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How a weight loss program should be if experienced health professionals were asked: a qualitative interview study

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Abstract

Objective: Obesity is an increasing public health challenge and most weight loss programs are still inadequate to support sustainable weight loss. One reason for the continued lack of success might be the dominant biomedical, individualized approach to weight loss. Holistic approaches that focus on overall health and wellbeing, in addition to weight loss are increasingly recommended. In Denmark, health professionals in the municipalities are responsible for developing and conducting weight loss programs. What such programs look like remains unclear. The objective of this study was to explore health professionals' views of what an ideal, holistic weight loss program should include.

Design: A phenomenological-hermeneutical qualitative study was performed using semi-structured interviews.

Setting: Thirty-two Danish municipalities where weight loss programs are developed and conducted.

Participants: Thirty-five health professionals conducting weight loss programs.

Results: Three themes emerged: "The support from the social network during and after weight loss", "The importance of beliefs and activities in weight loss", "Weight loss maintenance: Integrating changes into daily life".

Conclusion: Future municipal weight loss programs should turn the focus towards health and wellbeing instead of weight loss and adopt a holistic approach including a focus on social relations, meaningful activities and positive success as part of a balanced daily life.

Strength and limitations of this study:

- This study identified wishes from 35 health professionals across the municipalities in Denmark.
- This study only included participants from Denmark and therefor might miss perspective from other countries.

- The interviews were conducted by 6 different interviewers who might have focused differently during the interviews. However, all interviewers followed a relatively fixed interview guide.

Background

Obesity is associated with health risks like type 2 diabetes, heart disease and stroke (1) and negatively affect quality of life as individuals with obesity experience difficulties in performing necessary and valued everyday activities and may experience stigma associate with being overweight or obese (5).

The Obesity Society first acknowledged obesity as a disease in 2008, and since then, obesity continues to be regarded as a chronic condition (2). The frontline non-pharmacological treatments for obesity focus on dietary, physical exercise, and the use of behavioral therapy (3,4). Previous decades have seen a proliferation of programs focused on these areas and the programs have succeeded in short term weight loss, but most weight loss is not maintained long term (5,6). There are multiple plausible causes for the lack of efficacy. One potential problem is that the programs mainly focus on biomedical, individual approaches in the sense of avoiding diseases (3,4), while neglecting what Engle (1977) called the biopsychosocial understanding of how changes are linked to daily life and the social context in which people are part of (7,8). This could also be described as a holistic approach (9). This lack of attention to daily routines, habits and social conditions may, at least in part, explain why so many people return to their old habits and regain weight after the weight loss programs have ended.

Obesity is also a growing problem in Denmark as 47.4% of the population is estimated to be overweight or obese (10). Based on the lack of weight loss maintenance the National board of Health recommends that weight loss programs place emphasis on addressing psychosocial and daily life

factors as important for weight loss maintenance (11). How best to address psychosocial and daily life factors in the context of weight loss programs remains unanswered, however.

To address the problem of poor weight loss maintenance, our long-term goal is to develop an evidence-based program that supports people with overweight and obesity to change their daily life while losing weight. The Medical Research Council's guidelines for intervention development point to the importance of including stakeholders input during the development phase (12). In Denmark, health professionals in the municipalities are responsible for developing and conducting weight loss programs. It is therefore important to understand the professionals' experiences with conducting these weight loss programs and how they would envision future programs to better meet national recommendations and participant needs.

Methods

We conducted a qualitative study based on a phenomenological-hermeneutical approach. A phenomenological approach requires that the researchers put aside their assumptions and ideas in order to capture a rich description of the phenomenon in focus (13), whereas the hermeneutical approach is more interpretative (14). We used both approaches because we wanted to reach a description and an interpretation of the experiences from the health professionals (professionals).

Settings and participants

We selected professionals through purposive sampling from across the 98 Danish municipalities. To be included in the study the professionals had to have conducted a group-based municipal weight loss programs previously at least three times. We excluded professionals if they conducted weight loss programs for people with a specific disease like diabetes. We sent potential participants an invitation by email with the inclusion criteria and information about the overall aim with the project and about the profession of the interviewers (one physiotherapist and five occupational therapists) . We informed potential participants that we would contact them by phone within a week to further

present the study. If a potential participant declined to participate by email, we did not call them. If we were unable to reach the professional after two attempts (a week apart) they were not included in the study. Signed informed consent was obtained prior to the interviews in accordance with the Declaration of Helsinki.

Data collection

We conducted semi-structured individual interviews with each professional once at a time and location of their choice (15). All the participants chose their workplace. The interview guide was divided in two sections. The first section contained questions about the professionals' current practice by asking them to describe the content and experiences of the weight loss programs they conducted with special attendees to daily lives and social contexts. In the second section the professionals were asked about what they would recommend for a future weight loss program by asking "If no limits existed what would you include in a municipal weight loss program?" (Table 1). The interview guide was pilot tested leading to a rearrangement of some of the questions.

[Table 1 in here]

The interviews were conducted by the first author, a PhD student and five female master students. The first author was an experienced interviewer and the master students were trained and evaluated for competency by the first and the last author prior to conducting the interviews.
The interviews were conducted in Danish between January and March 2019 and lasted between 40-70 minutes. All interviews were audio recorded and each interviewer transcribed their own interviews.

Data analysis

The data were analyzed using qualitative content analysis (16). The analysis was systematic and focused on the manifest and latent content by moving from the concrete level to a more abstract and general level (17). The analysis consisted of four steps. In the first step, all the data materials were read by three of the authors (CJW, KL and JRC). In the second step, the content related to the aim of the study was identified and divided into meaning units. In the third step, the meaning units were condensed and labeled with a code. Aggregation of codes resulted in 14 subcategories, which were further aggregated into six categories. In this stage, we reached manifest knowledge from the text (16). In the final step the six categories were grouped under three themes to reach the latent and more general knowledge from the text. Three authors (CJW, KL and JRC) made the decisions about categories and subsequent themes by discussion and consensus (Table 2).

As the interviews was conducted in Danish a native English scientific writer who also spoke Danish, translated the quotes from Danish to English.

[Table 2 in here]

Patients and public involvement statement

Due to the design of this study, no professionals were involved in the planning or conduct. The study focus on wishes from professionals. The results will be discussed people with obesity and health professionals when developing the evidence-based weight loss intervention.

Results

Forty-two professionals were interviewed. Seven of these interviews were excluded because they did not fulfil the inclusion criteria. Thus, 35 interviews were included in present study (Figure 1).

[Figure 1 in here]

The programs were all group based but different regarding health professions, length and specific content. See table 3 for more details.

[Table 3 in here]

The analysis resulted in three themes that reflected the professionals' experiences with delivering weight loss programs and their wishes for future programs: 1. The support from the network during and after weight loss, 2. The importance of beliefs and activities in weight loss and 3. It is a lifelong process that should be integrated in the daily life.

The support from the social network during and after weight loss

All the professionals agreed that the support from the social network was important in the weight loss process. They described that the most important support came from friends and significant others, or from peers who were also involved in the weight loss group. Regarding friends and significant others, they discussed how if, for example, relatives or friends 'jumped on the same train' in relation to eating and exercise patterns, it often resulted in greater success. The professionals discussed two primary ways that the support of friends and significant others was helpful to the weight loss process. The first involved friends or couples joining the programs together. In the professionals' experience, these joint efforts resulted in greater weight losses, as one professional expressed:

> I have two couples in one of the groups right now and they have really changed a lot because they have the social part together.

The second involved simply having a friend or a significant other that was committed to support. This person acted as cheerleader and could also increase adherence with weight loss goals, as the following quote illustrates.

> I believe that those who have a husband or wife who gives 100 % support… if they come home tired [the husband or wife] will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance for success.

While existing social networks were important, the professionals also highlighted the importance of group-delivered programs for increasing peer support through the creation of new networks. Group programs provided an opportunity to be surrounded by others, facing similar struggles and doubts. Within the group, peers supported each other, motivated each other, and held each other accountable. One of the professionals described the dynamic as magic:

> I really think it is rewarding with the groups. You can see the dynamic (….) When they get to know each other and find a common frame…sometimes I stand there thinking "this is almost magical.

Health professionals encouraged lasting relationships between the peers. For example, they encouraged the participants to make Facebook accounts to keep on exchanging experiences and to have a platform for planning things together. In one program they had 'buddies' with the aim to have a person to call whenever things went wrong:

> They make a contract and describes their goals for the next period and how the buddy can support them by doing this and that. And it works, yes it really does so this is one of the things I would like to highlight.

Sometimes the groups resulted in friendships with people they could do things together with – things they earlier experienced as difficult. One professional gave an example of three girls who decided to buy a sports bra together whish earlier had been difficult because they were on their own.

Though professionals unanimously supported the need for participants to get support from people in their close social networks, they also acknowledged that in some cases social relationships were detrimental to the weight loss process and should therefore be changed. One professional discussed her experiences with a participant who struggled with her weight loss due to pressure to act in ways that undermined her weight loss goal:

> We are not individualist when we talk about healthy lifestyle. We are linked together in a lot of rings, which pull us in different directions…

The professionals used different strategies to highlight how people in social networks could either support or undermine weight loss efforts. In one program, they used a traffic light metaphor. The 'green' people respected the wishes for change and supported the participants by changing routines when they met, (e.g., by serving vegetables instead of cake). Conversely, the 'red' people were characterized as frustrating and difficult because they were not supportive. Therefore, some participants reduced contact with specific groups of friends and in some cases, the lack of support during the weight loss process could even lead to divorce: "It often happens that people leave them when they start this process."

The importance of beliefs and activities in weight loss

The professionals explained that many participants had rigid beliefs about how to lose weight and most often these beliefs impeded success. As such, they sought ways to challenge the participants' beliefs, especially those that framed the weight loss process as one of rigid rules and absolute do's and don'ts. One of the professionals said:

> We want to point out that they [the participants] should not say that they will never eat cake again. Rather they should try to eat appropriately during the week and when they succeed with that then appreciate a piece of cake every Saturday.

