Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ) 153–154 (2020) 23–31

Contents lists available at ScienceDirect

Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ)

journal homepage: http://www.elsevier.com/locate/zefq

Evidenz in der Gesundheitsversorgung / Evidence in Health Care

Balancing one's mood: experiences of physical activity in adults with severe obesity 18 months after lifestyle intervention

Stimmungsausgleich durch Bewegung: Erfahrungen mit körperlicher Aktivität bei Erwachsenen mit Adipositas per magna 18 Monate nach einer Lebensstilintervention

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ARTICLE INFO

Article History:
Received: 5 November 2019
Received in revised form: 6 May 2020
Accepted: 7 May 2020
Available online: 18 June 2020

Keywords:
Severe obesity
Lifestyle
Healthcare providers
Qualitative study
Experiences

ABSTRACT

Background: Patients with severe obesity may have special challenges in regard to increasing health and well-being through physical activity (PA). The biggest challenge is maintaining the recommended PA level on a long-term basis. Yet, little focus has been put on the experiences of individuals with severe obesity during PA when physically active in everyday life after intervention has ended.
Objective: to explore the experiences of being physically active among individuals with severe obesity in everyday life 18 months after the start of a lifestyle intervention.
Design: a qualitative longitudinal study of individual follow-up interviews founded in hermeneutic phenomenology and an existential lifeworld theory of suffering and well-being. The study was approved by the Danish Data Protection Agency (J. no. 1-16-02-425-15).
Setting: Interviews were conducted by the same interviewer in the participants' home environment across three of five regions in Denmark.
Patients: Ten adults with severe obesity (BMI >40 kg/m^2) previously recruited from a public lifestyle intervention program.
Results: The analysis revealed that females and males emphasised different experiences of being active in everyday life. The females experienced 'Appreciation of process and vitality' and the males experienced 'The challenge of an active and joyful living'. One common main theme emerged: 'Fluctuating mood' was found to influence physical activity level.
Conclusions: The study highlights the experiences of well-being in relation to staying physically active after lifestyle intervention. The fluctuations in mood were part of everyday life and it was an on-going challenge to balance mood in order to keep up the efforts. The ability to find settlement and modify PA expectations was part of feeling capable. Healthcare providers are suggested to address well-being in mood to help patients become and stay physically active in everyday life.

ARTIKEL INFO

Artikel-Historie:
Eingegangen: 5. November 2019
Revision eingegangen: 6. Mai 2020
Akzeptiert: 7. Mai 2020
Online gestellt: 18. Juni 2020

Schlüsselwörter:
Adipositas per magna
Lebensstil

ZUSAMMENFASSUNG

Hintergrund: Patienten mit Adipositas per magna stehen mitunter vor besonderen Herausforderungen, was die Verbesserung ihres Gesundheitszustands und ihres Wohlbefindens durch körperliche Aktivität betrifft. Die größte Herausforderung ist, das empfohlene körperliche Aktivitätsniveau langfristig aufrechtzuerhalten. Und doch wird den Erfahrungen, die von Adipositas permagna betroffene Menschen nach Beendigung der Lebensstilintervention mit körperlicher Aktivität im Alltag machen, bislang nur wenig Beachtung geschenkt.
Ziel: Ziel war es, die Erfahrungen mit körperlicher Aktivität im Alltag bei Personen mit Adipositas per magna 18 Monate nach Beginn einer Lebensstilintervention zu untersuchen.

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https://doi.org/10.1016/j.zefq.2020.05.004
1865-9217/

Gesundheitsdienstleister
Qualitative Studie
Erfahrungen

Methode: Qualitative Längsschnittstudie mit individuellen Follow-up-Interviews auf der Grundlage der phänomenologisch-hermeneutischen Methode und einer lebensweltorientierten Auffassung von Leiden und Wohlbefinden. Die Studie wurde von der dänischen Datenschutzbehörde genehmigt (J. Nr. 1-16-02-425-15).
Setting: Die Interviews führte jedes Mal derselbe Interviewer in der häuslichen Umgebung der Studienteilnehmer in drei von fünf dänischen Regionen.
Studienteilnehmer: Zehn Erwachsene mit Adipositas per magna (BMI > 40 kg/m^2), die zuvor für die Teilnahme an einem öffentlichen Lebensstilinterventionsprogramm rekrutiert worden waren.
Ergebnisse: Die Analyse ergab, dass Frauen und Männer ihre Erfahrungen mit körperlicher Aktivität im Alltag unterschiedlich gewichteten. Frauen schätzten den „Prozess an sich und das Erleben von Vitalität", während Männer die körperliche Aktivität als „Herausforderung, ein aktives und glückliches Leben zu führen" erlebten. Als verbindendes Thema kristallisierte sich die Feststellung heraus, dass „Stimmungsschwankungen" einen Einfluss auf das körperliche Aktivitätsniveau haben.
Schlussfolgerungen: Die vorliegende Studie beleuchtet das Erleben von Wohlbefinden im Zusammenhang mit der Aufrechterhaltung von körperlicher Aktivität im Anschluss an eine Lebensstilintervention. Stimmungsschwankungen gehörten zum Alltag der Teilnehmer, und es war eine ständige Herausforderung, für Stimmungsausgleich zu sorgen, um die Anstrengungen aufrechterhalten zu können. Die Fähigkeit, dieses Problem zu lösen und die Aktivitätserwartungen entsprechend anzupassen, trugen zu einem Gefühl von Leistungsfähigkeit bei. Therapeuten wird empfohlen, auch auf Stimmung und Wohlbefinden ihrer Patienten zu achten, um sie darin zu unterstützen, im Alltag körperlich aktiv zu werden und aktiv zu bleiben.

