Intervention Design Workshop Friday 5th ASBHM 2021

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Task Instructions

In your groups

(1) assign a scribe who will make a PowerPoint presentation summarizing your groups' work.
(2) Read the intervention description
(3) Read the defined change techniques taken from the literature
(4) Collectively identify (i) the purposes/aims set by the intervention, that is, what the full program is designed to achieve. This means what would you expect as a minimum to call the program a success for any given individual.
(5) Then with this in mind, start with Session 1 and identify the change mechanisms applied (use techniques form the list provided if possible), and what they are designed to achieve (their strategic purpose) e.g., improving understanding of the harms of current behaviour, or building self-efficacy. NB. It may be progress towards some goal if by session 2 the purpose is not expected to be fully achieved. In this case you would expect a continuation in Session 2.
(6) Also note any other important features of the intervention that might promote effectiveness, but which don't fit as specific techniques
(7) If you get to Session 2 (or beyond), first review to see if incomplete activities are followed-up on in that session (and whether they are completed), and then on the introduction of new techniques and their strategic purposes in the same way as you did for Session 1.

NB:

(1) Don't expect to get too far into the intervention description – this is slow work. It is more important to be clear on what it is doing and why, and if there are things your group cannot agree on (eg, what technique it is, or what it is designed to achieve). Please bring back areas of consensus and disagreement back to the plenary.
(2) There are hundreds of "technique definitiosn in the behaviour change literature across tens of papers that have tried to generate such lists. The 25 below are just illustrations of what is available. Are any of these 25 useful to identifying the contents of this intervention – which are useful and which are not – and why?
(3) Feel free to define additional techniques that help clarify intervention content.

Scribes.

- Have your groups answer to what the program is designed to achieve on the first slide.
- Then list the techniques you identified on the next slide (multiple if needed), with notes on any issues in deciding what the technique was and what its purpose was where this comes up. For ones where you agreed that the purpose is clear, simply note the technique (no need to list the strategic purpose)
- Use additional slides for other issues that emerge (eg comment on a technique you found hard to use, activities that seem important but were not helpful here.

The Intervention Description

The intervention was designed for adults aged 18-80 years who were at high risk for type 2 diabetes. This was defined as having a Fasting Plasma Glucose level of 6.1-6.9mmol/l, or HbA1c 42-47 mmol/mol recorded at any point within the last year combined with a body mass index (BMI) of at least 25. Participants were referred from GPs and other health service providers.

The aim of the intervention was to enable participants to reach and maintain an age-appropriate healthy BMI and level of fitness (see appendix for details).

The intervention included 7 weekly, two-hour group sessions in groups of up to 10 participants (see details below). Participants were allocated to groups to allow roughly aged matched groups with similar BMI ranges These were held in local community venues and led by trained facilitators. In addition to group attendance, participants received four, one-to-one 30 minute Zoom calls in weeks 3, 8 (in the week after the group sessions), 11 (4 weeks after the group sessions) and 19 (12 weeks after the group meetings). Participants were also provided with an intervention booklet. This explained the benefits of regular exercise, provided examples of weekly exercise plans for people of varying fitness. The booklet also explained why some foods can be classed as healthy while others can be bad for physical functioning. In addition, the booklet provided lists of healthy and unhealthy foods and illustrated daily meal combinations suitable for both (i) gradual weight loss and (ii) weight maintenance.

Participants also received a wrist-warn accelerometer which they were asked to wear from waking to going to bed each day. This provided daily heart rate, steps and exercise intensity data which participants could view on an app if they had a SMART phone. The data was also available to the intervention manager who could mail this data to participants if they preferred.

Session 1. was a group forming and norming session. Facilitators explained the rules of the group, including respect for others, active listening and the use of constructive feedback. The importance of self-disclosure of experiences and personal challenges was emphasized and the value of endorsing and validating shared experiences. Facilitators also explained that such sharing builds group trust and that providing others with feedback, especially critical feedback, is much more powerful in trusting relationships. Participants engaged in trust-building exercises including sharing and physical support/falling exercises as well as feedback and assertiveness exercises. It was explained that participants might wish to pair up with another group participant as a supportive buddy who they could contact outside the groups but emphasized that this was not an expectation of the intervention. Participants were asked to read the sections of the booklet on physical activity and asked to wear their accelerometer over the coming week. Finally participants were weighed and told their weight, height and BMI.