Rigid beliefs about how to successfully lose weight often resulted in feelings of guilt when the participant failed to adhere to what they perceived as a rule (e.g., never eat cake again). In addition to challenging rigid beliefs, the professionals also tried to change the overall focus from losing weight to having a meaningful and satisfied life. Rather than allowing participants to dwell on feelings of guilt, they encouraged the participants to review their successes. For example, in one of the weight loss programs they used positive words like 'sexy' or 'beautiful', rather than using numbers on a scale to determine success. Some professionals had positive experiences with discussing 'the stages of change model' (18) and showing the participants that people are not always ready to change, and that it was okay not to be as ready as someone else. This gave the participants a sense of success even though they did not lose 10 kilos. In most programs they helped the participants set realistic goals to ensure that they were not setting themselves up for failure. In the weight loss process the professionals also focused on the things that went well in the participants attempts to reach a goal rather than focusing on what went wrong. The professionals also emphasized that they embraced both trial and error, encouraging participants to change one thing at a time by trying out because "you only learn by trying it". As one professional noted:

> I focus on successes and we talk about if you are realistic with 'your small steps', successes are almost unavoidable.

Those small successes also increased the participants' confidence in their own capacities.

> You can plant the seed by giving them [the participants] some coping strategies. You can give them the experience of being able to do something they didn't think they could, which makes them want to do more.

The professionals also used activities to support behavior change because activities could increase the participants' positive feelings about their own skills and build a sense of self-efficacy. Moreover, rather than just discuss types of activities that a participant could do, the professionals often implemented activities for the entire group as part of a treatment session. Having a trusted professional present to guide the experience made it less intimidating for many participants and helped expose some participants to activities that they might not otherwise have attempted. One professional described activity as "the steppingstone that support changes". Another professional provided the following example of an outing in the dunes. The example illustrates that people may be concerned about trying something new at first, but once they complete an activity, those worries are often replaced with excitement and satisfaction.

> Oh no, are we going though these dunes, it is way too long and did I remember my asthma medicine and things like that, but people are so satisfied when they get back. But it was actually great, and we had fresh air (….).

In addition to building self-efficacy, professionals also incorporated activities into treatment because they recognized that some participants struggled to find out what they really found enjoyable or

motivating. The professionals, therefore found it important to help the participants rediscover their interests, needs and values. For instance, one professional said:

> Maybe they [the participants] find out that they keep on saying to them self that I have to get a membership for the fitness center. Or maybe I have a membership but never go down there, then we talk about what gives you joy, what gives you energy and what are your experiences?

Weight loss maintenance: Integrating changes into daily life

The professionals all discussed that the behavior change process was a lifelong process. For behavior changes to be maintained, they had to be integrated into daily life. As such, the professionals were attentive to how standardized recommendations needed to be tailored to the participants' unique life contexts. One professional noted:

> There are the recommendations, but how does it fit into [the participants'] daily life. If it does not fit, then do something else.

To help the participants to integrate the recommendations into their daily life, they often coached the participants to look at their daily life patterns to find out what they could put into their life and what they should avoid doing. They encouraged the participants to be more aware of their habits because awareness was found to be the first step on the way to change. Even though the professionals had good experiences with working with habits, one of the professionals thought it could be challenging because the participants were on their own:

> Making them [the habits] visible can be difficult when we are not out there with them in everyday life, because habits are everything, it is not something one is aware of.

Some professionals acknowledged that this level of reflection about one's everyday life took a lot of energy:

> It demands a lot of energy in the daily life, it demands energy when you have to be aware of and think about 'what do I put in the shopping cart' and 'what situations occurs when I fill the cart with things I did not plan to buy.

Thus, goal setting, action planning, and homework were all designed to assist the participants in this difficult process.

As previously mentioned, the professionals used activities to build the participants' self-efficacy. They also used activities as the basis of skill building. The professionals discussed that their participants needed to have certain skills (e.g., practical skills related to cooking or food shopping) to work through how to integrate recommendations into their daily life in the long term. The activities that were utilized most often related to either diet or exercise. For example, in relation to diet, some of the professionals invited participants to the municipality's health center kitchen to learn how to cook healthy food. During such sessions, the participants could work through how they might adapt their own recipes and cooking styles to maintain their lost weight over time. Other examples included inviting participants to go to the supermarket to discuss the nutritional value of the groceries. Those activities were perceived to increase the awareness of healthy foods while also ensuring that the participants had the skills to translate knowledge to their daily lives. As one professional stated:

> I think it works - practical activities, because it gives a picture of their everyday lives and what they might be able to focus on, regarding the amount of sugar and vegetables.

Some of the professionals also suggested that lifelong weight maintenance would be more attainable if such programs could be integrated into the larger community. Some even suggested that there should be a relationship between the municipalities and the local sport unions. That way, the participants would have a place where they could engage in different physical activities such as volleyball, or swimming long term:

> (….) maybe also to have some collaboration with the local clubs [sports]. It is not just sport, but it could also be folk dance or karate.

Most professionals desired to see more integration between the weight loss programs and community resources because they recognized that all too often, the participants struggled to maintain their weight loss after the program supports ended. For that reason, many professionals voiced support for community-based resources that participants could use to build upon successes gained during the program

> It is such a success to build this bridge for the participants so that they have something after the program. It is a way to keep on the good lifestyle changes they have started.

DISCUSSION

This study reports on the findings of interviews with 35 professionals conducting weight loss programs in the Danish municipalities. The results point to several experiences and wishes from the professionals for a future, more holistic municipal weight loss program. Overall our data suggests

that the professionals believed that maintaining a weight loss was a lifelong process which require an increase in self-efficacy, having supportive others and integrate changes in daily life to find new habits. It seemed essential to take away the feeling of guilt by turning the focus away from weight loss. This is in line with new weight-neutral approaches such as Health At Every Size (HAES) (19). HAES takes a health perspective by focusing on intuitive eating, joyful physical activity and reducing stigma (19). HAES is based on group discussions with fixed topics but do not promote doing any activities (20). The professionals in our study believed that doing activities was an essential way to transform self-efficacy and habits. This is in line with the John Dewey's seminal insights about learning-by-doing (21). According to Dewey the connection between one´s activities and the consequences becomes, with experience, embodied within the person as habits. The habits will be deeply rooted by doing the activity related to the habit instead of talking about it (21). The professionals did experience that the participants felt joy and meaningfulness because the activities gave them knowledge about how to transform it to their daily life. Activities were often related to diet and/or exercise. The daily life consist of a myriad of activities understood as all the things that people do during a day, a month or a whole life (22). Focusing only on activities related to diet and exercise might result in an imbalance in the daily life because changes done in one place will infect the other parts of daily life (22). For instance, if a woman starts exercising three times a week, she will have less time with her children. Thus, understanding how weight loss activities affect the whole balance of daily life should be part of a weight loss program. Combining activities with discussion and reflection were used in the occupational therapy program 'Lifestyle redesign®' (23). In the program barriers and options in activities are identified through self-analyzing and reflections and are done in different activities during the intervention. This combination support changes based on understandings about the relationship between occupation, health and wellbeing in one's daily life (23).

The professionals in this study took an even more holistic perspective by incorporating the social dimensions. It seems essential to include the nearest social network because people are embodied in the social world and experiences has to be understood without the social context (24). It is increasingly acknowledged that the social network influences weight-related behavior and that people with overweight seem to cluster in the same networks (25). One study by Bahr et al. (2009) indicate that traditional weight loss programs might fail because individuals will be drawn back to the original weight behavior by the clusters (26). Even though the professionals recommend including partners and friends in the program, it might not be enough because these groups will be drawn back by multiple other clusters. Therefore Bahr et al. recommend expanding the social context to go beyond the nearest network and including friend´s friends to. This network-driven strategy might reverse the current challenges with the increasing number of people with overweight and obesity and support a large segment of the population to live a healthier life (26).

A limitation might be that our interview guide had a relative fixed structure and might have resulted in missing descriptions from the professionals. On the other hand, the purpose with the interview guide was to allow more interviewers to do the interviews and still get comparable data which has been obtained. Another limitation could be that the interviews were done in Denmark and therefore miss issues faced in other countries. Still the relatively large sample size might suggest that the issues raised are salient across regions.

Conclusion

The health professionals turned their focus away from weight loss programs exclusively focusing on weight loss to concerns about health and daily life. The approached described is in line with the new paradigm for a more weight neutral approach to weight loss programming. Professionals in our study expanded this sphere to include a more holistic perspective on health by incorporating psychosocial dimensions. Looking at these experiences together with the literature it seems essential to focus on

social relations, daily activities (habit change) and positive success as part of a balanced daily life. Future weight loss programs should emphasize a holistic approach to total health and wellbeing instead of only weight loss.

Contributions

CJW and JRC designed the study. CJW and KL were involved in the data analysis and CJW, KL, JRC, and HF were involved in interpretation or the findings. CJW, PMI, TT, KL, HF and JRC were involved in the drafting the manuscript critically for intellectual content. CJW, HF and JRC wrote the first draft. CJW, PMI, TT, KL, HF and JRC have all approved the final version attached, will improve the final version and agree to be count accountable for all aspects of the work.

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Competing interests

The authors declare that they have no competing interests.

Participant consent

Obtained.

Ethical approval

According to ´The Regional Committees on Health Research Ethics for Southern Denmark´ ethical approval for this study was not necessary.

Data sharing statement

All transcribed interviews can be provided in Danish on request.

