statements/ examples to support health behaviours or behaviour change.
2.3. Techniques to facilitate group dynamics	
<i>For example:</i>	
2.3.1. Identifying / referring to common, programme or individual goals	
2.3.2. Referring to the group as 'we'	
2.3.3. Referring to / distinguishing from other groups	
2.3.4. Presenting the group as attractive	
2.3.5. Reflecting on the positive aspects of the group	
2.3.6. Using names	
2.3.7. Using humour	
2.3.8. Providing opportunities for/ engaging in informal talk	
2.3.9. Encouraging / managing group interaction	
2.3.10. Discussing / reflecting on group engagement or intended interaction style	
2.3.11. Referring to / reinforcing group rules	
2.3.12. Addressing / managing disruptive, negative behaviour	
2.3.13. Prompting selection of informal group roles	
2.4. Techniques to facilitate inter-personal change processes	
For examples see <i>Chapter 3</i> in the study report.	
2.5. Techniques to facilitate intra-personal change processes	
For examples see <i>Chapter 3</i> in the study report.	
2.6. Techniques to end the session/group	Techniques, or tasks, to use or complete at the end of a group (e.g. last session) and/or at the end of a session (especially in on-going groups).
<i>For example:</i>	
2.6.1. Reviewing the session / intervention	Reviewing the content covered in the session or in the intervention (if it's the final session), e.g. discussion of covered content, messages, activities, checking/correcting any gaps in understanding.
2.6.2. Reviewing individual / group progress & providing feedback	Reviewing progress and providing feedback to individuals or the whole group at the end of the intervention.

Framework categories	Brief definitions / coding instructions
2.6.3. Planning for long-term & relapse prevention	Discussing and planning for long-term and relapse prevention at the end of the intervention to help participants maintain behaviour changes after the intervention ends.
2.6.4. Prompting practice of skills & habit formation	Prompting and promoting practice of health-related skills and behaviours, repetition and forming/maintaining health-promoting habits after the intervention ends.
2.6.5. Prompting social support & social connections outside group	Prompting and promoting social support and supportive social connections outside the group and after the intervention ends.
2.6.6. Signposting to expert advice, facilities	Sharing information about, and signposting participants to, expert advice, facilities, classes, or other resources outside the group/intervention that can be accessed after the group ends.
2.6.7. Explaining tailing off of group contact / follow-up group sessions	Explaining what (if anything) happens after the (core) group sessions end, e.g. tailing off of group contact, any follow-up, 'reunion' or participant-initiated group session(s).

3. GROUP DYNAMICS & DEVELOPMENT

Framework categories	Brief definitions	Coding instructions
3.1. Group goals	Individual goals/tasks that participants develop or agree on in the group (goals that they have <i>in common</i> or <i>common</i> goal(s) for the group).	Code references to individual goals for the group (e.g. overall what they want to achieve by attending the group) or group goals (e.g. what the group overall is intended to achieve). This may overlap with ' 1.1. Intended changes & processes '.
3.2. Identifying with/as a group	Perception of the group (in the intervention) as an unity, identifying oneself as a member of the group, perception of belonging to the group.	Code <i>interpretations</i> of interaction that might facilitate or indicate (presence or absence of) identifying with or as a member of the treatment group; e.g. references to feeling part of the group. It refers to membership in the treatment group, whereas ' 4.7. Social identification ' refers to identifying with other social identities/categories.
3.3. Group cohesion & attraction	Perceptions of group attractiveness and a bond that makes people want to become and remain group members;	Code <i>interpretations</i> of indications of group cohesion & attraction.