Introduction

According to the World Health Organization, obesity is complex and incompletely understood, and considered an issue for public health with its increased severity of health problems. One problem is linked to the increased prevalence of inactivity, especially, among individuals with severe obesity [1]. In this study, physical activity (PA) is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. PA can be increased either by programmed exercise undertaken to improve physical fitness or by completing everyday tasks, e.g. playing, working, active transportation (walking or cycling), house chores and recreational activities [1]. The benefits of PA are related to improved muscular and cardiorespiratory fitness, functional health and weight control as well as prevention of diabetes, breast and colon cancer and depression [2]. Lifestyle intervention that incorporates PA is a healthcare initiative, through which individuals with severe obesity may obtain such health benefits, but it may require great personal efforts to be physically active [3], and staying active may be an even greater challenge [4]. This may be due to numerous complex barriers, which are difficult to overcome. A systematic review identified that the facilitators and barriers to PA among individuals with severe obesity were related to existential aspects [5]. Additionally, an empirical study found that experiences of well-being, lack of well-being and suffering in relation to PA were interacting and counterbalancing each other during lifestyle intervention. The participants' negative sense of self and their body reduced well-being in the domain of mood and drained their energy [6]. Moreover, negative moods have been found to influence the maintenance of lifestyle changes [7] and to be a barrier to PA in adults with obesity [8]. In phenomenology, the body and the world are intertwined, and it is impossible to separate our bodies from who we are and what we do in the world. Hence, physical health cannot be addressed without addressing the individual's existential experiences of PA, which must be understood as an entity by patients and healthcare providers (HCP), when aiming for increased health and well-being. Well-being may be a barrier to PA among individuals with severe obesity and promoting well-being seems a legitimate aim for interdisciplinary interventions in both the hospital and in the home setting [6]. It has been argued that normative body ideals are gendered and influence health behaviour in a way that result in men being less engaged with health and well-being than women due to their masculine identity [9].

The masculine behaviour may be due to potential gendered roles and expectations, which may be important in order to understand well-being of a person in their gendered roles in their everyday life [10]. Insight into gender differences in the experiences of PA may be relevant for increasing well-being during intervention in order to be aware of and recognise gendered norms if they are enacted.

This study is concerned with the experiences of well-being in the domain of moods, which is balanced between dwelling and mobility, and how it relates to PA among individuals with severe obesity. Mood is one of six interacting lifeworld domains, which is existential in that it is inescapable and experienced in a seamless everydayness in an un-reflected way. Mood is already present and can colour every aspect of our existence as it is prior to biological, psychological and social categories. The experiences of mood are embodied experiences that may influence choices and actions as it closely interacts with energy and vitality [11]. A specific kind of well-being in the domain of mood is characterised by excitement and desire (mobility) or peacefulness and harmony (dwelling) balanced in a unified experience of integrating peace and possibility. Well-being is contrasted by experiences of suffering in mood, which is experienced as emotional unpleasantness and/or depression [11].

Weight-based stigma influences the motivation to exercise and PA level. Especially, individuals with severe obesity are considered especially vulnerable to weight stigma as the stigma increases with increased body size [12]. The experiences of weight stigma are likely to harm health and reduce well-being, because it may drive increased eating, avoidance of PA and lower mood as well as add to weight gain long-term [13]. Especially, females experience weight stigma to be a barrier to PA; hence, they have lower levels of PA due to feeling shame [14]. A great challenge in the healthcare system is that weight stigma may unintendedly be enacted by HCPs [13].

HCPs of different professions may harm patients with obesity, if they assume that the person is unable to comply with the guidelines on exercise due to lack of motivation, engagement and efforts in making changes [15]. The patient may be perceived to be non-compliant and irresponsible and they may have blame and shame placed upon them, which will influence their sense of self in a negative way [16]. Inexperienced HCPs may lack evidence-based knowledge of how to approach obesity and lifestyle changes in practice and before they develop experienced-based clinical competence, they may harm the patients unintendedly [17] by adding

Table 1
Characteristics of the participants.

Gender	**Age/year** (range 30-69)	**BMI/ kg m^{-2}** (range 40-48)	**Marital status and resident children**	**Education level and employment**
Female	30	40	Married ≥ 3 children	Middle level education, no employment
Female	36	42	Single No children	Higher level education, full-time employment
Female	42	48	Married ≤ 2 children	Middle level education, on sick leave
Female	56	46	Divorced Adult children	Middle level education, full-time employed
Female	60	43	Divorced No children	Middle level education, early retirement
Male	26	47	Single No children	Low level education, full-time employment
Male	46	44	Married ≥ 3 children	Low level education, full-time employment
Male	54	41	Single No children	Middle level education, early retirement
Male	61	44,5	Married Adult children	Middle level education, full-time employment
Male	69	46	Single No children	Middle level education, retired

to their suffering. A starting point for eradicating weight stigma in the healthcare setting may be to focus on well-being rather than weight loss when treating individuals with obesity [13]. This may make intervention beneficial and prevent HCPs from doing harm. An evidence-based understanding of the patient's lifeworld may prevent HCPs from reinforcing feelings of failure and blame and instead introduce a novel understanding of the experiences of well-being among individuals with severe obesity.