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Table 1 Interviewguide

Interview questions
Content of the current program
- Please describe an intervention from start to finish
The importance of the topics to the participants
- How does the participants understand the topics included in the program?
- What meaning does the topics have for the participants and how do you process the meaning?
- How do you support the participants in changing their habits?
- Do you focus on the participants' daily activities? And how do you include it in the program?
The believe in success
- How significantly is the participants own believe in their success in weight lose?
- How is the participants self-image?
- Does their believe in success affect their weight lose?
- How does it affect their program?
The importance of the social relations for weight loss
- What considerations do you have in group composition?
- What do you do to support the unity of the group?
- Do you include the close relations?
- How do you include the close relations?
- How do you consider the importance of the close relations for the weight loss?
The optimal weight loss program
- What is your greatest experience during the program?
- What do you find necessary to include in a program?
- If no limits existed what would you include in a municipal weight loss program?

Table 2

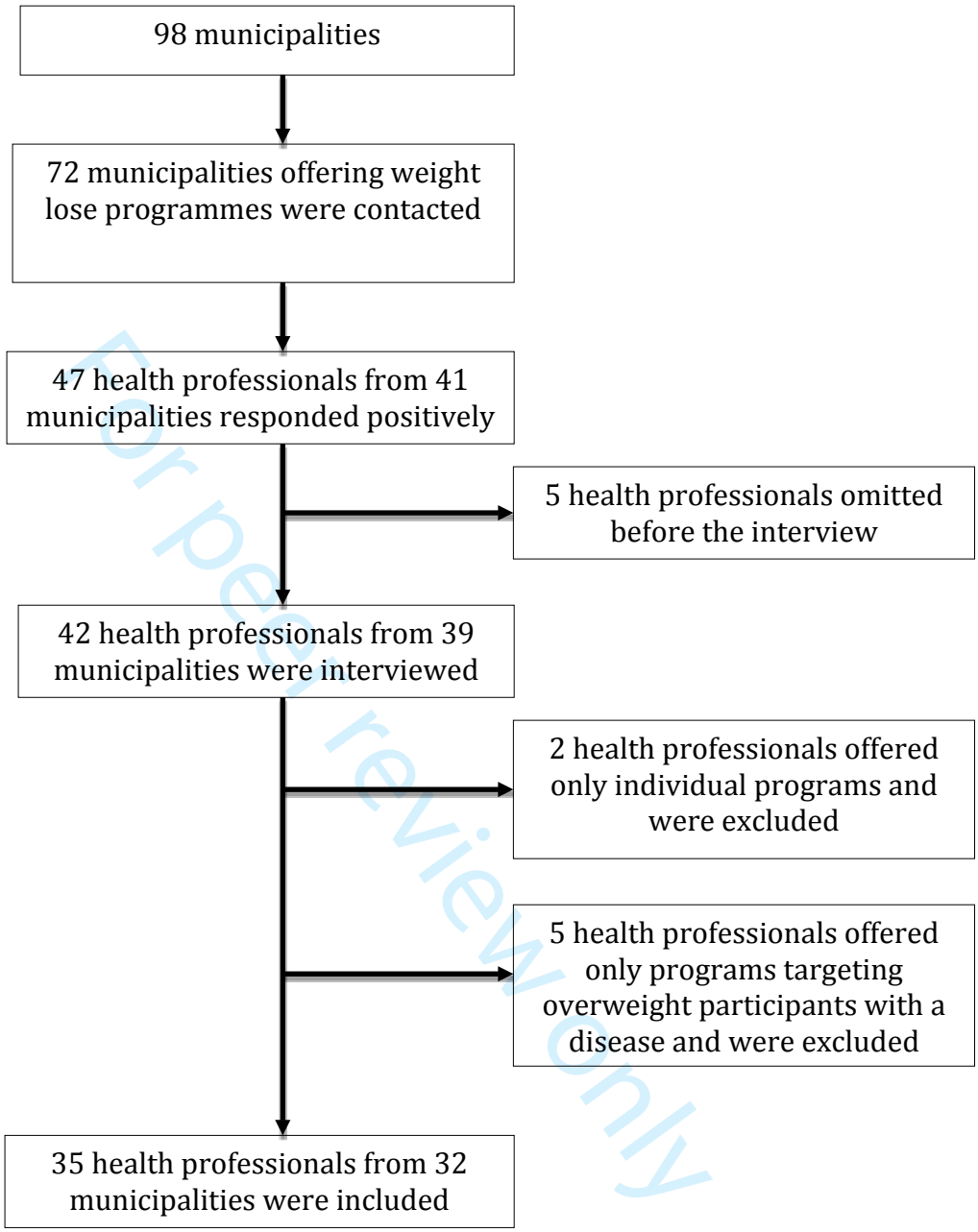
An example of the process from meaning units till the theme “The support from the social network during and after the program”

Meaning units	Condensed meaning units	Codes	Sub-categories	Categories	Themes
“I believe that those who have a husband or wife who gives 100 % support… if they come tired home (the husband or wife) will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance for success.”	The once with supportive network at home have a better chance for success	Support from home results in success	Supportive close network gives success	The support from others is essential	The support from the social network during and after the program
“maybe three of the girls decide to go in a store for big girls to buy a sports bra or stuff like that, and I mean, they can use each other to do things like that.”	Girls from the group can use each other to go shopping	Shopping together	New friendship with common interest develops	Changes in the social relations	

Table 3 Overview of professionals, sessions and content in the programs

The program	Number
Health professionals	
Dietitians or other nutrition professionals	25 professionals
Physiotherapist	4 professionals
Occupational therapist	2 professionals
Health coach	4 professionals
Number of sessions	
5 – 10 sessions	21 sessions
11 – 15 sessions	8 sessions
16 – 20 sessions	4 sessions
More than 20 sessions	2 sessions
Content – group discussions	
Diet	26 programs
Exercise	16 programs
Habits	24 programs
Sleep	7 programs
Motivation	18 programs
Content – group activities	
Diet	10 programs
Exercise	16 programs

Figure 1: Flowchart



COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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BMJ Open

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"Health professionals' perceptions of weight loss programs and recommendations for future implementation: A qualitative study"

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Abstract

Objective: Obesity is an increasing public health challenge and most weight loss programs are still inadequate to support sustainable weight loss. One reason for the continued lack of success might be the dominant biomedical, individualized approach to weight loss. Holistic approaches that focus on overall health and wellbeing in addition to weight loss are increasingly recommended. In Denmark, health professionals in the municipalities are responsible for developing and conducting weight loss programs. The objective of this study was to explore what health professional´s perceived as an ideal, holistic weight loss program that could be feasible implemented in the municipalities.

Design: A phenomenological-hermeneutical qualitative study was performed using semi-structured interviews.

Setting: Thirty-two Danish municipalities were weight loss programs are developed and conducted.

Participants: Thirty-five health professionals with experience conducting weight loss programs.

Results: Three themes emerged from the analysis: "The support from the social network during and after weight loss", "Maintaining changes through daily life".

Conclusion: Future municipal weight loss programs should emphasize overall health and wellbeing instead of weight loss and adopt a holistic approach including a focus on social relationships, meaningful activities, and successes as part of a balanced daily life.

Strength and limitations of this study:

- This study identified the perceptions of 35 health professionals conducting heterogenic programs across the municipalities in Denmark, resulting in a diverse range of desires and experiences.
- This study only included participants from Denmark and therefore excludes perspectives of health professionals from other countries.

- The structured interviews were conducted by six different interviewers.

Background

Obesity is associated with health risks including type 2 diabetes, heart disease and stroke (1). Individuals with obesity may experience that being obese negatively affects quality of life because of difficulties in performing necessary and valued everyday activities and a feeling of being stigmatised (2,3). The Obesity Society first acknowledged obesity as a disease in 2008, and since then, obesity has been regarded as a chronic condition (4). The frontline non-pharmacological treatments for obesity focus on dietary changes, physical exercise, and the use of behavioral therapy (5,6). Previous decades have seen a proliferation of programs focused on diet, exercise and behavioral therapy and the programs have succeeded in short term weight losses, but most weight losses are not maintained long term (7).

There are multiple plausible causes for the lack of efficacy. One potential problem is that the programs mainly focus on biomedical, individual approaches in the sense of avoiding diseases (5,6). This approach has be criticized for contributing to eating disorders, body dissatisfaction, low self-esteem and stigmatization (8). Obesity is influenced by multiple interrelated physical, emotional and social components of everyday life (9). Programs emphasizing a holistic approach, including physical, emotional and social components in everyday, has resulted in weight loss and weight loss maintenance (10,11). However, such approaches are few and more research on holistic approaches to decrease and maintain weight is needed (9).

Obesity is also a growing problem in Denmark as 47.4% of the population is estimated to be overweight or obese (12). Based on the lack of weight loss maintenance the National Board of Health recommends that weight loss programs focus on more holistic approaches by addressing psychosocial and daily life factors (13). The Danish health care system is free for all and funded by taxes. The obesity treatment system is divided into two parts. Individuals with BMI +40 combined

with other lifestyle related diseases are treated in regional specialized units at hospitals. Regional municipalities are also responsibility for health promotion and prevention services for citizens at risk for lifestyle diseases (often people with a BMI between 25 - 40) (14). The municipal services are typically delivered through municipal health centers and general practice (GP) clinics. The municipal health centers offer weight loss programs to citizens, when a citizen is referred by their GP (14).

The health professionals (HP) at each municipality develop and conduct their own health promotion and prevention weight loss programs. These programs have been shown to be heterogenic across the municipalities in terms of length, dose, and content. Most programs include content related to diet and/or exercise, but few focus on the physical, emotional and social components in everyday life, which are recommended by the Danish National Board of Health (15). Even though the Danish municipalities have not evaluated their weight loss programs evidence from international research has shown lack of efficacy in municipal weight loss programs (16). Therefore, it seems possible that the same would be the case in Denmark.