Session 2. focused on motivation, goal setting, self-monitoring of progress, goal review and graded steps. Rather than focus on either eating or physical activity, this session was designed to provide participants with the self-regulatory tools to begin to make sustainable change. The importance of SMART goals and graded steps was explained. It was emphasized that failure to reach goals and trying again was part of the change process – acceptance of one's own limitations and acknowledgement of one's commitment to change were crucial elements to successful change. The importance of habits, what habits are and how habits may be built through practice and improved on incrementally was explained. Participants were asked to set physical activity goals over the coming week (e.g., walk for 20 minutes on one, two or three occasions) and to write down when exactly they would undertake these plans. They were then asked to

discuss their goals with a partner and see if they could be improved, that is, made to be “SMART”-er. At the end of the group each person stated their goal and signed a contract with the group to undertake their goal over the next week. Participants were asked to read the sections of the booklet on eating, food shopping and diet and asked to wear their accelerometer over the coming week.

Session 3. This session focused on participants physical activity goals, challenges goal review and resetting of physical activity SMART goals. The session began with each person describing their progress over the week and how they had experienced this. The facilitator ensured positive feedback of some sort – even if just for identifying the barriers to change. For each person, the group considered any challenges and brainstormed solutions that would lead to more achievable SMART physical activity goals. At the end of the group each person stated their goal and signed a contract with the group to undertake their physical activity goal over the next week. Participants were asked to read the sections of the booklet on eating, food shopping and diet and asked to wear their accelerometer over the coming week. Participants were also asked to complete a food diary over the coming week and to think about their diet.

Session 4. This session focused on participants eating. It began with a very rapid round considered physical activity goals and asking participants to review and reset these goals where challenges remained. The food diaries included a session where participants could note foods or meals that they felt had unnecessarily contributed to their weight gain each day. They were included to consult the unhealthy foods part of the food diary when completing this. The facilitator asked each participant to identify four key foods or meals that they could either give up or switch for a healthy alternative. These were discussed in the group. Participants then made two SMART eating goals for the coming week one involving eliminating an unhealthy food and one involving eating more of a healthy food. Participants were to pursue both their physical activity goal and their two eating goals over the coming week and again asked to complete a food diary and wear their accelerometer.

Session 5. This session was a goal review and goal resetting session. Participants discussed both their physical activity and eating goals and experiences and challenges with achieving these goals. At the end of the group each person stated their goals/new goals and signed a contract with the group to achieve these goals over the coming week. Participants were asked to re-read the sections of the booklet on eating, food shopping and diet and asked to wear their accelerometer over the coming week.

Session 6. This session began with a rapid round considering success and challenges with meeting the goals each participant had committed to. The main focus on this session was on food shopping. A food swap list was circulated and participants individual selected those foods that they could swap. They were also shown a demonstration of the FoodSwitch app and recommended to use this when shopping and preparing meals. Each participant identified problems and challenges they might encounter in changing their diet. The facilitator demonstrated declining a food types in a social situation in a non-threatening manner and participants practiced this in pairs. Participants were also given a “Cook simple healthy meals quickly” recipe book and asked to cook 2 or three of these meals over the coming week, while also continuing with their physical activity and eating goals and wearing their accelerometer.

Session 7. This was an adjourning session. No new content was added. The facilitator summarized key points made across the previous six sessions and gave each person a chance to reflect on their experience of the intervention and the challenges they faced going forward. Participants were remined of the possibilities of sharing contact details and forming their own support group or buddy system.

Accelerometers were collected, and participants were reassured that their data would we stored only anonymously for research purposes.

After the session 7 all participants were sent a plain English summary of their physical activity record and of their initial and closing height, weight and BMI.

The four follow-up, one-to-one sessions were unscripted. Facilitators asked participants what was good and not so good about the intervention and focused on individual challenges highlighted by the participant.

Change Technique Definitions from the Literature

Name	Definition and Reference
1. Acceptance	Recognize and accept negative thoughts, feelings, emotions, and physiological states related to the target behaviour. (Knittle et al., 2020).
2. Action Control	Make efforts to consciously keep the target behaviour and your goals in mind. (Knittle et al., 2020).
3. Adding objects to the environment	Add objects to the environment in order to facilitate performance of the behaviour Note: Provision of information (e.g. written, verbal, visual) in a booklet or leaflet is insufficient. (Michie et al., 2012).
4. Agenda mapping	Definition: The counsellor prompts the client to consider the way ahead and which behaviour they are motivated to discuss. Example: "I usually talk to people in a situation like yours about diet, exercise, that sort of thing. Which of these do you feel you would like to talk about?" (Hardcastle et al., 2017).
5. Agree a written contract	Explicitly writing and/or signing a contract which is given to (or held by) another person may strengthen commitment to a goal by making the recipient accountable to another person who will later provide implicit or explicit feedback on the recipient monitored performance. Written and signed contracts may be incorporated into computer-tailored interventions and managed by using mail or email follow-up contacts. (Abraham, 2012).
6. Approach/Avoidance training	Following the automatic capturing of attention, reward stimuli trigger a motivational response that directs behaviour toward target acquisition and consumption (an 'approach' tendency). Approach/ Avoidance training aims to modify the association to approach, thereby reducing craving and consumption. (van Beurden et al., 2016).
7. Cooperative learning	Involves providing information focusing on what will happen if the person performs the behaviour including the benefits and cost of action or inaction. (Abraham & Michie, 2008).
8. Cognitive loading	Cognitive loading involves use of tasks that occupy working memory using resources which are required for recognizing the hedonic value of foods. This in turn prevents the triggering of craving-related cognitive elaborations (i.e., craving imagery; van Dillen et al., 2013). (van Beurden et al., 2016).
9. Diary	Definition: Participants were given an exercise diary as method of self-monitoring. (Sheeran et al., 2019a).