Moreover, an insight into inactivity is needed to guide HCPs towards a more person-oriented approach in the healthcare setting. Individuals with severely obesity may live a sedentary lifestyle and may benefit from undertaking PA; however, they may lack well-being in doing so. The perspectives of persons living with severe obesity may be important to help them unfold PA in everyday life, as regular PA may promote health and well-being regardless of weight. Little attention has been paid towards understanding the perspectives of well-being or lack of well-being in everyday life after intervention, and in-depth research on the existential experiences of mood among individuals with severe obesity are lacking.

The aim of this study is to explore the experiences of being physically active among individuals with severe obesity in everyday life 18 months after the start of lifestyle intervention.

The three research questions were: How do severely obese females and males experience physical activity? What gender specific aspects exist? What are their experiences 18 months after engaging in lifestyle intervention?

Material and methods

This study has a qualitative design based on hermeneutic phenomenology, which aims to evoke the participants' lifeworld experiences through the explicit involvement of interpretation. The fundamental lifeworld domains, which are implicated in human experience, are explored to reveal the hidden meanings of well-being in PA. This is done in the taken-for-granted context of each participant's everyday life. Understanding and interpretation are practiced through hermeneutic reflection and co-created by the researcher and the participant and motivated by the structures of fore-having, fore-sights and fore-conceptions [18,19].

This study is a part of a longitudinal study of multiple individual interviews conducted by the same interviewer (first author). The interviews are the last of a series of three individual interviews with the same participants [6]. Previous interviews were conducted before intervention and at the end of the intervention six months later. The interviews of this study were conducted 18 months after the first interview. The time frame was considered appropriate to serve as a one year follow-up after the end of lifestyle intervention and was chosen to acknowledge the variation of time it takes for a person to establish new habits [20].

Participants

The participants were five females and five males, who had been referred to lifestyle intervention at a public Danish teaching hospital by a general practitioner 18 months earlier. They were purposefully recruited from the waiting list by criteria: >18 years and BMI ≥ 40 kg/m^2. Mean age was 48 years (range 30-69) and mean BMI was 44,2 kg/m^2 (range 40-48) (Table 1). The recruitment and adherence of participants were challenged by cancellations and changed appointments.

The participants underwent an in-hospital group-based intervention led by a team of interdisciplinary HCPs, e.g. registered nurses, dieticians, registered physiotherapists, occupational therapists and cognitive psychologists. The intervention comprises targeted health promotion and prevention treatment and directed towards tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol as well as human factors such as competences, respect, acceptance and coping. The intervention is not specifically designed for patients living with severe obesity, but is targeted towards patients living with complex life situations and health challenges, e.g. chronic diseases, multi morbidities and/or psychosocial problems. Each patient was hospitalised three times in modules of four days during a six month period with telephone counseling in-between modules. The intervention consists of dialogue based teaching sessions, group discussions, practical cooking, physical activities, mindfulness and individual dialogues. Between modules, patients are expected to practice the planned lifestyle changes in everyday life. The intervention ended 12 months prior to this interview round and the context of this present study was the participants' home setting during a visit across three of five regions in Denmark. The interviews were conducted by the first author in winter 2017.

All participants had previously or recently experienced weight cycling. The majority reported a current or a passed history of

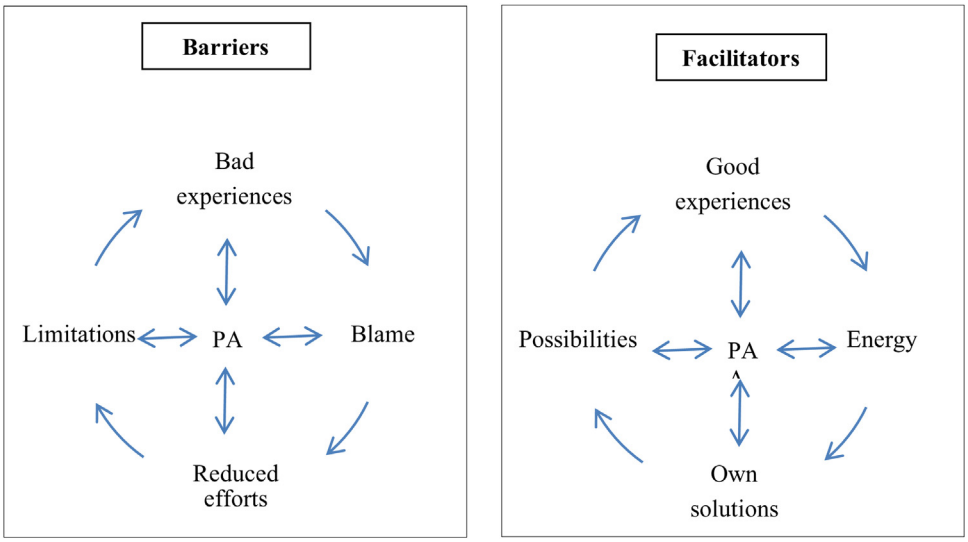

Figure 1. Two documents based on previous findings were used during the interviews: bad experiences/barriers and good experiences/facilitators in relation to PA.

depression, stress, anxiety and/or other mental illness of which some necessitated medicalisation and three participants declared having had suicidal thoughts.

