KEEPING WHAT SHOULDN'T BE KEPT: A QUALITATIVE STUDY ON THE MAINTENANCE OF OBESITY AMONG A PORTUGUESE SAMPLE

CONSTANÇA DINIZ DE AYALA MONIZ GALVÃO

Orientador de Dissertação:

PROFESSORA DOUTORA FILIPA PIMENTA

Coordenador de Seminário de Dissertação

PROFESSORA DOUTORA FILIPA PIMENTA

Tese submetida como requisito parcial para a obtenção do grau de:

MESTRE EM PSICOLOGIA

Especialidade em Psicologia da Saúde

2019

Dissertação de Mestrado realizada sob a orientação de Filipa Pimenta. Apresentada no ISPA – Instituto Universitário para obtenção do grau de Mestre na especialidade de Psicologia da Saúde.

To my mum, for being such a role model.

Agradecimentos

O trabalho aqui apresentado não teria sido possível sem a preciosa contribuição de algumas pessoas, a quem dirijo agora os meus agradecimentos.

Primeiramente, gostaria de agradecer à Professora Filipa Pimenta, orientadora desta tese e mentora desde há dois anos. Muito obrigada por todos os desafios colocados, por todos os incentivos para fazer mais, para fazer melhor e para ir mais longe, por toda a confiança depositada em mim e por tudo aquilo que me tem vindo a ensinar. Obrigada por há dois me ter aberto as portas à investigação, tão prontamente, e por me ter acolhido na equipa do William James. Obrigada por todo o apoio.

Agradeço à Professora Maria João Gouveia e ao Professor Bruno Soares Rodrigues, por estimularem a nossa curiosidade, elevarem sempre a fasquia e instigarem a minha paixão pela investigação.

Um profundo agradecimento à Filipa e à Rita, eternas companheiras de viagem, sem quem não teria sobrevivido aos primeiros anos no ISPA. Obrigada por todos os momentos que partilhámos, em trabalho e em convívio, na galhofa e no desespero. Obrigada por puxarem por mim e por me desafiarem, académica e pessoalmente. Fomos uma equipa fantástica (mesmo em privação de sono), e continuaremos a sê-lo, sem dúvida. Obrigada por me fazerem querer ser melhor.

À Romina, por todos os desabafos e momentos de aflição partilhados, mas também pelas gargalhadas. Acima de tudo, por todo o apoio que me tens dado desde que nos conhecemos e pelo exemplo que és para mim. És uma pessoa extraordinária que espero continuar a ter na minha vida.

À minha querida Mónica, pela amizade e felicidade de uma vida.

Aos meus pais e à minha Clarinha, que sempre me deram tudo o que precisava e muito mais, mesmo quando eu não me apercebia. Por investirem na minha educação e formação, profissional, artística e pessoal, sem nunca olharem a meios ou a custos. Por todo o apoio prático, incluindo na finalização desta tese, e por todo o apoio emocional pelo caminho. Por todos os momentos passados juntos e por serem a melhor família do mundo!

À minha família, em particular à avó Rosarinho, por estarem sempre no plano de fundo e por me guiarem e acompanharem na minha formação pessoal, artística e profissional.

Ao Xavier, meu companheiro, melhor amigo e apoiante incondicional. Obrigada por acreditares tanto em mim, estares sempre lá quando preciso e descomplicares as minhas crises. Acima de tudo, muito obrigada por tudo o que temos construído juntos!

Resumo

Introdução: As taxas de obesidade têm vindo a aumentar, estimando-se que, em 2015, 28.6% dos adultos portugueses entre os 25-74 anos sofressem desta patologia. Esta pode levar a graves consequências físicas e mentais, contudo, é ainda escassa a investigação qualitativa nesta área. O objectivo deste estudo é explorar os factores e processos envolvidos na manutenção da obesidade de uma amostra de adultos portugueses.

Método: A amostra é composta por 46 participantes (71.7% mulheres) com idades entre os 25-70 anos (*M* = 45.49; *DP* = 11.91) e um IMC entre os 30.02-50.64 (*M* = 39.27; *DP* = 5.55). Foram realizadas entrevistas semiestruturadas individuais, posteriormente transcritas e analisadas de acordo com as técnicas da análise de conteúdo e análise temática.