To address the challenge with poor weight loss maintenance and that Danish weight loss programs across the municipalities are heterogenic, our long-term goal is to develop an evidence-based program that supports people with overweight and obesity to change their daily life while losing weight. Our prior research has examined the desires of people with obesity regarding what they believe would be important to include in a weight loss program (17). HP would ultimately be involved in the implementation of any future program. HP also have expertise and perspectives regarding the development and conducting weight loss programs in the municipalities. The objective of this study was to explore what health professional´s perceived as an ideal, holistic weight loss program that could be feasible implemented in the municipalities.

Methods

We conducted a qualitative study based on a phenomenological-hermeneutical approach. A phenomenological approach requires that the researchers put aside their assumptions and ideas in

order to capture a rich description of the phenomenon in focus (18), whereas the hermeneutical approach is more interpretative (18). We used both approaches because we wanted to reach a description and an interpretation of the experiences from the HP.

Settings and participants

We selected HP through purposeful sampling from all the 98 Danish municipalities. To be included in the study the HP had to have conducted group-based municipal weight loss programs previously at least three times to ensure they had prior experience. We excluded HP if they conducted weight loss programs for people with a specific disease like diabetes because the content was expected to be slightly different than programs only related to weight loss. We sent potential participants an invitation by email with the inclusion criteria and information about the overall aim with the project. We also informed potential participants that we would contact them by phone within a week to give additional verbal information about the study. If a potential participant declined to participate by email, they were not contacted further. If we were unable to reach the HP after two attempts (a week apart) they were not included in the study. Ethical approval was not necessary according the `The Regional Committees on Health Ethics for Southern Denmark´. However, in accordance with the Declaration of Helsinki signed informed consents were obtained prior to the interviews.

Data collection

We conducted semi-structured individual interviews with each professional one at a time and in a location of their choice (19). All the participants chose their workplace. The number of interviews was guided by data saturation (20). The interview guide was divided in two sections. The first section contained questions about the professionals' current practice by asking them to describe the content and their perspectives of the weight loss programs they conducted with special attention to daily lives and social contexts. The first section of the guides was influence by the knowledge generated from our prior research and interviews with people with obesity (17). In the second section

the HP were asked about what they would recommend for a future weight loss program by asking "If no limits existed what would you include in a municipal weight loss program?" (Table 1). The interview guide was pilot tested leading to a rearrangement of some of the questions.

Table 1 Interview guide

Interview Questions
Content of the current weight loss program
- Please describe the weight loss program from beginning to end
The importance of the topics to the participants
- How do the participants understand the topics in the program? - What meaning do the topics have for the participants and how do you process the meaning? - How do you support the participants in changing their habits? - Do you focus on the participants' daily activities? And how do you include them in the program?
The belief in succes
- How significantly is the participants own believe in their success in losing weight? - How is the participants self-image? - Do they believe that success affects their weight loss? - How does it affect their program?
The importance of social relations to lose weight
- What considerations do you have regarding group compositions? - What do you do to support the unity of the groups? - Do you include close relations? - If yes, how do you include the close relations? - How do you consider if the close relations are important for the weight loss?
The optimal weight loss program
- What is your most positive experience while carrying out weight loss programs?

- What do you find necessary to include in a weight loss program?
- If no limits existed how would you plan and carry out a municipal weight loss program?

The interviews were conducted by the first author, who is also a PhD student and five female Master of Occupational Therapy students. The first author was an experienced interviewer and the master's students were trained and evaluated for competency by the first and the last author prior to conducting the interviews.

The interviews were conducted in Danish between January and March 2019 and lasted between 40-70 minutes. All interviews were audio recorded and each interviewer transcribed their own interviews.

Data analysis

The data were analyzed using qualitative content analysis to understand the multifaceted descriptions from the participants (21,22). The analysis was systematic and focused on the manifest and latent content by moving from the concrete level to a more abstract and general level (23). The analysis consisted of four steps as descripted by Graneheim and Lundman (21). In the first step, all the data materials were read by three of the authors (CJW, KL and JRC). In the second step, the content related to the aim of the study was identified and divided into meaning units. In the third step, the meaning units were condensed and labeled with a code. Aggregation of codes resulted in 14 subcategories, which were further aggregated into six categories. At this stage, we reached manifest knowledge from the text (21). In the final step the six categories were grouped under three themes with sub-themes to reach the latent and more general knowledge of the text. Three authors (CJW, KL and JRC) made the decisions about categories and subsequent themes by discussion and consensus (Table 2). A native English scientific writer who also spoke Danish, translated the quotes from Danish to English.

Table 2 An example of the process from meaning units to theme development "The support from the social network during and after the program"

Meaning units	Condensed meaning units	Codes	Sub-categories	Categories	Themes
"I believe that those who have a husband or wife who gives 100 % support… if they come tired home (the husband or wife) will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance for success."	The once with supportive network at home have a better chance for success	Support from home results in success	Supportive close network gives success	The support from others is essential	The support from the social network during and after the program
"maybe three of the girls decide to go in a store for big girls to buy a sports bra or stuff like that, and I mean, they can use each other to do things like that."	Girls from the group can use each other to go shopping	Shopping together	New friendship with common interest develops	Changes in the social relations	

Patients and public involvement statement

Due to the design of this study, no HP were involved in planning or conducting the study. The study focused on perspectives from professionals. The results will be discussed with people with obesity and HP when developing the evidence-based weight loss program.

Results

The forty-two HP interviewed had a mean number of 5.4 years of experience conducting weight loss programs. Seven of the interviews were excluded as these did not fulfil the inclusion criteria. Despite these exclusions data saturation was obtained. The 35 included HP are presented in Figure 1.

[Figure 1 in here]

The programs were all group based but different regarding HP, dose, and specific content. See table 3 for more details.

Table 3 Overview of health professionals, sessions and content in the programs

The program	**Number**
Health professionals	
Dietitians or other nutrition professionals	25 professionals
Physiotherapist	4 professionals
Occupational therapist	2 professionals
Health coach	4 professionals
Number of sessions	
5 – 10 sessions	21 programs
11 – 15 sessions	8 programs
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More than 20 sessions	2 programs
Content – group discussions	
Diet	26 programs
Exercise	16 programs
Habits	24 programs
Sleep	7 programs
Motivation	18 programs
Content – group activities	
Diet	10 programs
Exercise	16 programs

The analysis resulted in three themes, each with subthemes that reflected the HP' perceived experiences with delivering weight loss programs and their wishes for future programs: 1. The support from the social network during and after weight loss (subthemes "Including the "right" friends and family", "Encourage peer to support inside and outside the group") 2. Rigid rules-belief needs to be changed to self-belief (subthemes "Reviewing success through goals and small steps", "Skill training to support success") 3. Maintaining changes through daily life (subthemes "Awareness of habit patterns", "Value through activities and communities").

The support from the social network during and after weight loss

All the HP agreed that the support from the social network was important in the weight loss process. They described that the most important support should come from friends and family, or from peers who were also a part of the weight loss group.

Including "the right" friends and family

Regarding friends and family, they discussed that when relatives or friends 'jumped on the same train' in relation to eating and exercise patterns, it often resulted in greater success. The HP discussed two primary ways that the support of friends and family was helpful to the weight loss process. The first involved friends or couples joining the programs together. In the HP' experience, these joint efforts resulted in greater weight losses, as one HP expressed:

> I have two couples in one of the groups right now and they have really changed a lot because they have the social part together.

The second involved simply having a friend or family that was committed to support. This person acted as cheerleader and could also increase adherence with weight loss goals, as the following quote illustrates.

> I believe that those who have a husband or wife who gives 100 % support… if they come home tired [the husband or wife] will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance of success.

The HP also provided examples of strategies they used to relate to participants how different types of social support could either hinder or help their weight-loss efforts. For example, one HP used a traffic light metaphor. The 'green' people respected the wishes for change and supported the participants by changing routines when they met, (e.g., by serving vegetables instead of cake). Conversely, the 'red' people were characterized as frustrating and difficult because they were not supportive. Therefore, some participants reduced contact with specific groups of friends and in some cases, the lack of support during the weight loss process could even lead to divorce: "It often happens that people leave them when they start this process."

Encourage peers to support inside and outside the group

While existing social networks were important, the HP also highlighted the importance of group-delivered programs for increasing peer support through the creation of new networks. Group programs provided an opportunity to be surrounded by others facing similar struggles and doubts. Within the group, peers supported each other, motivated each other, and held each other accountable. One of the HP described the dynamic as magic:

> I really think it is rewarding with the groups. You can see the dynamic (….) When they get to know each other and find a common frame…sometimes I stand there thinking "this is almost magical".

HP encouraged lasting relationships between the peers. For example, they encouraged the participants to make Facebook accounts to keep on exchanging experiences and to have a platform for planning things together. Another way of supporting each other was the use of 'buddies' with the aim to have a person to call whenever things went wrong:

> They make a contract and describes their goals for the next period and how the buddy can support them by doing this and that. And it works, yes it really does, so this is one of the things I would like to highlight.

Sometimes the groups resulted in friendships with people they could do things together with – things they earlier experienced as difficult. One HP gave an example of three girls who decided to buy a sports bra together which earlier had been difficult because they were on their own.

Though the HP unanimously supported the need for participants to get support from people in their close social networks, they also acknowledged that in some cases social relationships were detrimental to the weight loss process and should therefore be changed. One HP discussed her experiences with a participant who struggled with her weight loss due to pressure to act in ways that undermined her weight loss goal:

> We are not individualist when we talk about healthy lifestyle. We are linked together in a lot of rings, which pull us in different directions…

Rigid rules-belief needs to be changed to self-belief

The HP explained that many participants had rigid beliefs about how to lose weight and most often these beliefs impeded success. As such, they sought ways to challenge the participants' beliefs.