Data collection

Individual face-to-face interviews (n = 10) were conducted 18 month after the start of lifestyle intervention and lasted approximately 50 minutes.

An interview guide was developed in collaboration between the first and the last author with the purpose of focusing and facilitating the interviews. The interview guides presented open-ended questions and served mainly as preparation prior to the interviews in order to structure and guide questions and enable active listening in an informal way. Moreover, the interview guide included a briefing and a de-briefing [21] and consisted of questions inspired by a conceptual framework of different lifeworld domains [11] in combination with personal questions reflecting previously gained understanding [6]. Being curious about the participant's present situation the initial questions of the interview were: How are you? How are you doing? Clarifying questions were posed with the readiness to be told something by the participant relevant for the research questions and process of lifestyle change with openness towards their answers [19]. The first author had developed two figures presenting the preliminary findings identified in previous interviews [6] (Figure 1). The participants were asked to critique the interpretation by commenting on whether or not they could relate to the figures.

First, the first author asked the interview questions, second the figure of barriers and third the figures of facilitators were presented. At the end of the interview, the participants were asked about their future expectations and dreams. Finally, permission to contact them for another follow-up interview after another 18 months was given on request.

Analysis

Interviews were audio-recorded and transcribed verbatim. Audio recordings were listened to, transcripts and notes were read/re-read to get a sense of the whole. The stepwise procedure of meaning condensation, meaning coding and meaning interpretation described by Brinkmann and Kvale [21] was used as a method of analysis. Meaning units in the transcripts were identified and condensed by shortening the findings and at the same time preserving the essence of the meaning units. Coding of the findings was done by attaching one or more keywords addressing different themes. Meaning interpretations beyond what was directly said were used to create a structure for themes and subthemes. The analysis was conducted in a circular movement between parts and wholes of the interview and between the first author's understanding and pre-understanding of the subject matter and the interpretation was discussed with co-authors [19]. Finally, the findings were analysed by using the conceptual framework on well-being to sensitise the interpretation [11]. The gender segregated analysis enabled a presentation of the general sense of the experiences among individuals with severe obesity as well as gender-specific experiences of being active. The aim was to present the male perspectives, which are under-represented in the qualitative literature [5].

Theory

The study was based on the German philosopher Martin Heidegger's (1889-1976) [18] concept of a lifeworld that every human being experiences living within. In this study, the philosophy unites physical and mental aspects of being severely obese in relation to the challenges of being active.

The conduction and analysis were founded in a hermeneutical mode of interpreting the meaning of the participants' ways of being active in everyday life. The exploration of the research topic was approached in a dialectic circle of questioning and answering in a conversational situation [19]. A shared understanding between the first author and the participants was enabled by getting descriptions of specific experiences of everyday life. The spoken words were interpreted in collaboration with the co-authors in a process based on the first authors pre-knowledge and pre-understanding in the context of their overall situation [19].

A conceptual framework based on six existential lifeworld domains: lived time; lived space; lived relations; identity; mood and the lived body, which are an interwoven and always existing set of interrelated domains, were used to approach and understand in 'wholeness'. The domains interact by the way they are foregrounded as lifeworld experiences and exist as different kinds of suffering and well-being, which are balanced between dwelling, mobility and dwelling-mobility [11]. The conceptual framework served as a part of the philosophical and methodological

Table 2
Quotes from participants supporting the gendered experiences of the main-theme and the sub-themes.

Main-theme: 'Fluctuating mood'	
Female sub-theme: 'Appreciation of process and increased vitality'	**Male sub-theme:** 'The challenge of an active and joyful living'
Female, 31 years, who is now going to the gym regularly with her husband. Earlier, she had been close to giving up on PA and on herself and she recalls: *I blamed myself for being a bad mother and I wasn't a good partner. I didn't have the energy to change. . .I was already so lost, so why do anything?*	Male, 26 years, who had experienced relapse and lowered desire in PA: *I have to get out on those walks again and achieve that calm that it gives me. . .Going for a walk isn't hard. It's more about the psychological barrier. . .walls built inside my mind. That's what's difficult for me. . .There is a plan and I have to get back on it because that's what made me happy. . . If I don't lose weight, I will still have those tools to look at people, life and myself differently and that gives me joy in life.*
Female, 36 years, who determinedly worked on developing her view of self as obese and a failure in PA: *I have more energy than I've had in years. . .[as of late] there hasn't really been anything to beat myself up about because weight hasn't been the focal point. . . Don't fight for something that's impossible. Fight for something that is realistic. Something you know you can succeed with rather than fail.*	Male, 46 years, who had experienced additional physical problems and weight regain: *You have to keep your spirits up. . .Thinking about it (the problems) too much doesn't help. I don't think that's going to solve my problems.*
Female, 42 years, who had felt shameful of her weight and inactive life: *I've become a lot more confident. I can say "no". I now have the no-thank-you button. I didn't have that before. . . I'm able to do a lot more around the house and I want to do things more. . . I'm a healthier mother and a better role model. . .have become both a better wife and a better mother.*	Male, 54 years, who for years had exercised for weight loss to survive: *The more pressure he [I] is under the more he [I] is going to fight. I won't give up before I'm six feet under. . .But I've felt upset a lot of times and I've been low many times. Really low. . .for hours I've pretty much given up. . . In any case, there hasn't been a day that I haven't cried at least once, when I'm by myself because things are the way they are.*
Female, 56 years, who had felt weighed down and lacked joy and energy in life: *Often it's the little things that make you happy but that are forgotten. Those are the things I need to bring back. It [intervention]has given me a bit of drive to do it.*	Male, 61 years, who struggled with keeping up regular cycling and eating less food: *It's difficult for me because I like the bad habits. There has to be room for some of the fun stuff too.*
	Male, 69 years, who intended to start exercising, but never did: *Exercise will give the best results. Now, I've also started moving a little...I exercise way too little. Now, I've fixed up my bike so there is no excuse. I know the recipe for weight loss.*

pre-understanding, and guided the data analysis in the search for existential meanings of well-being and suffering. In this study, the domain of mood is specifically foregrounded to get a better understanding of the character of mood through a dialogue between what is familiar and what is alien in the interview data.