Framework categories	Brief definitions	Coding instructions
	individual's positive evaluation of the group.	
3.3.1. Reflecting on the group	Reflections about the group and how it works together, its positive or negative aspects, which might indicate perceiving the group as cohesive and attractive (or not).	Code references to reflecting on, or evaluating, the group and/or group dynamics; e.g. positive/negative aspects of how the group works, how helpful it is. Code here evaluations of the specific/current group, whereas discussions of general benefits of groups code as ' 1.2. Purpose/benefits of using group format '.
3.4. Group climate	Socio-emotional context of the group, group ethos or atmosphere.	Code <i>interpretations</i> of indications of group-specific climate / atmosphere.
3.4.1. Laughter, humour	Laughter and use of humour (indicating group climate).	Code <i>interpretations</i> of instances of humour or laughter that might be of importance to group dynamics (e.g. indicating climate/cohesion), or in-jokes (i.e. jokes based on common group knowledge).
3.4.2. Informal talk	Informal interaction, offering/ having drinks, interaction during breaks; these can indicate, and/or facilitate, group climate and cohesion.	Code instances of informal interaction (i.e. not facilitated, not focused on session content), and when FACs/Ps offer/have drinks and talk informally during breaks.
3.5. Group engagement	Level of active participation in, and contribution of group participants to, group activities and interactions.	<i>(It may be possible to identify it from session transcripts by analysing proportions and types of interactions, or activities in the groups).</i>
3.6. Communication patterns	Patterns of interactions, e.g. shape and distance of connections in the group.	<i>(It may be possible to identify it from session transcripts by analysing proportions and types of interactions; it may be more easily identified from group observations or video recordings).</i>
3.7. Group norms	Emergence and operation of group-specific social norms. These can include norms about group behaviour (e.g. what is acceptable or not) or health-related social norms appraised	Code <i>interpretations</i> of examples of group-specific social norms emerging or operating in the group related either to group behaviour or health-related behaviour. General social norms (not specific to, or endorsed

Framework categories	Brief definitions	Coding instructions
	by the group (e.g. what is acceptable or not health-related behaviour).	by, the group), code as ' 6.3.4. Social norms '.
3.8. Group roles	Emergence and management of informal functions of group members, including task-oriented roles (e.g. information-seeker, writer), socio-emotional or group-building roles (e.g. mediator) and non-functional roles (e.g. recognition-seeker).	Code <i>interpretations</i> of examples of emerging informal group roles, e.g. someone volunteering to write or a sub-group selecting a person to report back to the whole group. <i>(It may be possible to distinguish other informal roles, e.g. joker, information-seeker, through group observations or video recordings).</i>
3.8.1. Dysfunctional group roles	Emergence of a pattern of individual's behaviour that is dysfunctional to the group and group goals; e.g. a person joking overly or inappropriately, arguing excessively with every point raised, repeatedly undermining others etc.	Code interpretations, or explicit examples, of inappropriate or dysfunctional group behaviour. <i>(It may be more easily identifiable from group observations or video recordings than session transcripts.)</i>
3.9. Group development	Process of group change over time (e.g. forming, storming, norming, performing, adjourning).	<i>(It may be possible to identify by analysing all sessions from a particular group.)</i>

4. INTER-PERSONAL CHANGE PROCESSES

Framework categories	Brief definitions	Coding instructions
4.1. Sharing experiences	Sharing, or self-disclosing, and discussing one's experiences, e.g. sharing everyday experiences, health-related or emotional experiences, or self-disclosing potentially sensitive personal information.	Code any sharing, or 'telling', of personal experiences. Where relevant, use sub-codes. If Ps share what they did as part of goal/progress review, code it as ' 5.12. Reviewing progress/goals ' or ' 5.13. Developing, practising skills & behaviours '.
4.1.1. Self-disclosure of personal / emotional issues	Sharing, or self-disclosing, information about personal or emotional issues that the person might struggle, or has struggled, with, e.g. distressing	Code instances when Ps self-disclose potentially sensitive information about themselves.

Framework categories	Brief definitions	Coding instructions
	or difficult past experiences, mental health issues.	
4.1.2. Self-disclosure of transgressive behaviour	Sharing, or self-disclosing, information about one's behaviour that is at odds with the programme recommendations, e.g. overeating or drinking excessively.	Code instances when Ps report not conforming to health/programme recommendations, or engaging in unhealthy behaviours.
4.2. Social learning	Processes of inter-personal learning in the group.	If possible – code using sub-codes below; if unsure – code here.
4.2.1. Providing / exchanging information	Didactic or interactive learning process, involving provision/exchange of information, explaining.	Code sequences of providing/exchanging information and/or explaining (by FACs or Ps); e.g. explaining measures, information about health conditions, nutritional information etc.
4.2.2. Providing / sharing advice	Providing/ exchanging advice, suggestions or recommendations.	Code providing/exchanging advice, suggestions or referring to official recommendations (by FAC or Ps); e.g. what one <i>'should'</i> or <i>'shouldn't'</i> do, what is <i>'recommended'</i> .
4.2.3. Brainstorming / sharing ideas	Identifying/ brainstorming and sharing ideas, e.g. related to how to achieve health-related outcomes, such as increasing exercise.	Code sequences of brainstorming activity that involves sharing ideas (by FAC or Ps); e.g. ideas for physical activity or relaxing. If brainstorming is a part of barrier identification or problem-solving, code it as '4.12. Group problem-solving' .
4.2.4. Demonstrating, modelling behaviour	Learning through observation and modelling (imitating) others' behaviour, often facilitated by demonstrating the behaviour.	Code instances when a FAC or P demonstrates a health-related behaviour and/or when Ps model it; e.g. demonstrating/modelling how to perform exercises, measure blood pressure. If it involves verbal instruction how to do it, code also as '4.2.5. Instructing, learning how to perform behaviour' .
4.2.5. Instructing, learning how to perform behaviour	Providing instructions on how to perform a specific health-related behaviour.	Code instances when a FAC or P provides instruction (explains) how to perform a specific health-related behaviour. General health-related