Reviewing success through goal and small steps

Rigid beliefs about how to successfully lose weight often resulted in feelings of guilt when the participant failed to adhere to what they perceived as a rule (e.g., never eat cake again). In addition to challenging rigid beliefs, the Hp tried to change the overall focus from losing weight to having a meaningful and satisfied life. Rather than allowing participants to dwell on feelings of guilt, they encouraged the participants to see their successes. Some HP found it useful to discuss 'the stages of change model' (24) and show the participants that people are not always ready to change, and that it was okay not to be as ready as someone else. This gave the participants a sense of success even though they did not lose 10 kilos. In most programs they helped the participants set realistic goals to ensure that they were not setting themselves up for failure. In the weight loss process the HP also focused on the things that went well in the participants' attempts to reach a goal rather than focusing

on what went wrong. Those small successes also increased the participants' confidence in their own capacities.

> You can plant the seed by giving them [the participants] some coping strategies. You can give them the experience of being able to do something they didn't think they could, which makes them want to do more.

Skill training to support success

The HP emphasized embracing both trial and error related to doing activities during the program. They believed in the importance of doing things because "you only learn by doing it". They highlighted that they used activities as the basis of skill building to improve participants´ beliefs in themselves. The HP discussed participants needed to have certain skills (e.g., practical skills related to cooking or food shopping) to integrate recommendations into their daily life in the long term. The activities that were utilized most often related to either diet or exercise. For example, some of the HP invited participants to the municipality's health center kitchen to learn how to cook healthy food. During such sessions, the participants could work through how they might adapt their own recipes and cooking styles to maintain their lost weight over time. Other examples included inviting participants to the supermarket to discuss the nutritional value of the groceries. Those activities were perceived to increase the awareness of healthy foods while also ensuring that the participants had the skills to successfully translate knowledge to their daily lives. As one HP stated:

> I think it works - practical activities, because it gives a picture of their everyday lives and what they might be able to focus on, regarding the amount of sugar or vegetables.

Maintaining changes through daily life

The HP all discussed that the behavior change process was a lifelong process. For behavior changes to be maintained, they had to be integrated into daily life.

Awareness of habit patterns

The HP were attentive to how standardized recommendations needed to be tailored to the participants' unique life contexts. One professional noted:

> There are the recommendations, but how does it fit into [the participants'] daily life. If it does not fit, then do something else.

To help the participants to integrate the recommendations into their daily life, they often coached the participants to look at their daily life patterns to find out what they could put into their life and what they should avoid doing. They encouraged the participants to be more aware of their habits because awareness was found to be the first step on the way to change. Even though the HP acknowledged that working with habits was relevant to weight loss, one of the HP thought it could be challenging because the participants were on their own:

> Making them [the habits] visible can be difficult when we are not out there with them in everyday life, because habits are everything, it is not something one is aware of.

Some HP acknowledged that this level of reflection about one's everyday life took a lot of energy:

> It demands a lot of energy in the daily life, it demands energy when you have to be aware of and think about "what do I put in the shopping cart" and "what situations occurs when I fill the cart with things I did not plan to buy".

Thus, goal setting, action planning, and homework were all designed to assist the participants in this difficult process.

Values through activities and community

The HP supported using concrete activities to support behavior change. The HP often implemented activities for the entire group as part of a treatment session. Having a trusted HP present to guide the experience made it less intimidating for many participants and helped expose some participants to activities that they might not otherwise have attempted. One HP described activities as "the steppingstone that support changes". Another HP provided the following example of an outing in the dunes. The example illustrates how people may be concerned about trying something new at first, but once they complete an activity, their worries are often replaced with excitement and satisfaction.

> Oh no, are we going though these dunes, it is way too long and did I remember my asthma medicine and things like that, but people are so satisfied when they get back. But it was actually great, and we had fresh air (….).

The HP highlighted that trying new activities or doing them in another way were important because they recognized that some participants struggled to find out what they really found enjoyable or motivating. The HP, therefore found it important to help the participants rediscover their interests, needs and values. For instance, one HP said:

> Maybe they [the participants] find out that they keep on saying to them self that I have to get a membership for the fitness center. Or maybe I have a membership but never go down there, then we talk about what gives you joy, what gives you energy and what are your experiences?

Most HP desired to see more integration between the weight loss programs and the community resources. They recognized that often, the participants struggled to maintain their weight loss after the program ended because they had only taken the first step in finding values in new activities. Therefore, many HP voiced support for community-based resources that the participants could use to build upon successes gained during the programs: "It is such a success to build this bridge for the participants so that they have something after the program. It is a way to keep on the good lifestyle changes that they have started."

DISCUSSION

This study reports on the findings of 35 interviews with HP conducting weight loss programs in the Danish municipalities. The results suggest elements that HP felt should be included in an ideal municipal weight loss program. Overall, our data suggest that the HP believed that maintaining weight loss was a lifelong process, which required an increase in self-efficacy, having support of friends and family, integration of changes in daily life, and the development of new habits. It seemed essential to take away feelings of guilt by turning the focus away from weight loss. This is in line with new weight-neutral approaches such as Health At Every Size (HAES) (25). HAES takes a health perspective by focusing on intuitive eating, joyful physical activity and reducing stigma (25). HAES is based on group discussions with fixed topics. The program does not promote doing any activities to gain hand on experience, however (10). The HP in our study believed that doing activities was essential. There are three key reasons why activities are important in a weight loss program. First, in line with John Dewey's seminal insights about learning-by-doing it promote a

deeper learning (26). According to Dewey the connection between one's activities and the consequences becomes embodied within the person as new knowledge (26). Second, doing activities support habit formation because the practical approach makes it easier implementing in daily life (27). Thirdly, the participants experience positive feelings from the experience and supporting self-efficacy. Though several HP supported using activities, most activities were related to diet and/or exercise. Daily life consist of a myriad of activities that could impact weight loss efforts (28). As such, focusing only on activities related to diet and exercise might result in an imbalance in daily life because changes made in one domain will affect other domains(28). For instance, if a woman starts exercising three times a week, she will have less time with her children. Thus, understanding how weight loss activities affect the whole balance of daily life should be part of a weight loss program. Principles from an occupational therapy programs called Lifestyle Redesign® could support people with obesity finding this balance. Lifestyle redesign® is not a weight loss program however the principles might be relevant translating to a weight loss program as it support the participants to identify barriers and options in activities through self-analyzing and reflections and are done in different activities during the program (29). This combination support changes based on understandings about the relationship between occupation, health and wellbeing in one's daily life (29).

The HP in this study also supported incorporating participant's social dimensions into treatment. It seems essential to include the nearest social network because people are embedded in the social world and experience has to be understood within the social context (30). It is increasingly acknowledged that the social network influences weight-related behavior and that people with overweight or obesity seem to cluster in the same networks (31). One study by Bahr et al. (2009) indicated that traditional weight loss programs might fail because individuals will be drawn back to the original weight behavior by the network clusters (32). Even though the HP recommend including

partners and friends in the program, those relationships may not always be conducive to weight loss efforts. Therefore Bahr et al. recommend expanding the social context to go beyond the nearest network and including friend's friends too, and particularly those that could support future goals. This network-driven strategy might reverse the current challenges with the increasing number of people with overweight and obesity and support a large segment of the population to live a healthier life (32).

Strengths and limitations

A limitation might be that the interviews were only done in Denmark which affects the extern validity. On the other hand, the relatively large sample suggest that the issues raised are salient across regions in Denmark.

The programs included in this study are heterogenic in length, dose and content. We regard this as a strength because it reflects the heterogenic within clinical practice. It also includes different perspectives from a varied picture of the perceptions and wishes from the HP which is important in developing a new weight loss program.

Conclusion

The HP emphasized that ideal weight loss programs should turn their focus away from weight loss exclusively and instead focus on weight loss as integrated in overall health and daily life. They expanded this sphere by including a more holistic perspective by framing an ideal weight loss program as one that focused on social relations, daily activities, habit change and positive success as part of a balanced daily life. Future weight loss programs should emphasize a holistic approach to health and wellbeing instead of only losing weight.

Contributions

CJW and JRC designed the study. CJW and KL were involved in the data analysis and CJW, KL, JRC, and HF were involved in interpretation of the findings. CJW, PMI, TT, KL, HF and JRC were all involved in the manuscript drafting. CJW, HF and JRC wrote the first draft. CJW, PMI, TT, KL, HF and JRC have all approved the final version and agree to be count accountable for all aspects of the work.

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Competing interests

The authors declare that they have no competing interests.

Participant consent

Obtained.

Ethical approval

According to `The Regional Committees on Health Research Ethics for Southern Denmark´ ethical approval for this study was not necessary.

Data sharing statement

All transcribed interviews can be provided in Danish on request.