Ethics

The Danish Data Protection Agency (J. no. 1-16-02-425-15) has approved the study. According to Danish law, approval from the National Committee on Health Research Ethics was not required, as no biomedical intervention was performed. The participants were initially contacted by the secretary of the department and they received written information. Prior to the first interview written and oral informed consent forms were signed, and consent was confirmed before each interview.

Results

The results presented in this paper are a continuation of the findings of previous interviews with the same participants. In the previous study their experiences of PA within the lifeworld domains of identity and embodiment before and during intervention were foregrounded. The study described their striving for well-being and their struggle with energy depletion and sense of self and how they initially felt caught in an inactivity spiral [6].

The participants of this study commented on the interpretation of the previous interviews and recognised the findings of their process of lifestyle change (shown in Figure 1), however, two males only recognised one of the circles. They elaborated upon how they all felt they had moved from a circle mainly consisting of bad experiences and barriers to PA and into a process characterised by positive experiences and new possibilities for doing PA. A female aged 42 years described changes she had experienced during the past 6 months.

"[The positive circle] is how it is now; [the negative circle] was where it started. There is a huge difference. You can really feel like, good lord, that I didn't treat myself very nicely"

Moreover, the participants elaborated upon how their experiences related to different kinds and levels of well-being, lack of well-being and suffering. However, they used different terms, e.g. the males did not use "blame", but talked about guilt and low self-confidence. A female aged 36 reflected upon her process of change in relation to the circles and stated:

"It is not necessarily the content of the circles that made me ill, but it surely has not made me healthier".

One year after the end of the intervention a new main-theme 'Fluctuating mood' was identified as influencing well-being in everyday life one year after the end of lifestyle intervention. The main theme overarched two gendered sub-themes. The female sub-theme was: 'Appreciation of process and vitality' and the male sub-theme was: 'The challenge of an active and joyful living'. The 'Fluctuating mood' was described as being closely related to energy and vitality and influenced the experiences of doing PA and being at rest (See Table 2). There was a complex interaction between mood and other existential domains, e.g. temporal, spatial and intersubjective experiences; however mood is foregrounded in the findings of this paper.

'Fluctuating mood' as a general human condition

The participants foregrounded mood as being always present in the mind as an underlying attunement to their sense of self, others and their activities in daily life. The fluctuations in mood were described as variations of emotions including "anger, irritation and frustration" or happiness and optimism. They experienced mood as balanced between different opposing factors; weight loss or weight gain, boredom or meaningful activities, blaming oneself or settling with one's efforts, disappointment or pride of self, feeling isolated or supported in the process, feeling depressive or cheerful. They described lowered mood as "dark clouds", which were

overshadowing their PA initiative from time to time when energy and vitality were low. A male aged 46 had felt imprisoned and tied to his sofa and weighed down by worries and negative expectations of his health. After he had stopped exercising with a physiotherapist, he had become unable to do the gardening, house chores and the walking or cycling like he used to. He stated:

"You have to keep your spirits up. It doesn't help if I think about it too much. I don't think that will help me solve the problems. In a way, I miss having something to fiddle around with. When I start getting bored and don't know what to do, well, then I just start chain smoking".

Tackling lowered mood was a part of all the participants' process, regardless of gender and age, and they emphasised how it sometimes required the care of others, e.g. HCPs, supporting groups or family, who would listen, inspire or comfort. The male and female participants revealed how they sometimes felt lonely and had to tackle lowered mood by themselves, i.e. crying, eating or smoking. A young male aged 26 explained how feeling depressive and overwhelmed by sadness would drain his energy and cause him to call in sick for work. More of the participants were affected by the occurrence of precarious life events and discouraging thoughts, which were adding to their feelings of being weighed down by worries. Being discontent with one's weight or appearance was enlarged by illness, pain and bodily impairments and weight cycling. Being discontent with one's own life because of boredom, unemployment or lack of joyful activities brought a feeling of stasis and loneliness, which accounted for a great deal of their lowered mood. Finally, the experiences of uninspiring and uncomfortable PA influenced their mood and the desire to be physically active. However, contrasting experiences of facilitators in terms of elevated mood were also emphasised, though they were less explicit with fewer examples.

The participants experienced elevated mood with the accomplishment of their PA goals, which brought a feeling of triumph and optimistic expectations. Moreover, some experienced pleasure in doing PA with peers, family or friends, because it contributed to high spirits, excitement and created "joy and enthusiasm". Others would prefer being on their own. A female aged 36 had stopped going to the gym, where she felt restless, uncomfortable and bored. She felt weighed down by blame and shame of being unable to stick to being active. However, buying an App with different home exercises provided new possibilities. She said:

"I've found a way to exercise that works for me. That I will stick to. A way that means, that I won't get bored and give it up. It adds this mental boost and energy".