Framework categories	Brief definitions	Coding instructions
		advice, code as ' 4.2.2. Providing/sharing advice '.
4.3 Social influence (in the group)	Influencing, or ability to influence, others' norms, beliefs or behaviours.	Code <i>interpretations</i> of attempts at influencing others in the group, either by FAC or Ps; e.g. persuasion, referring to expert knowledge/expertise, use of rewards/punishments. Don't use it to code social influences on participants' health/behaviour – these should be coded as ' 5.14.1. Report individual barriers ', ' 6.3.3. Social situations/events ' or ' 6.3.2. Negative influences of others (outside the group) '.
4.3.1. Appealing to evidence / expert sources	Referring to scientific evidence or authoritative / expert sources to support claims about health or health-related behaviours.	Code references to research, evidence or other sources of expertise to support provided information or in relation to norms/beliefs about health.
4.3.2. Negative social influences in the group, shaming, resistance	Negative influences of others on one's attempts or motivation to perform health-related behaviour(s).	Code <i>interpretations</i> of negative influences of Ps on others, e.g. "resistance talk", de-motivating, undermining, opposing, shaming, expressing negative attitudes to health behaviours or behaviour change, expressions of resistance towards health behaviours or behaviour change, or no intention to engage in them.
4.3.3. Positive social influences in the group, change talk	Positive influences on one's attempts or motivation to perform health-related behaviour(s).	Code <i>interpretations</i> of positive influences of group participants on others, such as "change talk", expressions of motivation, positive attitudes towards health behaviours etc.
4.4. Agreeing, disagreeing, challenging	Expressing agreement with group procedures, group/social norms, or what other participants or facilitators say.	Code expressions of agreement with others in the group. Don't code all instances of Ps' answers to FAC questions; code only a clearly expressed agreement.

Framework categories	Brief definitions	Coding instructions
4.4.1. Expressing disagreement / challenge	Expressing disagreement with, or challenging, group procedures, group/social norms, or what other participants or facilitators say.	Code expressions of disagreement with others in the group, or challenging their beliefs.
4.5. Social support (in the group)	Providing and receiving social support in the group. Social support can be emotional, practical (instrumental) or informational; it can also be perceived, provided or received.	Code references to talk about group support and examples of emotional and practical support from the FAC. Code informational support under ' 4.2. Social learning ', whereas references to social support outside the group as ' 6.3.1. Social support & positive influences of others (outside the group) '.
4.5.1. Peer support	Emotional or practical support between group participants (P-P support).	Code examples of peer (P-P) support, including offers of support, emotional support (e.g. encouragement) and practical support (e.g. offers to help), but not informational support (code under ' 4.2. Social learning ').
4.5.2. Buddy up	Matching group participants to support each other, either emotionally or practically.	Code references to buddy-up system, or examples of buddying up to do activities together; e.g. going to a class or for a walk together.
4.5.3. Social connections	Meeting (new) people and making (new) social connections. It can involve making associations with each other, e.g. by talking about or identifying mutual external connections (e.g. people, places in common).	Code references to making social connections or associations with one another in the group, or <i>interpretations</i> of situations that suggest making new social connections; e.g. reports of meeting members outside the group, talking about things that people have in common outside the group.
4.6. Social validation	Validating and/or normalising one's experiences or feelings, creating a perception of universality of experiences/feelings.	If possible – code using sub-codes below; if unsure – code here.
4.6.1. Personal validation	Offering/seeking personal validation of one's experiences or feelings; creating affiliation.	Code examples of providing or seeking personal validation of