Resultados: De um total de 209 códigos, posteriormente divididos em processos psicológicos, processos físicos, comportamentos e determinantes, os factores envolvidos na manutenção da obesidade mencionados por mais participantes foram o reganho de peso após uma tentativa de perda de peso (Número de Menções [NM] = 81; 71.7%), hábitos alimentares pouco saudáveis (NM = 96; 58.7%), a ingestão excessiva de comida (NM = 82; 56.4%), tentativas de perda de peso mal-sucedidas (NM = 54; 54.3%) e problemas/características do contexto de trabalho (NM = 64; 43.5%).

Discussão: Estes resultados salientam a diversidade de factores e processos percebidos como subjacentes à manutenção da obesidade, exigindo o desenvolvimento de intervenções não apenas direccionadas para o comportamentos alimentar e para a actividade física, mas antes mais abrangentes e adaptadas à realidade e às necessidades de cada um.

Palavras-chave: obesidade, manutenção, análise de conteúdo, análise temática, adultos.

Abstract

Introduction: Obesity prevalence rates have been increasing worldwide and it was estimated that, in 2015, 28.6% of Portuguese adults aged between 25-74 years old suffered from this pathology. Obesity can lead to serious physical and mental health consequences. However, qualitative investigation in this area remains scarce. The aim of the present study is to explore the factors and processes involved in the maintenance of obesity among a sample of Portuguese adults.

Method: The sample was composed of 46 participants (71.7% women) aged between 25-70 years old (*M* = 45.49; *SD* = 11.91) and with BMI ranging from 30.02 to 50.64 (*M* = 39.27; *SD* = 5.55). Individual semi-structured interviews were performed, transcribed and analysed by means of a pluralistic approach – content analysis and thematic analysis.

Results: From a total of 209 codes, posteriorly divided into the themes psychological processes, physical processes, behaviours and determinants, those involved in the maintenance of obesity that were mentioned by a larger number of participants were weight regain following a weight loss attempt (Number of Coded Segments [NCS] = 81; 71.7%), unhealthy eating habits (NCS = 96; 58.7%); excessive food ingestion (NCS = 82; 56.4%), unsuccessful weight loss attempts (NCS = 54; 54.3%) and work characteristics/problems (NCS = 64; 43.5%).

Discussion: These results highlight the diversity of factors and processes perceived as contributors to the maintenance of obesity, thus calling for the development of interventions directed not only at eating behaviour and physical activity, but more comprehensive and tailored to each individual's reality and needs.

Key-works: obesity, maintenance, content analysis, thematic analysis, adults.

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Introduction

Obesity is defined as the excessive accumulation of fat in adipose tissue (Komaroff, 2016; World Health Organization [WHO], 1995, 2000) and its main cause is the imbalance between energy intake and energy expenditure (Ogden, 2004; Seaman, 2013; WHO, 1995, 2000, 2017). Nowadays, obesity is considered an epidemic and a major public health problem, with accelerated increases in rates worldwide (Komaroff, 2016; Seaman, 2013; WHO, 1995, 2000) – in Portugal, it was estimated that the prevalence rate of obesity among adults aged 25-74 years old, in 2015, was 28.6% (Gaio et al., 2017). Obesity is associated with a higher probability of developing a number of physical health problems (e.g., cardiovascular disease, diabetes mellitus and musculo-skeletal disease; Ogden, 2004; WHO, 1995, 2000, 2017) and mental health problems (e.g., low self-esteem, body image dissatisfaction, depression and eating disorders; Moraes, Almeida, & Souza, 2013; Ogden, 2004; Ogden & Clementi, 2010; WHO, 2000), therefore having a significant negative impact on quality of life, the activities of daily living and the healthcare system, posing a great economic burden.

Despite being a serious chronic condition, obesity is preventable, mainly through lifestyle changes (Seaman, 2013; Tang, Abraham, Greaves, & Yates, 2014; Westerveld & Yang, 2016; WHO, 2000, 2017). As such, its treatment requires the adoption of long-term, daily strategies (Mauro, Taylor, Wharton, & Sharma, 2008; Peirson et al., 2015; Seaman, 2013; WHO, 2000). In consideration of all the adverse consequences that arise from overweight and obesity, and keeping in mind all available therapeutic options, it becomes relevant to question why the majority of people remain with overweight or obesity. In other words, it is pertinent to study the factors and processes that contribute to the maintenance of obesity. The present study will therefore focus on such factors and processes.