The participants described elevated mood to be vital for sustained PA participation in everyday life and vice versa. In this way, mood and optimistic expectations were closely linked to feeling hope.

In the following section, the sub-themes are gender segregated when applicable.

'Appreciation of process and vitality' brings increased hope

For the female participants, the 'Appreciation of process and vitality' was part of staying committed to healthy living, and their experiences provided them with the desire and courage to continue their efforts. Being in a positive process of change provided a subsequent feeling of pride in their social roles as mothers and wives and were contributing to their identity of being healthy and attractive. Some female participants had developed settlement with their own capabilities, which in turn reduced blame and self-criticism. Others came to peace with their PA efforts by lowering the bar and prioritising their activities to be guided by their meaningfulness or enjoyment. They told the interviewer how they developed their capability of making choices and setting goals in accordance with their own preferences and values. An increased confidence in their own decision making and speaking out brought the female participants a sense of being strong and honest. The strengthened sense of self resulted in cheerfulness, liveliness and hope in the female participants, which they had previously missed.

Despite the experiences of having moved into a positive circle of improved health and well-being, the female participants were in an on-going process of identifying their own solutions and maintaining progress after discharge from hospital. For some, the solutions had been to attend pre-established groups in their local community for support, where they felt accepted and valued.

The female participants ascribed the enhancement of pride, confidence and acceptance to improve mood, and they all felt it had provided them with a highly valued vitality, which enabled them to outlive an active everyday life. Becoming aware of mood's influence on vitality some of the female participants started to strive for joy in everyday life rather than weight loss, though still aiming for it.

'The challenge of an active and joyful living' is worth the fight

The male participants commented on the analysis of previous findings (Figure 1) and described how they had found weight loss an insurmountable challenge, because they felt incapable of making lifestyle changes on their own [6]. One year later, they experienced the challenge had become 'The challenge of an active and joyful living'. They experienced that healthy living was important, though partly conflicting with their ideas of a pleasurable and joyful living. Their healthier eating and/or exercise were experienced as an obligation, and they felt discontentment when incapable of balancing healthy and joyful living in everyday life. Their emphasis on health was mainly directed at physical factors, i.e. weight loss and mobility. Therefore, exercise was considered meaningful and essential for their achievements. The male participants described a common challenge of not feeling "in the mood" for exercise, which necessitated that they were able to "kick their own butts" to do PA, e.g. one male aged 69 was incapable of taking action and never got started with the exercise he intended to do. Others were challenged by the aim of exercising in accordance with standard guidelines and disregarded their individual preferences, conditions and abilities. Others again were challenged by pain and health issues, which had made them stop or cut down on exercise and made them feel a kind of despair and anger as well as sadness and regret of becoming inactive. Moreover, those who regained weight felt out of control and powerless in their situation. Two males aged 46 and 69 clearly emphasised that they refused to think about their worries and their future and preferred to "live one day at a time". The male participants expressed a great deal of responsibility for their own situation. They felt discontent and guilty for acting irresponsibly and blamed themselves for living in opposition to their own health ideals. Some of the male participants were disappointed by their own exercise efforts and achievements, but none of them gave up. The disappointment was a source of lowered mood and impatience; however they found it worth fighting for lifestyle changes.

When the male and female participants addressed their processes of lifestyle change one year after the end of intervention, they referred to their experiences with different points of emphasis. The female participants addressed the process with appreciation, whereas the male participants mainly addressed the challenges of making lifestyle changes. Hence, they expressed different expectations and hopes for the future in relation to becoming and staying active.

In summary, mood seemed never to be steady as it constantly changed between being elevated or lowered. Therefore, the process of lifestyle change implicated the on-going task of counterbalancing lowered mood to preserve vitality, hope and the ability of being physically active in everyday life.

Discussion

The present study aimed to explore the experiences of being physically active in everyday life among severely obese individuals after lifestyle intervention. This was found relevant in order to understand the process of becoming and staying active beyond the time of lifestyle intervention and to inform patients and HCPs about the process and the relevance of well-being.

This study found that PA was interrelated with well-being in mood, which affected all the participants regardless of whether they suffered from depression or not. Mood was fluctuating and the current state of mood worked as either a barrier or a facilitator for everyday activities or structured exercise. Being active was experienced differently among the males and the females, mainly because the females found appreciation in settling with everyday activities and finding their own solutions, which brought new energy and vitality and a feeling of possibility of progression. In contrast, the males fought to conduct more intensive and structured exercise with a greater emphasis on achieving weight loss results. The males seemed to spend more energy on worrying and being frustrated. Most interestingly, it resulted in the females expressing increased hope and more positive expectations for their future mobility and health than the males. However, the males did not express any intention of giving up on PA, like they had tended to do prior to intervention.

The mood of depression may have influenced each individuals experiences and process, as depressed mood is characterised by a lack of energy and motivation and a pessimistic outlook, and therefore a feeling of inability to move forward with changes [11]. Moreover, an unsettled restlessness with feelings of irritation as well as the need to do more exercise than they felt able to, seemed to represent a different kind of suffering in mood [11].