Framework categories	Brief definitions	Coding instructions
		experiences/feelings, e.g. 'I feel the same', 'I like that too'.
4.6.2. Normalising	Normalising one's experiences or feelings, creating a perception of their universality.	Code examples of providing or seeking normalisation of experiences/feelings, e.g. 'It's normal to experience that'.
4.6.3. Empathy	Offering/seeking empathy and understanding of one's experiences/feelings.	Code examples of providing or seeking empathy or understanding, e.g. 'I understand how you feel'.
4.7. Social identification	Identifying with a social group or category (e.g. based on age, gender, ethnicity). May include reinforcing positive, health-promoting social identities, or discussing and re-labelling negative, stigmatised social identities.	Code <i>interpretations</i> of interaction or talk that might suggest identifying with social groups/categories. Expressions of identification with or as a group, code as ' 3.2. Identifying with/as a group '.
4.8. Social comparisons	Making comparisons with others to enable self-evaluation of one's performance or status (e.g. how well you do compared to others); includes upward (e.g. with others doing better to oneself, or 'role models') or downward comparisons (e.g. with others doing worse than oneself).	Code explicit examples of comparing with, or evaluating against, others or interpretations of group interaction or activities that create opportunities for social comparisons; e.g. Ps sharing information on their performance (e.g. weight loss, steps count) in the group.
4.8.1. Role models	Identifying or perceiving others as role models.	Code references to role models, or someone being perceived as a role model.
4.9. Accountability to the group	Perception of accountability, or feeling accountable, to others in the group (Ps or FACs) for taking action or achieving goals.	Code references to accountability to group FACs or Ps, e.g. expressed perceptions of need for/benefits from feeling accountable to the group.
4.9.1. Public promise / statement	Telling the group about one's individual goal or intention and expressing commitment to achieving it.	Code participants reporting their individual goal(s) to the group and/or making a public promise / expressing commitment.

Framework categories	Brief definitions	Coding instructions
4.10. Competition	Striving to perform better than others.	Code general references to talk about competition.
4.10.1. Intra-group competition	Competing with others within the group.	Code references to competition between participants in the group. Consider whether such situations might provide an opportunity for ' 4.8. Social comparisons '.
4.10.2. Inter-group competition	Competing as a group against another / other group(s).	Code explicit references to competition between groups in the intervention.
4.11. Cooperation	Working together as a group to achieve group goals.	<i>(May be difficult to distinguish it from other processes in session transcripts; whole-group, sub-group and practical activities in groups might indicate cooperation. Participants' perceptions of how cooperative the group was could be assessed.)</i>
4.12. Group problem-solving	Identifying and/or discussing general barriers to health-related behaviours <i>common to the group</i> (rather than to individual) and identifying potential solutions to these barriers discussed <i>as a group</i> .	Code identifying, reporting and discussing barriers and solutions as a <i>group</i> . Individual barriers and problem-solving (i.e. specific to individuals, done independently) code as ' 5.14. Individual barriers & problem-solving '.
4.13. Group-level feedback	Providing feedback to the group in relation to performance or behaviour <i>as a group</i> .	Code references to feedback on group's overall performance provided to the group. Feedback needs to include some evaluative, measurable data related to performance/behaviour (e.g. losing 2kg, step-count going up by 2000 steps). Code feedback provided to individuals on <i>individual</i> performance as ' 5.16. Individual-level feedback '.
4.14. Social facilitation	Influencing performance by the presence of others.	<i>(Social facilitation may not be identifiable from the session transcripts, recordings or observations).</i>