10. Goal Setting	Prompting planning what the person will do, including a definition of goal-directed behaviours that result in the target behaviour (Kok, et al., 2015)
11. Habit formation	Prompt rehearsal and repetition of the behaviour in the same context repeatedly so that the context elicits the behaviour (Michie et al., 2012).
12. Induce cognitive dissonance	Cognitive dissonance refers to the discomfort people feel when they are confronted with contradictions in their own thinking. For example, 'I love my children and take care of them' and 'By exposing my children to tobacco smoke I am damaging their lungs'. Being confronted with such contradictions can prompt people to change or evaluate their beliefs and so create motivation to change. They may, for example, re-evaluate their past behaviour and/or formulate a new goals such as 'I will never expose my children to tobacco smoke again' which removes the discrepancy. (Abraham, 2012).
13. Provide instruction	Involves telling the person how to perform a behaviour or preparatory behaviours. For example, proving individual fact to face instructions, offering an instructional group class or providing "tips" on how to take action in text form. (Abraham & Michie, 2008).
14. Participatory problem solving	Diagnosing the problem, generating potential solutions, developing priorities. Making an action plan and obtaining feedback after implementing the plan. (Kok et al., 2015).
15. Model/Demonstrate the behaviour	Involves showing the person how to correctly perform a behaviour e.g., fact-to-face as in a group class or using video. (Abraham & Michie, 2008).
16. Practitioner acknowledges challenges about behaviour change	The practitioner regularly and explicitly acknowledges the challenges that may be facing the patient. This affirmation is done by focusing on the personal strengths that the patient has in the fact of these challenges. (Lane et al., 2005).
17. Prompt barrier identification	Think about potential barriers and plan ways of overcoming them. Barriers may include competing goals in specified situations. This may be described as "problem-solving" and if it is problem solving in relation performance of the behaviour i.e., then it is an instance of this technique. (Abraham & Michie, 2008).
18. Prompt mental rehearsal of successful performance	Before practising a behaviour imaging how one will perform it and how one will overcome barriers can provide useful rehearsals and preparation. So inviting people to imaging performing the target behaviour and what that will feel like in setting where they will need that behaviour, may further boost their self-efficacy. (Abraham, 2012).
19. Prompt specific planning	Encouraging detailed planning of what the person will do makes it more likely that their goal is salient in the appropriate situation. This may include a very specific definition of the behaviour e.g., frequency

	(such as how many times a day/week), intensity (e.g., speed or effort), duration (e.g., how long for) and importantly, context where it will be performed (e.g., a place or setting or a particular social situation). Specific planning using an 'if – then' format is also called 'implementation intention formation'. For example, instead of 'I will take more exercise next week', resolving that 'if it is lunchtime, then I will take a brisk walk around the perimeter of the part' is more likely to prompt action during lunchtimes. (Abraham, 2012).
20. Provide assertiveness training	Teaching people to honestly express their needs and desires in a non-aggressive but confident manner can help them negotiate effectively with others. A variety of interactive approaches and skills training classes are available but text formats can provide instruction on how to be assertive about particular behaviours. (Abraham, 2012).
21. Provide information on consequences	Involves providing information focusing on what will happen if the person performs the behaviour including the benefits and cost of action or inaction. (Abraham & Michie, 2008).
22. Pedomenter	Participants were given a pedometer as method of self-monitoring. (Sheeran et al., 2019a).
23. Restructuring the physical environment	Change, or advise to change the physical environment in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (other than prompts/cues, rewards and punishments). Example: Advise to keep biscuits and snacks in a cupboard that is inconvenient to get to. (Michie et al., 2012).
24. Social Support	Provide support to others in relation to the target behaviour. (Knittle et al., 2020).
25. Stimulus control	Modification of the environment to cue exercise behaviour (e.g., prompts, cues, signs, posters, telephone prompts). (Conn et al., 2002).