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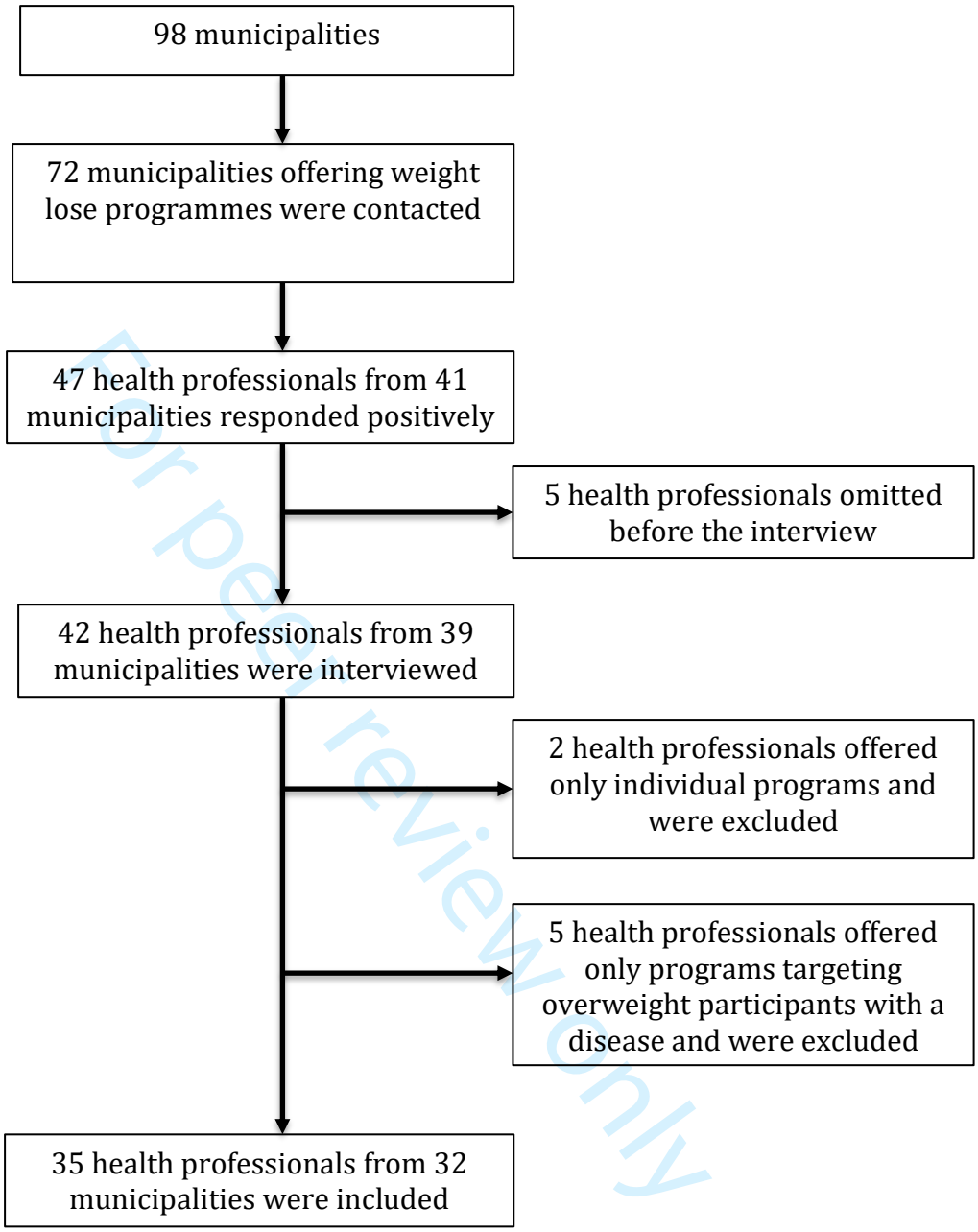
Figure 1: Flowchart



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A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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Health professionals' perceptions of weight loss programs and recommendations for future implementation: A qualitative study

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Abstract

Objective: Obesity is an increasing public health challenge and most weight loss programs are still inadequate to support sustainable weight loss. One reason for the continued lack of success might be the dominant biomedical, individualized approach to weight loss. Holistic approaches that focus on overall health and wellbeing in addition to weight loss are increasingly recommended. In Denmark, health professionals in the municipalities are responsible for developing and conducting weight loss programs. The objective of this study was to explore what health professional's perceived as an ideal, holistic weight loss program that could be feasible implemented in the municipalities.

Design: A phenomenological-hermeneutical qualitative study was performed using semi-structured interviews.

Setting: Thirty-two Danish municipalities were weight loss programs are developed and conducted.

Participants: Thirty-five health professionals with experience conducting weight loss programs.

Results: Three themes emerged from the analysis: Support from the social network are important both during and after a weight loss, Changing the self-belief by positive discussions and doing activities, Maintaining changes through daily life.

Conclusion: Future municipal weight loss programs should emphasize overall health and wellbeing instead of weight loss and adopt a holistic approach including a focus on social relationships, meaningful activities, and successes as part of a balanced daily life.

Strength and limitations of this study:

- This study identified the perceptions of 35 health professionals conducting heterogenic programs across the municipalities in Denmark, resulting in a diverse range of desires and experiences.
- This study only included participants from Denmark and therefore excludes perspectives of health professionals from other countries.
- The structured interviews were conducted by six different interviewers.

Background

Obesity is associated with health risks including type 2 diabetes, heart disease and stroke (1). Individuals with obesity may experience that being obese negatively affects quality of life because of difficulties in performing necessary and valued everyday activities and a feeling of being stigmatised (2,3). The Obesity Society first acknowledged obesity as a disease in 2008, and since then, obesity has been regarded as a chronic condition (4). The frontline non-pharmacological treatments for obesity focus on dietary changes, physical exercise, and the use of behavioral therapy (5,6). Previous decades have seen a proliferation of programs focused on diet, exercise and behavioral therapy and the programs have succeeded in short term weight losses, but most weight losses are not maintained long term (7).

There are multiple plausible causes for the lack of efficacy. One potential problem is that the programs mainly focus on biomedical, individual approaches in the sense of avoiding diseases (5,6). This approach has be criticized for contributing to eating disorders, body dissatisfaction, low self-esteem and stigmatization (8). Obesity is influenced by multiple interrelated physical, emotional and social components of everyday life (9). Programs emphasizing a holistic approach, including physical, emotional and social components in everyday, has resulted in weight loss and weight loss maintenance (10,11). However, such approaches are few and more research on holistic approaches to decrease and maintain weight is needed (9).

Obesity is also a growing problem in Denmark as 47.4% of the population is estimated to be overweight or obese (12). Based on the lack of weight loss maintenance the National Board of Health recommends that weight loss programs focus on more holistic approaches by addressing psychosocial and daily life factors (13). The Danish health care system is free for all and funded by taxes. The obesity treatment system is divided into two parts. Individuals with BMI +40 combined with other lifestyle related diseases are treated in regional specialized units at hospitals. Regional municipalities are also responsibility for health promotion and prevention services for citizens at risk

for lifestyle diseases (often people with a BMI between 25 - 40) (14). The municipal services are typically delivered through municipal health centers and general practice (GP) clinics. The municipal health centers offer weight loss programs to citizens, when a citizen is referred by their GP (14).

The health professionals (HP) at each municipality develop and conduct their own health promotion and prevention weight loss programs. These programs have been shown to be heterogenic across the municipalities in terms of length, dose, and content. Most programs include content related to diet and/or exercise, but few focus on the physical, emotional and social components in everyday life, which are recommended by the Danish National Board of Health (15). Even though the Danish municipalities have not evaluated their weight loss programs evidence from international research has shown lack of efficacy in municipal weight loss programs (16). Therefore, it seems possible that the same would be the case in Denmark.

To address the challenge with poor weight loss maintenance and that Danish weight loss programs across the municipalities are heterogenic, our long-term goal is to develop an evidence-based program that supports people with overweight and obesity to change their daily life while losing weight. In our prior research (Jessen-Winge et al, What a weight loss programme should contain if people with obesity were asked – a qualitative analysis within the DO:IT project) we examined the desires of people with obesity regarding what they believe would be important to include in a weight loss program. HP would ultimately be involved in the implementation of any future program. HP also have expertise and perspectives regarding the development and conducting weight loss programs in the municipalities. The objective of this study was to explore what health professional's perceived as an ideal, holistic weight loss program that could be feasible implemented in the municipalities.

Methods

We conducted a qualitative study based on a phenomenological-hermeneutical approach. A phenomenological approach requires that the researchers put aside their assumptions and ideas in

order to capture a rich description of the phenomenon in focus (17), whereas the hermeneutical approach is more interpretative (17). We used both approaches because we wanted to reach a description and an interpretation of the experiences from the HP.

Settings and participants

We selected HP through purposeful sampling from all the 98 Danish municipalities. To be included in the study the HP had to have conducted group-based municipal weight loss programs previously at least three times to ensure they had prior experience. We excluded HP if they conducted weight loss programs for people with a specific disease like diabetes because the content was expected to be slightly different than programs only related to weight loss. We sent potential participants an invitation by email with the inclusion criteria and information about the overall aim with the project. We also informed potential participants that we would contact them by phone within a week to give additional verbal information about the study. If a potential participant declined to participate by email, they were not contacted further. If we were unable to reach the HP after two attempts (a week apart) they were not included in the study. Ethical approval was not necessary according the 'The Regional Committees on Health Ethics for Southern Denmark'. However, in accordance with the Declaration of Helsinki signed informed consents were obtained prior to the interviews.

Data collection

We conducted semi-structured individual interviews with each professional one at a time and in a location of their choice (18). All the participants chose their workplace. The number of interviews was guided by data saturation (19). The interview guide was divided in two sections. The first section contained questions about the professionals' current practice by asking them to describe the content and their perspectives of the weight loss programs they conducted with special attention to daily lives and social contexts. The first section of the guides was influence by the knowledge

generated from our prior research and interviews with people with obesity obesity (Jessen-Winge et al. What a weight loss should contain if people with obesity were asked – a qualitative analysis within the DO:IT project). In the second section the HP were asked about what they would recommend for a future weight loss program by asking "If no limits existed what would you include in a municipal weight loss program?" (Table 1). The interview guide was pilot tested leading to a rearrangement of some of the questions.

Table 1 Interview guide

Interview Questions
Content of the current weight loss program
- Please describe the weight loss program from beginning to end
The importance of the topics to the participants
- How do the participants understand the topics in the program? - What meaning do the topics have for the participants and how do you process the meaning? - How do you support the participants in changing their habits? - Do you focus on the participants' daily activities? And how do you include them in the program?
The belief in success
- How significantly is the participants own believe in their success in losing weight? - How is the participants self-image? - Do they believe that success affects their weight loss? - How does it affect their program?
The importance of social relations to lose weight
- What considerations do you have regarding group compositions? - What do you do to support the unity of the groups? - Do you include close relations? - If yes, how do you include the close relations? - How do you consider if the close relations are important for the weight loss?
The optimal weight loss program
- What is your most positive experience while carrying out weight loss programs? - What do you find necessary to include in a weight loss program? - If no limits existed how would you plan and carry out a municipal weight loss program?