5. INTRA-PERSONAL CHANGE PROCESSES

Framework categories	Brief definitions	Coding instructions
5.1. Committing to attend	Making and expressing commitment and/or plan to attend the group sessions; it may also help to 'timetable' goals (e.g. to set a goal for the next session).	Code references to talk about, or expressions of, commitment to attend the programme/sessions; code also references to how such commitment may be helpful in making changes.
5.2. Developing understanding	Developing, demonstrating/confirming understanding of the content of the group/intervention.	Code instances when Ps confirm understanding of information related to health or intervention content.
5.2.1. Expressing a lack of understanding, misunderstanding	Demonstrating a lack of understanding, or misunderstanding, of health-related content/information.	Code instances when Ps express a lack of understanding or misunderstanding of information related to health or programme content, e.g. when recapping information provided in a previous session.
5.3. Self-presenting	Conveying certain information about oneself to others/group, concern with how one is perceived by others/group.	Code <i>interpretations</i> of instances of Ps presenting themselves in a group in a particularly positive light in relation to health, e.g. as being health-oriented, knowledgeable about health.
5.4. Normative beliefs	Recognition and expression of one's normative position (personal norms) related to health/intervention.	Code expressions of Ps' normative position (norms) relative to guidelines or beliefs about other people, e.g. being 'normal' or 'different' to others, being more active than other people.
5.5. Attitudes	Recognition and expression of positive or negative attitudes towards the targeted health behaviour(s).	Code expressions of participants' <i>positive</i> attitudes towards health or health-related behaviours, or (FAC/Ps) talk about attitudes.
5.5.1. Attitude change	Expression or acknowledgment of a change of attitudes about the targeted health behaviour(s).	Code expressions or acknowledgment of a <i>change</i> of attitudes towards the targeted health behaviour(s).
5.5.2. Negative attitudes	Recognition or expression of negative attitudes towards the targeted health behaviour(s).	Code expressions of Ps' <i>negative</i> attitudes towards the targeted health behaviour(s).

Framework categories	Brief definitions	Coding instructions
5.6. Attributions	Expression of beliefs about causal relationship between health and factors affecting it (e.g. health behaviours).	Code expressions of attributions or beliefs about causes of good/bad health.
5.7. Cognitive dissonance	Change of one's norms, attitudes or behaviours resulting from experiencing conflicting, ambivalent, inconsistent attitudes and behaviours; e.g. when one's norms/attitudes and behaviours are in conflict.	Code acknowledgment of, or pointing out, an inconsistency between P's attitudes/actions, or between P's and group attitudes/actions.
5.8. Intervention outcome expectations	Expectation of desired changes or outcomes from the group / intervention, expectation/hope that the group/programme will be helpful.	Code references to Ps' expectations of programme outcomes/ helpfulness, or FAC raising positive expectations.
5.9. Motivation	Motivation to make and maintain behaviour changes; sources of motivation.	Code references to talk about motivation or sources of motivation, e.g. FAC talking about importance of motivation. Ps talking about being motivated (or not) to change, or their reasons to make changes. Expressions of general intentions to change code as ' 5.11.2. Unspecific goals, intentions '.
5.10. Self-efficacy & personal control	Confidence in one's ability to perform or change health behaviour(s); a sense of control; belief that one is responsible for their own behaviours and health.	Code FAC talk about, or Ps' expressions of, confidence or a sense of personal control, or responsibility for one's behaviours, change or health, (e.g. reporting an 'it's up to me to change' attitude).
5.10.1. Change in self-efficacy	Expressing or acknowledging a change in one's confidence to perform or change a behaviour.	Code Ps' expressions or acknowledgments of change of self-confidence to perform or change health-related behaviour(s).
5.10.2. Lack of / low self-efficacy	Expressing or referring to a lack of, or low, confidence to perform or change a behaviour.	Code Ps' expressions of a lack of, or low, confidence or FAC talk addressing low confidence.
5.11. Setting goals	Prioritising and setting behavioural or outcome goals.	If possible – code under sub-codes, code here if unsure or if the excerpt

Framework categories	Brief definitions	Coding instructions
		includes general talk <i>about</i> goal setting.
5.11.1. Specific goal setting, action planning	Setting specific (e.g. SMART) health-related goals, and making specific action plans; i.e. including details of when, where, who with etc. one will perform the action.	Code instances (sequences) of setting specific goals and making action plans, e.g. Ps setting SMART goals and when they report setting specific goals. Unspecific goals or generic intentions code as '5.11.2. Unspecific goals, intentions' .
5.11.2. Unspecific goals, intentions	Expressions of intentions to engage in, or change, health-related behaviour(s), setting unspecific goals (i.e. without details of when, where, etc.).	Code Ps expressions of intentions, unspecific goals or general commitment to change/take up health-related behaviour(s). Expressions of specific goals code as '5.11.1. Specific goal setting, action planning' .
5.11.3. Setting achievable, realistic goals ('small steps')	Setting realistic and achievable goals.	Code references to setting (more) achievable, realistic or 'smaller' goals, e.g. following P's failure to achieve previously set (perhaps unrealistic) goal.
5.11.4. Setting challenging goals	Trying to improve or increase performance by setting more challenging goals.	Code instances when an individual is challenged to improve/increase their performance, e.g. challenged/prompted to do better, or set more ambitious goals.
5.11.5. Long-term goal setting	Setting long-term goals and/or goals to maintain health-related behaviours.	Code references to discussing or setting long-term, sustainable goals, or goals for maintaining behaviour change/health-related behaviours.
5.12. Reviewing progress, goals	Reviewing progress / goals, i.e. whether and how the goals were met and/or whether and how health-related behaviour(s) were performed.	If possible – code under sub-codes, code here if unsure. Code here sequences of goal/progress review, whereas Ps' reports of specific health-related behaviours, code as '5.13.1. Report practice of skills/behaviours' or '5.13.2. Report lack of practice of skills/behaviours' . Unless explicitly referred to goal setting or self-monitoring, don't infer these from goal/progress review.