Well-being in mood turned out to be in the background compared to the lifeworld experiences of identity and embodiment among individuals with severe obesity before and during intervention [6]. Yet, it emerged as an important theme in relation to the participants' experiences of being active after intervention. According to the theory of different kinds of well-being by Galvin and Todres [11], the experience of mood is a felt attunement, which can be foregrounded by the quality of movement, i.e. an energized feeling of motivation to do PA or with the quality of dwelling, i.e. a kind of settledness and peacefulness with things as they are or when having fulfilled one's PA goal that required some effort. The ideal is that well-being is experienced in both dwelling and mobility in a way that one feels both excitement and desire to do PA, as well as acceptance of one's efforts and achievements. This dwelling-mobility has an energetic quality of enthusiasm and interest as well as the settled quality of being at home with oneself and the world in a "mirror-likemultidimensional fullness", which is complex and can be many things, e.g. sadness and happiness [11].

Based on the findings of this study, it is important that the expectations and goals in relation to PA are realistic and modified to each individual and aiming for a feeling of ability, energy and hope. Especially, the process of settling seemed to be challenging. Some of the participants may need help drawing attention to how they can appreciate their achievements and be less critical towards their efforts. The experience of well-being in mood may be an inner resource in the midst of their suffering from their obesity and other challenges in life [11]. The experiences of being in a process bring with it a mood that motivates the desire to do meaningful activities, which may be a prerequisite for long-term engagement in PA. We argue that it is relevant to distinguish between well-being within dwelling and mobility, i.e. to emphasise settlement among the restless and impatient individuals, and to promote mobility in the individuals experiencing exhaustion and stasis.

Findings in relation to others studies

McIntosh et al. [8] conducted at systematic review and identified lowered mood, lack of pleasure and lack of enjoyment as barriers to PA in individuals with obesity. They reinforced the importance of addressing low mood in individuals with obesity when advising them about PA and lifestyle change. Moreover, they argued, that mood should also be addressed after intervention to support the individual in sustained efforts. Our study contributes with descriptions of how mood is experienced in individuals with severe obesity in everyday life after lifestyle intervention and how it influences PA. We have described how an initial feeling of hopelessness from living within a large body [6] can develop with improvements in mood and bring energy and vitality over time and we argue that the well-being experiences of hope may facilitate PA. This is similar to a study reporting that reduced well-being due to depression made patients likely to give up on PA after bariatric surgery [22]. However, the participants of our study did not give up on PA, but strived to balance mood and keep up their efforts.

The gendered findings of this study revealed that the female participants tended to find well-being in their activities through dwelling in their present possibilities. The male participants were, to a greater extend, seeking well-being through a rational, logical approach to PA based on their present experiences of actual performance. From a Gadamerian perspective, the male participants were representing a slightly more unbalanced relationship between the doing and the deed [19], e.g. PA was mainly perceived as a means for weight loss by the males, rather than natural and joyful movement in everyday activities. Their efforts may be an attempt to maintain an activity level within a range consistent with public health guidelines for weight management, though they sometimes felt incapable to do so. However, there is some evidence that individuals living with obesity may benefit from emphasising well-being over weight loss when aiming to maintain an active lifestyle [23] and that focusing on PA is a weight neutral way of improving health at every size [23]. Still, it seems important for HCPs to approach PA in a person-oriented way and emphasise well-being, when doing so.

The gendered findings of this study are thought useful and credible for future qualitative systematic reviews and meta-synthesis [24] regarding PA among individuals with severe obesity.

The obese body may carry the characteristics of lacking will and control [25] and may not comply with prevailing social norms of adequate body weight and shape or health behaviour. The context of lifestyle intervention may carry the norms of the ideal lifestyle, and HCPs may have stereotypical assumptions about patients with obesity that they lack motivation and responsibility [26]. Such normative attitudes may leave patients who do not comply with existing norms with feelings of shame and blame [16]. Moreover, the patients with severe obesity may be particularly vulnerable to feelings of failure in both weight loss and PA, and feeling failure reduces well-being in mood and leads to binge eating and additional weight gain [16].

Preserving the dignity of patients, who suffer from obesity, is a healthcare challenge. A respectful language is one way to protect dignity and well-being. However, it requires expert knowledge to ensure the best possible dignified and beneficent care for patients to avoid applying the feeling of embarrassment and shame (maleficence) [27]. A specific challenge is the official guidelines for PA, which are mainly based on physical aspects of health and may be inappropriate for people living with severe obesity, who are unlikely to comply with the guidelines [28]. The guidelines may disregard the complex experiences of PA and the fact that individuals with severe obesity have numerous and complex barriers to PA, which may lower their PA participation [5]. This may contribute to the individual's feeling of failure in their efforts, if HCPs do not

understand the patient's possibilities and limitations. Battegay and Cheetham [29] have put forward perspectives on the ineffectiveness of a too literal application of clinical guidelines, e.g. when HCPs neglect the patients' values and preferences in therapeutic goal setting and action planning. They suggest the principles of Choosing Wisely, i.e. using one's judgment skills, to ensure interventions are beneficial and not doing harm to people with comorbidities and within complex situations. This seems most relevant in relation to promotion of PA among individuals with severe obesity. We agree that narrow and set exercise goals may impose feelings of failure, blame and shame upon the patient, when goals are not reached. Moreover, we suggest a person-oriented approach where HCPs in clinical practice talk about the potential barriers of lowered mood and modify PA goals in collaboration with the patients [30]. A dialogue about well-being in mood seems particularly important in patients vulnerable to depression, and an existential acknowledgement of the patients' experiences may be part of the treatment itself [11]. Emphasising well-being is found to serve as a resource-oriented approach, that may reduce weight stigma in healthcare practice by putting less emphasis on weight and the amount of PA, and it may prevent HCPs from doing harm to vulnerable individuals suffering from severe obesity.