Throughout the years, researchers have been investigating this phenomenon both directly (e.g., the Clinical Obesity Maintenance Model; Raman, Smith, & Hay, 2013) and indirectly, through the study of the perceived barriers to obesity management (e.g., Sabinsky, Toft, Raben, & Holm, 2007). A non-systematic literature review of such investigations is presented next.

Barriers to Obesity Management

With regards to perceived barriers, first and foremost, it is worth mentioning that certain sociodemographic characteristics may pose barriers to obesity management, such as the male

sex (which has been commonly associated with feelings of apathy towards diet and health, both among young adults and adults; Munt, Partridge, & Allman-Farinelli, 2017; Sabinsky et al., 2007) and socioeconomic status (the prevalence of obesity is higher among lower socioeconomic groups, due to the greater density of fast-food restaurants in low-income neighbourhoods, for example; Mauro et al., 2008; WHO, 1995).

The presence of comorbidities may also promote weight gain or hinder weight loss, and these may include (a) cardiovascular or respiratory disease (Ali, Baynouna, & Bernsen, 2010; Mauro et al., 2008), (b) endocrine disorders (Mauro et al., 2008), (c) sleep disorders (Halali et al., 2018; Mauro et al., 2008; Sand, Emaus, & Lian, 2017; Seaman, 2013), and (d) mental disorders (e.g., depression, binge eating disorder and attention-deficit/hyperactivity disorder; Cortese, Comencini, Vincenzi, Speranza, & Angriman, 2013; Mauro et al., 2008; Moraes et al., 2013; Raman et al., 2013; Seaman, 2013). Several cognitive factors might constitute added obstacles to weight management, namely perceiving one's excessive weight condition as impossible to control, neglecting or disregarding the risks and negative consequences of obesity (i.e., perception of low susceptibility; Spörndly-Nees, Igelström, Lindberg, Martin, & Asenlöf, 2014), not perceiving obesity as such (Sabinsky et al., 2007), having positive self-perceptions or experiencing positives consequences from obesity (Ogden & Clementi, 2010).

Other commonly mentioned barriers are time constraints (e.g., Ali et al., 2010), cost (e.g., Munt et al., 2017), a history of unsuccessful weight loss attempts (e.g., Hammarström, Wiklund, Lindahl, Larsson, & Ahlgren, 2014), lack of motivation (e.g., Sabinsky et al., 2007), lack of knowledge on nutrition and healthy eating, lack of cooking skills (e.g., Sand et al., 2017); food addiction, lack of self-control (e.g., Ogden & Clementi, 2010; Seaman, 2013), emotional eating (e.g., Hammarström et al., 2014; Ogden & Clementi, 2010; Spörndly-Nees et al., 2014) and not liking the food of the diet intervention (Hammarström et al., 2014).

Simultaneously, several social factors should be taken into account, in the sense that food is a dominant part of many people's social lives (Ogden & Clementi, 2010), fostering excessive ingestion (Ali et al., 2010) or hindering the implementation of a dietary programme (Hammarström et al., 2014). Additionally, lack of social support has been found to negatively influence patients' motivation for weight loss (Ali et al., 2010) and the presence of saboteurs is frequently mentioned, including suspicion of infidelity when a spouse engages in a weight loss process (Mauro et al., 2008) or having to prepare several meals because the partner doesn't cook and, at the same time, does not adhere to diet regime (Hammarström et al., 2014). On other hand, in some studies, the social context fostered the adoption of unhealthy eating habits

(Munt et al., 2017) or provided the individual with positive experiences (e.g., unconditional acceptance; Ogden & Clementi, 2010), thus potentially inhibiting motivation for change.

Obesity Maintenance Factors

Concerning the investigations that focused directly on obesity maintenance, 3 studies were identified in the literature search. The first, by Raman and colleagues (2013), consists on the development of the Clinical Obesity Maintenance Model (COMM), a theoretical framework composed of a network of interconnecting psychological mechanisms that explain the maintenance of obesity and regulate weight management behaviours. The mechanisms identified by the authors are the following: (1) executive function (i.e., cognitive processes which impact on eating behaviour, such as initiation, planning, regulation and inhibition of behaviours, among others), (2) habitual cluster behaviours (i.e., the automatic performance of habitual behaviours in the presence of specific cues or internal drive states), (3) emotional dysregulation (i.e., emotional eating), (4) depression, and (5) health literacy.