Framework categories	Brief definitions	Coding instructions	
	5.12.1. Review of specific goals	Reviewing whether and how specific goals have been met; includes referring to and recapping what the goal was.	Code instances (sequences) when goals are recapped and when Ps report whether, and how, they met them.
	5.12.2. General review of progress	Reviewing general progress or behaviour without reference to specific goals.	Code instances (sequences) when general progress, performance or behaviours are discussed but without reference to specific goals that had been set, e.g. discussing 'how the week went'.
	5.12.3. Objective measures	Taking objective measures of outcomes, such as weighing.	Code instances of taking objective measures in the sessions, e.g. measuring weight, body fat etc.
5.13. Developing, practising skills & behaviours	Developing and/or practising new skills and/or new behaviours relevant to the targeted health behaviour(s), e.g. new motor, social, communication, time management or cognitive skills.		If possible – code under sub-codes, if unsure – code here.
	5.13.1. Report practice of skills/behaviours	Reports of practice of skills, techniques or health-related behaviours targeted in the intervention.	Code Ps' reports of practice of relevant skills, techniques or health behaviours. If it includes a sequence of reporting outcomes or behaviours <i>in relation</i> to goals (as a part of goal review), code it as ' 5.12. Reviewing progress/goals '.
	5.13.2. Report a lack of practice of skills/behaviours	Reports of a lack of practice of skills, techniques or health-related behaviours targeted in the intervention.	Code Ps' reports of a lack of practice of relevant skills, techniques or health behaviours. If it includes a sequence of reporting outcomes or behaviours <i>in relation</i> to goals (as a part of goal reviewing), code it as ' 5.12. Reviewing progress/goals '.
	5.13.3. Practise skills/ behaviours in the session	Practising new skills, techniques or health-related behaviours in the session.	Code activities when Ps practise new, targeted skills, techniques or behaviours in the session (e.g. reading labels). If the practice is by modelling FAC/P, code it also as ' 4.2.4. Demonstrating, modelling behaviour '.
5.14. Individual barriers & problem-solving	Identifying individual barriers to health-related behaviours and		If possible – code using sub-codes below; if unsure – code here.

Framework categories	Brief definitions	Coding instructions
	identifying possible solutions to these.	
5.14.1. Report individual barriers	Identifying or reporting individual barriers to health-related behaviours.	Code reports of individual barriers to health-related behaviours or goals. If general barriers (common to the group rather than specific to individuals) are identified and discussed, code it as '4.12. Group problem-solving' .
5.14.2. Individual problem-solving	Identifying possible solutions to individual barriers to health-related behaviours.	Code episodes (sequences) of problem-solving (identifying potential solutions) to <i>individual</i> barriers, even if this is done as a group. If barriers and problem-solving are general (common to the group), code it as '4.12. Group problem-solving' .
5.14.3. Relapse prevention	Identifying and anticipating future risk situations or barriers for long-term maintenance of health-related behaviours, planning in advance how to deal with lapses/relapses.	Code references to relapse prevention and long-term barriers/risk situations; e.g. identifying high-risk situations, strategies to deal with risk situations and relapses.
5.15. Self-monitoring	Self-monitoring of one's health-related behaviours or outcomes.	Code references to self-monitoring; e.g. ideas for how to self-monitor, explaining self-monitoring, asking Ps to self-monitor, Ps reporting whether/how they self-monitored, or reported uses of self-monitoring devices (e.g. scales or activity monitors). Although self-monitoring can be inferred from goal/progress review or feedback, don't code goal reviews as self-monitoring unless explicitly referred to it.
5.16. Individual-level feedback	Providing/ acknowledging feedback provided to an individual on their performance or progress.	Code references to, or provision of, feedback to the individuals on their performance / progress. Feedback needs to include some evaluative, measurable data related to performance/behaviour (e.g. losing 2kg, step-count going up by 2000 steps). Don't code feedback inferred from the use of self-monitoring