Strengths and weaknesses of the study

A strength of this longitudinal design of repeated individual interviews is that the same researcher conducted all the interviews. This enabled a better view of the individuals' whole situation when striving for a fusion of horizons [19] and provided insights into the dynamics of their process of change before, during and one year after the end of lifestyle intervention [6]. Another strength of the study is the prolonged adherence and contribution of the participants for 18 months, even though their lifeworld held grief, fatigue, pain and lacking time. This was considered of great importance to be able to identify contrasting statements, e.g. a male participant, who stated that he did not care or think about his health, however, he contradicted himself and acted in opposition to the statement.

The first author's experiences as a physiotherapist at the Department of Lifestyle Rehabilitation, including her knowledge and pre-understanding of obesity and PA may have held a potential risk of reproducing pre-understanding. However, the continuous contrast of first author's pre-understanding became a strength to the co-authors and facilitated self-reflection and hermeneutic consciousness in the research process [19] as well as the participants' self-reflections during the interviews. The hermeneutic approach of the qualitative interviews was found an appropriate way to gain understanding of the participants' lifeworld, as it was mutually constructed in the interaction between professional expert knowledge as well as human experiences in a contextual setting. The conceptual framework was used to sensitise the interpretation and provide a wide and descriptive vocabulary to cover aspects of life at an existential level [11].

A limitation of the study may be that one female participant did not undergo intervention as expected due to reduced mental and physical health. However, her statements have been removed as she cannot contribute to research question 3. Moreover, one female participant only attended the first of three admissions. Still, they wanted to be interviewed and contribute with their thoughts and experiences about PA. The sample size of ten participants could be considered a limitation; however, it is considered a strength to get into dialogue with this vulnerable group of patients.

Being in dialogue with severely obese participants also held certain limitations related to presenting gendered perspectives based on five participants, among whom individual differences existed in age, social and educational level. However, a few participants enabled an in-depth exploration presenting description and interpretation of their experiences and thereby contributing to research on gendered perspectives on PA in the target group. The participants represented mainly patients with resources to engage with the healthcare system for an extended amount of time and who were willing to talk and be self-reflective, which may have reduced their risk of suffering harm. PA was approached in terms of the participants' own descriptions of activity level, as quantifiable measurements were beyond the aim and scope of this study.

Implications for practice

The findings of this study bring evidence-based knowledge of the process of staying active after lifestyle intervention from the perspectives of adults with severe obesity. They describe an individual, on-going and dynamic process influenced by well-being in mood. HCPs can provide both support or obstruction of well-being, and they must understand the value of mood for the process of lifestyle change. It can be considered an interdisciplinary task to address well-being among individuals with severe obesity when prescribing, delivering or doing follow-up on PA interventions in clinical practice. A general lack of well-being may have negative influence on the energy to engage in PA as well as on smoking and eating habits, and indirectly the lack of well-being may reduce physical and mental health in individuals with severe obesity. Moreover, it is important that HCPs avoid imposing feelings of failure by focusing on performance in relation to weight loss and PA efforts as it may harm the patients and be non-beneficial. Helping each patient to find settlement with efforts and achievements may provide the energy and vitality to become or stay active in everyday life. Aiming for increased well-being is a nuanced approach to health, which may reduce the expectations of weight loss and challenge the barriers of shame of one's PA level.

Conclusion

The study highlights the experiences of well-being in relation to staying physically activity after lifestyle intervention. It emphasises, that fluctuations in mood were part of everyday life and it was an on-going challenge to balance mood in order to keep up PA efforts. The ability to find settlement and modify PA expectations was part of feeling capable. Feeling capable and doing joyful PA elevated mood and contributed to well-being.

This study contributes with new perspectives on PA of both males and females with severe obesity, which may be useful for HCP to reflect upon in relation to weight stigma, norms of PA and gendered behaviours. HCPs are suggested to address well-being in mood to help patients to become and stay physically active in everyday life.

Future research may be pursued in terms of an intervention study applying the person-oriented approach to PA when doing follow-up on patients with severe obesity after intervention.

Funding sources

This work was supported by Horsens Regional Hospital, the Department of Lifestyle Rehabilitation and Aarhus University. All steps of the research project were conducted independently of the funding bodies.

Acknowledgements

We thank all the participants for their participation and contribution in the interviews, and research secretary, MA Line Jensen for language revision of the manuscript. Thanks also to the to the funding bodies for supporting this study.

Conflict of interest

The authors hereby state that there are no conflicts of interst in regard to the manuscript titled "Balancing oneś mood: experiences of physical activity in severely obese adults 18 months after lifestyle intervention".

CRediT author statement

Bente Skovsby Toft: Project administration, Conceptualization, Methodology, Investigation, Formal analysis, Data curation, Original draft preparation, Writing, Visualization, Editing. Claus Vinther Nielsen: Supervision, Validation, Reviewing and Editing. Lisbeth Uhrenfeldt: Methodology, Formal analysis, Writing, Supervision, Validation, Reviewing and Editing.

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