The interviews were conducted by the first author, who is also a PhD student and five female Master of Occupational Therapy students. The first author was an experienced interviewer and the master's

students were trained and evaluated for competency by the first and the last author prior to conducting the interviews. The interviews were conducted in Danish between January and March 2019 and lasted between 40-70 minutes. All interviews were audio recorded and each interviewer transcribed their own interviews.

Data analysis

The data were analyzed using qualitative content analysis to understand the multifaceted descriptions from the participants (20,21). The analysis was systematic and focused on the manifest and latent content by moving from the concrete level to a more abstract and general level (22). The analysis consisted of four steps as descripted by Graneheim and Lundman (20). In the first step, all the data materials were read by three of the authors (CJW, KL and JRC). In the second step, the content related to the aim of the study was identified and divided into meaning units. In the third step, the meaning units were condensed and labeled with a code. Aggregation of codes resulted in 14 subcategories, which were further aggregated into six categories. At this stage, we reached manifest knowledge from the text (20). In the final step the six categories were grouped under three themes with sub-themes to reach the latent and more general knowledge of the text. Three authors (CJW, KL and JRC) made the decisions about categories and subsequent themes by discussion and consensus (Table 2). A native English scientific writer who also spoke Danish, translated the quotes from Danish to English.

Table 2 An example of the process from meaning units to theme development "The support from the social network during and after the program"

Meaning units	Condensed meaning units	Codes	Sub-categories	Categories	Themes
"I believe that those who have a husband or wife who gives 100 %	The once with supportive network at home have a better chance for success	Support from home results in success	Supportive close network gives success	The support from others is essential	

support… if they come tired home (the husband or wife) will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance for success." "Maybe three of the girls decide to go in a store for big girls to buy a sports bra or stuff like that, and I mean, they can use each other to do things like that."	Girls from the group can use each other to go shopping	Shopping together	New friendship with common interest develops	Changes in the social relations	The support from the social network during and after the program

Patients and public involvement statement

Due to the design of this study, no HP were involved in planning or conducting the study. The study focused on perspectives from professionals. The results will be discussed with people with obesity and HP when developing the evidence-based weight loss program.

Results

The forty-two HP interviewed had a mean number of 5.4 years of experience conducting weight loss programs. Seven of the interviews were excluded as these did not fulfil the inclusion criteria. Despite these exclusions data saturation was obtained. The 35 included HP are presented in Figure 1.

[Figure 1 in here]

The programs were all group based but different regarding HP, dose, and specific content. See table 3 for more details.

Table 3 Overview of health professionals, sessions and content in the programs

The program	Number
Health professionals	
Dietitians or other nutrition professionals	25 professionals
Physiotherapist	4 professionals
Occupational therapist	2 professionals
Health coach	4 professionals
Number of sessions	
5 – 10 sessions	21 programs
11 – 15 sessions	8 programs
16 – 20 sessions	4 programs
More than 20 sessions	2 programs
Content – group discussions	
Diet	26 programs
Exercise	16 programs
Habits	24 programs
Sleep	7 programs
Motivation	18 programs
Content – group activities	
Diet	10 programs
Exercise	16 programs

The analysis resulted in three themes, each with subthemes that reflected the HP' perceived experiences with delivering weight loss programs and their wishes for future programs: 1. Support from the social network are important both during and after a weight loss (subthemes Positive support from family and friends are associated with better results, Encouraging peer support both within and outside the group context) 2 Changing the self-belief by positive discussions and doing

activities (subthemes Reviewing success through goals and small steps, Skill training to support success) 3. Maintaining changes through daily life (subthemes Awareness of habit patterns, Value through activities and communities).

Support from the social network are important both during and after weight loss

All the HP agreed that the support from the social network was important in the weight loss process. They described that the most important support should come from friends and family, or from peers who were also a part of the weight loss group.

Positive support from family and friends are associated with better results

Regarding friends and family, they discussed that when relatives or friends 'jumped on the same train' in relation to eating and exercise patterns, it often resulted in greater success. The HP discussed two primary ways that the support of friends and family was helpful to the weight loss process. The first involved friends or couples joining the programs together. In the HP' experience, these joint efforts resulted in greater weight losses, as one HP expressed:

> I have two couples in one of the groups right now and they have really changed a lot because they have the social part together.

The second involved simply having a friend or family that was committed to support. This person acted as cheerleader and could also increase adherence with weight loss goals, as the following quote illustrates.

> I believe that those who have a husband or wife who gives 100 % support… if they come home tired [the husband or wife] will tell them that they will open the door for them because they have to go for a run or go biking…Of course, they have a better chance of success.

The HP also provided examples of strategies they used to relate to participants how different types of social support could either hinder or help their weight-loss efforts. For example, one HP used a traffic light metaphor. The 'green' people respected the wishes for change and supported the participants by changing routines when they met, (e.g., by serving vegetables instead of cake). Conversely, the 'red' people were characterized as frustrating and difficult because they were not supportive. Therefore, some participants reduced contact with specific groups of friends and in some cases, the lack of support during the weight loss process could even lead to divorce: "It often happens that people leave them when they start this process."

Encouraging peer support both within and outside the group context

While existing social networks were important, the HP also highlighted the importance of group-delivered programs for increasing peer support through the creation of new networks. Group programs provided an opportunity to be surrounded by others facing similar struggles and doubts. Within the group, peers supported each other, motivated each other, and held each other accountable. One of the HP described the dynamic as magic:

> I really think it is rewarding with the groups. You can see the dynamic (….) When they get to know each other and find a common frame…sometimes I stand there thinking 'this is almost magical'.

HP encouraged lasting relationships between the peers. For example, they encouraged the participants to make Facebook accounts to keep on exchanging experiences and to have a platform for planning things together. Another way of supporting each other was the use of 'buddies' with the aim to have a person to call whenever things went wrong:

> They make a contract and describes their goals for the next period and how the buddy can support them by doing this and that. And it works, yes it really does, so this is one of the things I would like to highlight.

Sometimes the groups resulted in friendships with people they could do things together with – things they earlier experienced as difficult. One HP gave an example of three girls who decided to buy a sports bra together which earlier had been difficult because they were on their own.

Though the HP unanimously supported the need for participants to get support from people in their close social networks, they also acknowledged that in some cases social relationships were detrimental to the weight loss process and should therefore be changed. One HP discussed her experiences with a participant who struggled with her weight loss due to pressure to act in ways that undermined her weight loss goal:

> We are not individualist when we talk about healthy lifestyle. We are linked together in a lot of rings, which pull us in different directions…

Changing the self-belief by positive discussions and doing activities

The HP explained that many participants had rigid beliefs about how to lose weight and most often these beliefs impeded success. As such, they sought ways to challenge the participants' beliefs.

Reviewing success through goal and small steps

Rigid beliefs about how to successfully lose weight often resulted in feelings of guilt when the participant failed to adhere to what they perceived as a rule (e.g., never eat cake again). In addition to challenging rigid beliefs, the HP tried to change the overall focus from losing weight to having a

meaningful and satisfied life. Rather than allowing participants to dwell on feelings of guilt, they encouraged the participants to see their successes. Some HP found it useful to discuss 'the stages of change model' (23) and show the participants that people are not always ready to change, and that it was okay not to be as ready as someone else. This gave the participants a sense of success even though they did not lose 10 kilos. In most programs they helped the participants set realistic goals to ensure that they were not setting themselves up for failure. In the weight loss process the HP also focused on the things that went well in the participants' attempts to reach a goal rather than focusing on what went wrong. Those small successes also increased the participants' confidence in their own capacities.

> You can plant the seed by giving them [the participants] some coping strategies. You can give them the experience of being able to do something they didn't think they could, which makes them want to do more.

Skill training to support success

The HP emphasized embracing both trial and error related to doing activities during the program. They believed in the importance of doing things because "you only learn by doing it". They highlighted that they used activities as the basis of skill building to improve participants' beliefs in themselves. The HP discussed participants needed to have certain skills (e.g., practical skills related to cooking or food shopping) to integrate recommendations into their daily life in the long term. The activities that were utilized most often related to either diet or exercise. For example, some of the HP invited participants to the municipality's health center kitchen to learn how to cook healthy food. During such sessions, the participants could work through how they might adapt their own recipes and cooking styles to maintain their lost weight over time. Other examples included inviting participants to the supermarket to discuss the nutritional value of the groceries. Those activities were

perceived to increase the awareness of healthy foods while also ensuring that the participants had the skills to successfully translate knowledge to their daily lives. As one HP stated:

> I think it works - practical activities, because it gives a picture of their everyday lives and what they might be able to focus on, regarding the amount of sugar or vegetables.

Maintaining changes through daily life

The HP all discussed that the behavior change process was a lifelong process. For behavior changes to be maintained, they had to be integrated into daily life.

Awareness of habit patterns

The HP were attentive to how standardized recommendations needed to be tailored to the participants' unique life contexts. One professional noted:

> There are the recommendations, but how does it fit into [the participants'] daily life. If it does not fit, then do something else.

To help the participants to integrate the recommendations into their daily life, they often coached the participants to look at their daily life patterns to find out what they could put into their life and what they should avoid doing. They encouraged the participants to be more aware of their habits because awareness was found to be the first step on the way to change. Even though the HP acknowledged that working with habits was relevant to weight loss, one of the HP thought it could be challenging because the participants were on their own:

> Making them [the habits] visible can be difficult when we are not out there with them in everyday life, because habits are everything, it is not something one is aware of.