Framework categories	Brief definitions	Coding instructions
		devices. Code feedback provided to the group as ' 4.13. Group-level feedback '.
5.17. Developing self-insight	Developing self-awareness and understanding of one's feelings, thoughts and behaviours, discovering previously unknown aspects of oneself.	Code talk about, of expressions of, developing a better self-understanding, self-insight, e.g. of one's feelings, thoughts or behaviours, or what drives unhealthy behaviour.
5.18. Identity shift	Expressions of change in one's perception of oneself or self-concept.	Code expressions of change to one's self-identity/self-concept, e.g. becoming 'a new person'.
5.19. Using self-talk	Use of self-talk to reinforce or inhibit motivation or goals.	If possible – code using sub-codes. Code here is unsure or references to talk about 'self-talk' as a technique.
5.19.1. Positive self-talk, self-praise	Use of, or reports of, positive self-talk, expressions of self-praise in relation to one's health-related goals/behaviour.	Code reports or expressions of positive self-talk or self-praise in relation to health-related goals or behaviours.
5.19.2. Negative self-talk	Reports of negative self-talk or diminution in relation to one's health-related goals/behaviour.	Code reports or expressions of negative self-talk or diminution in relation to health-related goals or behaviours.
5.20. Associative learning	Using rewards, self-rewards or incentives for effort or performance of behaviours.	Code references to talk about, or reports of, using rewards, self-rewards or incentives, e.g. sharing ideas for self-rewards or incentives.
5.21. Forming habits	Forming new, or changing old, health-related habits.	Code talk about habits, habit formation or change, specific techniques to prompt forming/ changing habits, or reports of Ps changing their habits. Code also references to repetition of behaviours that would allow formation of a habit, e.g. needing to practise it more.
5.22. Managing stress, emotions	Set of techniques to manage stress, anxiety and other emotions.	Code references to techniques for stress and emotion management, or reports of using these techniques.

6. FACILITATOR & PARTICIPANT CHARACTERISTICS & CONTEXTUAL INFLUENCES

Framework categories	Brief definition(s)	Coding instructions
6.1. Facilitator characteristics	Individual characteristics of group facilitators (that they bring to the group), e.g. personality, interpersonal skills, cognitive and emotional factors influencing their role, skills and experience.	Code references to FAC characteristics, skills or qualities in the group, e.g. Ps commenting on/praising FACs.
6.2. Participant characteristics	Individual characteristics of groups participants (that they bring to the group), e.g. personality, initial motivation, personal agenda/ reasons to attend, readiness to change, locus of control, knowledge, comorbidities etc.	Code references to individual personality, cognitive, emotional or clinical factors that are reported as influencing one's health-related behaviours (outside the group).
6.3. Other contextual influences	Other factors influencing participants' health and health-related behaviours (outside the group).	If possible – code using sub-codes below; if unsure – code here.
6.3.1. Social support & positive influences of others (outside the group)	Availability, provision or receipt of social support within one's social network outside the group, and other positive influences of other people outside the group on one's health or behaviour change.	Code references to social support, social network and other positive influences of others outside the group on one's health or behaviour change.
6.3.2. Negative influences of others (outside the group)	Negative influences of others on, or sabotage of, one's attempts, motivation or performance of health-related behaviour(s).	Code references to negative influences of others outside the group (e.g. partners, friends) on Ps' motivation or performance of health-related behaviour(s).
6.3.3. Social situations/events	External, social situations or events that affect one's health or engagement with health-related behaviours.	Code reports of social/life situations/events that are reported as influencing one's health-related behaviours, e.g. celebrating Christmas or birthdays as social occasions that promote unhealthy behaviours.
6.3.4. Social norms	Wider societal, generally accepted norms or rules regarding health-related	Code references to wider societal norms or information about what others do/believe, e.g. what health-

	behaviours, normative information about others' health-related behaviours or beliefs.	related behaviours are accepted/'normal', what other people do/ believe helpful. Consider coding ' 5.4. Normative beliefs ' if a P reports their own norms.
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