The second study is by Moraes and colleagues (2013), who sought to investigate the perceptions of obese individuals with depression regarding the factors involved in the maintenance of their obesity. The results revealed as maintenance factors: emotional eating and its subsequent feeling of guilt and lower self-esteem (creating a vicious circle), body image dissatisfaction, excessive ingestion, binge eating disorder, low social support from the family, difficulties with social interactions and lack of motivation (stemming from the slowness of the weight loss process), among others.

To conclude, Horta, Pimenta, Leal and Marôco (2018) compared obesity beginning and maintenance factors in a sample of 38 Portuguese individuals with and without binge eating disorder. The most frequently mentioned maintenance factor (identified by 57.9% of the participants) was the presence of negative comments, followed by weight cycling, the presence of comorbidities, the perception of difficulty losing weight, being physically inactive, lack of mobility, excessive ingestion of candy/sweets, stress, lack of effort to control weight and avoidance as a coping mechanism, which were identified by at least 30% of the individuals. Contrary to what the authors expected, thought, there were no significant differences in any maintenance factor between those with binge eating and those without.

The Present Study

The present study builds up on the research by Horta and colleagues (2018), in the sense that its aim is to further analyse the factors and processes involved in the maintenance of obesity, but in a larger sample of Portuguese participants – the larger the number of participants, the more information is likely to be collected and the more generalizable will be the findings to similar samples, ultimately constituting relevant material for designing interventions. The pertinence of this investigation is justified by the high and growing prevalence of obesity and its adverse effects on people's physical and mental health and the healthcare system. This investigation applied a qualitative methodology, by means of in depth interviews, which were recorded, transcribed and analysed (Bardin, 2009; Braun & Clarke, 2006), for this is still a relatively little investigated topic and this approach will allow for a richer and deeper analysis of the subject.

Method

The present study is part of a broader research project on obesity titled "WELCOM – Weight Loss in the Community", currently being developed by the William James Center for Research (WJRC), in ISPA – Instituto Universitário.

Study Design

This study of exploratory nature used a qualitative methodology, that is, each individual's unique experience was taken into consideration within his/her significant personal context and framework (Shaughnessy, Zechmeister, & Zechmeister, 2012). Additionally, it is descriptive and cross-sectional since there was no variable manipulation, its sole purpose is to provide information regarding participants' experiences, it focuses only on one group of people, and data collection occurred in a single moment in time (Pais-Ribeiro, 2010).

Participants

Participants were recruited in clinical settings (hospitals and private clinics) and in community settings (associations, through social media – Facebook – and by referencing) – as such, this is a convenience and snowball non-probabilistic sample. In order to be selected individuals had to fulfil the following inclusion criteria: (a) minimum 18 years old; (b) BMI > 30 kg/m^2 at the moment of inquiry and during at least the previous 12 months; (c) not having achieved a weight loss recently (even if still maintaining a BMI > 30 kg/m^2) and not having initiated a weight loss process (i.e., seeking professional help and/or having the appropriate motivation to do so); and (d) minimum literacy and ability to answer a series of questionnaires and an extensive audio recorded interview protocol. Criterion (c) was added upon realizing that many participants, though still having a BMI > 30 kg/m^2, exhibited significantly different speeches from other participants due to the fact that they presented a significant motivation to lose weight and/or had initiated a weight loss process (i.e., an intention/motivation to change) – these participants were not included in the analysis because their experience of the maintenance of obesity would be meaningfully different, thus affecting the desired sample homogeneity and interfering with the research question (i.e., a maintenance experience). This is the main difference in relation to Horta and colleagues' (2018) work, for their investigation included participants that were excluded from this study, and vice-versa.

From a total of 74 potential participants who fulfilled the inclusion criteria (a), (b) and (d), 11 were not available for the conduction of the interview, 1 was removed from the final sample because the spouse also took part in the interview, and 16 were not included because they had already achieved a weight loss and/or were already motivated to lose weight, though still having a BMI > 30 kg/m^2, thus not fulfilling criterion (c). These 16 particular cases were analysed separately and discussed among all researchers involved in WELCOM to reach a final decision regarding their inclusion or exclusion. The final sample was composed of 46 participants (71.7% women) aged between 25 and 70 years old (M = 45.49; SD = 11.91) and with BMI ranging from 30.02 to 50.64 (M = 39.27; SD = 5.55). Participants' sociodemographic and health-related characteristics are presented in Table 1 and Table 2 respectively.