Some HP acknowledged that this level of reflection about one's everyday life took a lot of energy:

> It demands a lot of energy in the daily life, it demands energy when you have to be aware of and think about "what do I put in the shopping cart" and "what situations occurs when I fill the cart with things I did not plan to buy".

Thus, goal setting, action planning, and homework were all designed to assist the participants in this difficult process.

Values through activities and community

The HP supported using concrete activities to support behavior change. The HP often implemented activities for the entire group as part of a treatment session. Having a trusted HP present to guide the experience made it less intimidating for many participants and helped expose some participants to activities that they might not otherwise have attempted. One HP described activities as "the steppingstone that support changes". Another HP provided the following example of an outing in the dunes. The example illustrates how people may be concerned about trying something new at first, but once they complete an activity, their worries are often replaced with excitement and satisfaction.

> Oh no, are we going though these dunes, it is way too long and did I remember my asthma medicine and things like that, but people are so satisfied when they get back. But it was actually great, and we had fresh air (….).

The HP highlighted that trying new activities or doing them in another way were important because they recognized that some participants struggled to find out what they really found enjoyable or motivating. The HP, therefore found it important to help the participants rediscover their interests, needs and values. For instance, one HP said:

> Maybe they [the participants] find out that they keep on saying to them self that I have to get a membership for the fitness center. Or maybe I have a membership but never go down there, then we talk about what gives you joy, what gives you energy and what are your experiences?

Most HP desired to see more integration between the weight loss programs and the community resources. They recognized that often, the participants struggled to maintain their weight loss after the program ended because they had only taken the first step in finding values in new activities. Therefore, many HP voiced support for community-based resources that the participants could use to build upon successes gained during the programs: "It is such a success to build this bridge for the participants so that they have something after the program. It is a way to keep on the good lifestyle changes that they have started."

Discussion

This study reports on the findings of 35 interviews with HP conducting weight loss programs in the Danish municipalities. The results suggest elements that HP felt should be included in an ideal municipal weight loss program. Overall, our data suggest that the HP believed that maintaining weight loss was a lifelong process, which required an increase in self-efficacy, having support of friends and family, integration of changes in daily life, and the development of new habits. It seemed essential to take away feelings of guilt by turning the focus away from weight loss. This is in line with new weight-neutral approaches such as Health At Every Size (HAES) (24). HAES takes a

health perspective by focusing on intuitive eating, joyful physical activity and reducing stigma (24). HAES is based on group discussions with fixed topics. The program does not promote doing any activities to gain hand on experience, however (10). The HP in our study believed that doing activities was essential. There are three key reasons why activities are important in a weight loss program. First, in line with John Dewey's seminal insights about learning-by-doing it promote a deeper learning (25). According to Dewey the connection between one's activities and the consequences becomes embodied within the person as new knowledge (25). Second, doing activities support habit formation because the practical approach makes it easier implementing in daily life (26). Thirdly, the participants experience positive feelings from the experience and supporting self-efficacy. Though several HP supported using activities, most activities were related to diet and/or exercise. Daily life consist of a myriad of activities that could impact weight loss efforts (27). As such, focusing only on activities related to diet and exercise might result in an imbalance in daily life because changes made in one domain will affect other domains (27). For instance, if a woman starts exercising three times a week, she will have less time with her children. Thus, understanding how weight loss activities affect the whole balance of daily life should be part of a weight loss program. Principles from an occupational therapy programs called Lifestyle Redesign® could support people with obesity finding this balance. Lifestyle redesign® is not a weight loss program however the principles might be relevant translating to a weight loss program as it support the participants to identify barriers and options in activities through self-analyzing and reflections and are done in different activities during the program (28). This combination support changes based on understandings about the relationship between occupation, health and wellbeing in one's daily life (28).

The HP in this study also supported incorporating participant's social dimensions into treatment. It seems essential to include the nearest social network because people are embedded in the social world and experience has to be understood within the social context (29). It is increasingly

acknowledged that the social network influences weight-related behavior and that people with overweight or obesity seem to cluster in the same networks (30). One study by Bahr et al. (2009) indicated that traditional weight loss programs might fail because individuals will be drawn back to the original weight behavior by the network clusters (31). Even though the HP recommend including partners and friends in the program, those relationships may not always be conducive to weight loss efforts. Therefore Bahr et al. recommend expanding the social context to go beyond the nearest network and including friend's friends too, and particularly those that could support future goals. This network-driven strategy might reverse the current challenges with the increasing number of people with overweight and obesity and support a large segment of the population to live a healthier life (31).

Strengths and limitations

A limitation might be that the interviews were only done in Denmark which affects the extern validity. On the other hand, the relatively large sample suggest that the issues raised are salient across regions in Denmark.

The programs included in this study are heterogenic in length, dose and content. We regard this as a strength because it reflects the heterogenic within clinical practice. It also includes different perspectives from a varied picture of the perceptions and wishes from the HP which is important in developing a new weight loss program.

Conclusion

The HP emphasized that ideal weight loss programs should turn their focus away from weight loss exclusively and instead focus on weight loss as integrated in overall health and daily life. They expanded this sphere by including a more holistic perspective by framing an ideal weight loss program as one that focused on social relations, daily activities, habit change and positive success as

part of a balanced daily life. Future weight loss programs should emphasize a holistic approach to health and wellbeing instead of only losing weight.

Contributions

CJW and JRC designed the study. CJW and KL were involved in the data analysis and CJW, KL, JRC, and HF were involved in interpretation of the findings. CJW, PMI, TT, KL, HF and JRC were all involved in the manuscript drafting. CJW, HF and JRC wrote the first draft. CJW, PMI, TT, KL, HF and JRC have all approved the final version and agree to be count accountable for all aspects of the work.

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Competing interests

The authors declare that they have no competing interests.

Participant consent

Obtained.

Ethical approval

According to 'The Regional Committees on Health Research Ethics for Southern Denmark' ethical approval for this study was not necessary.

Data sharing statement

All transcribed interviews can be provided in Danish on request.

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Figure legend:

Figure 1: Flowchart of participant selection

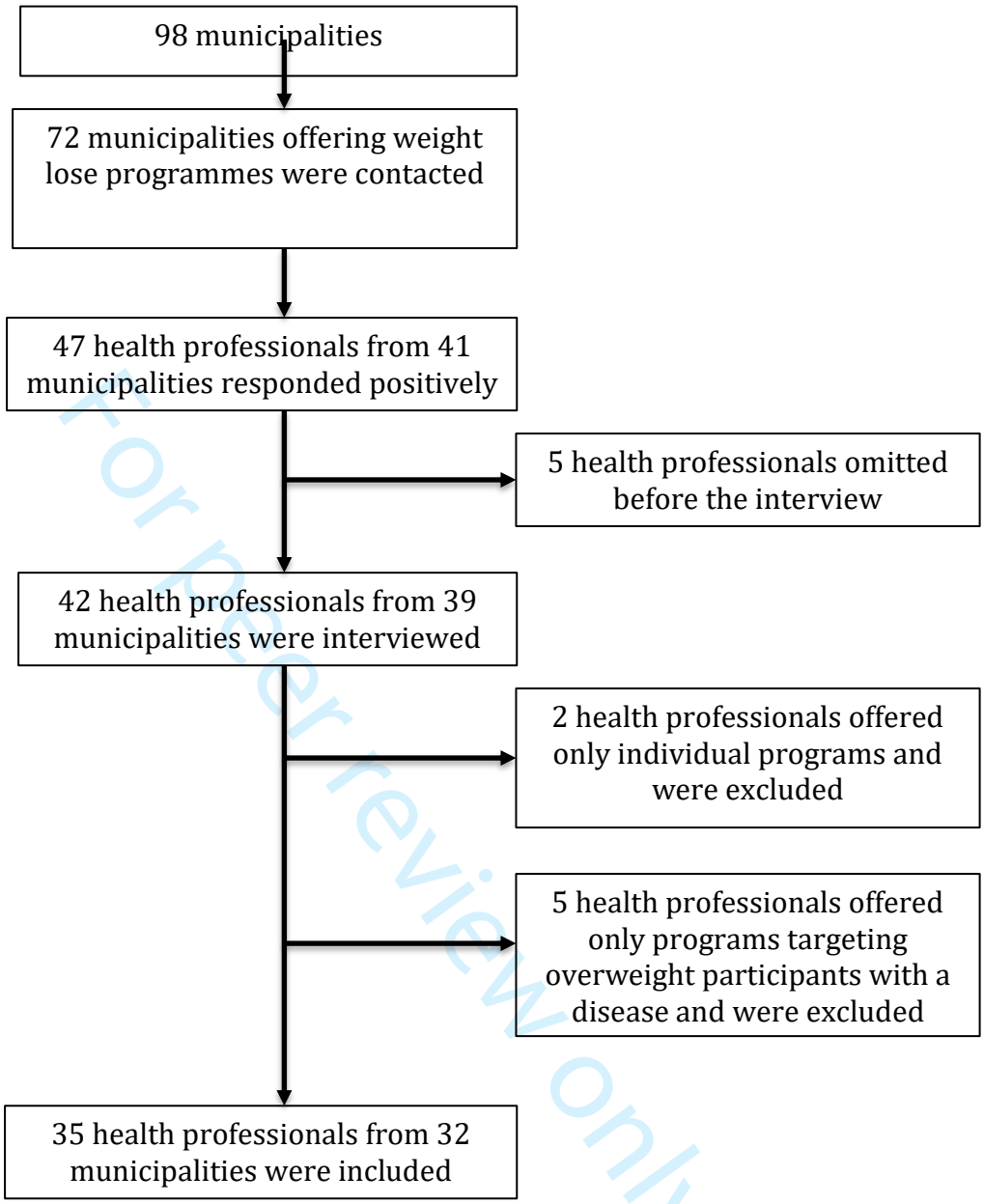

Figure 1: Flowchart of participant selection

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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