Table 1

Participants' Sociodemographic Characteristics

Sociodemographic Characteristics	Frequency (*n*)	Percentage (*n*%)
Affective-Sexual Relationship		
No	10	21.7
Yes	34	73.9
Missing	2	4.3
Children		
No	9	19.6
Yes	35	76.1
Missing	2	4.3
Professional Status		
Active	28	60.9
Inactive	16	35.7
Missing	2	4.3
Educational Level		
4 years or less (primary school)	7	15.2
6 years (primary school)	4	8.7
9 years (middle school)	6	13.0
12 years (high school)	9	19.6
Bachelor (3 years in college)	2	4.3

Graduate (5 years in college)	15	32.6
Master (7 years in college)	1	2.2
PhD (11 years in college)	1	2.2
Missing	1	2.2
Annual Household Income		
10.000€ or less	15	32.6
10.001€ to 20.000€	8	17.4
20.001€ to 37.500€	8	17.4
37.501€ to 70.000€	5	10.9
> 70.001€	2	4.3
Missing	8	17.4

Table 2

Participants' Health-Related Characteristics

Health-Related Characteristics	Frequency (*n*)	Percentage (*n*%)
Recent Disease		
No	22	47.8
Yes	23	50.0
Diabetes [a]	6	—
Hypertension [a]	5	—
Sleep apnea [a]	3	—
Missing	1	2.2
Psychological Problem		
No	33	71.7
Yes	10	21.7
Depression	6	—
Depression with suicidal ideation	1	—
Bipolar disorder	1	—
Missing	3	6.5
Obesity Since		
Childhood	12	26.1

Adolescence	5	10.9
Early adulthood	15	32.6
Age 26-30 years old	1	2.2
Age 31-35 years old	2	4.3
Age 41-45 years old	1	2.2
Menopause	1	2.2
Smoking cessation	1	2.2
Physical activity cessation	1	2.2
Other	5	10.9
Abortion	1	2.2
Birth 1st child	1	2.2
Birth 2nd child	1	2.2
Birth 4th child	1	2.2
Knee surgery and contraceptive pill intake	1	2.2
Missing	2	4.3
Weight Loss Attempts		
None	4	8.7
1-5	20	43.4
10	2	4.3
14	1	2.2
Missing	19	41.3
Smoking		
No	34	73.9
Yes	10	21.7
Missing	2	4.3
Alcohol Consumption		
No	16	34.8
Yes	27	58.7
Missing	3	6.5
Coffee Consumption		
No	9	19.6
Yes	36	78.3

Missing	1	2.2
Physical Activity/Exercise		
No	18	39.1
Yes	26	56.5
Missing	2	4.3

Notes. [a] Most frequently mentioned diseases.

Procedure for Data Collection and Materials

First and foremost, formal authorization (which included the presentation of the study's aim and procedure) was requested from Ethics Committees and Clinical Boards at all recruitment sites. Once permission had been obtained, healthcare professionals from the several sites contacted potential participants, explained the purpose of the study and referred to the leading researchers those who showed interest in participating.

Subsequently, the researchers contacted all interested participants to fill out a sociodemographic questionnaire and a health and lifestyle questionnaire (Appendix B), for sample characterization and verification of those who fulfilled the inclusion criteria. These received the informed consent (Appendix C), which explained the aim of the investigation and participation format, and ensured the confidential nature of the information and the possibility to withdraw from the study at any moment, without any consequences. Because carrying out the interviews meant personally meeting the participant, anonymity could not be guaranteed throughout the interviewing process – this was ensured later on, during the transcription process, in which all names or other identification elements were omitted from the transcriptions and replaced with an alphanumerical code specific to each interview/participant. Together with the informed consent, a document requesting authorization for audio recording the interview was also handed out (Appendix D). Lastly, participants were given the opportunity to clarify any doubts or contact the leading researcher should further clarification be necessary.

Afterwards, individual semi-structured interviews were carried out, following a previously elaborated protocol that consisted of open-ended questions (e.g., "What do you think contributes to maintain your current weight?"). This allowed the research question to be answered, as well as a deeper exploration of each individual's experience. Given that the interview protocol was developed for a broader investigation and thus includes questions

unrelated to the research question, only the segment containing the questions that pertain to this study are presented (Appendix E).

The interviews were carried out by trained researchers either in person or by telephone, depending on each participant's availability. In the first case, the interviews took place in the respective clinical setting (i.e., clinic or hospital in which the participant had been recruited), in a private room previously reserved for this purpose, thus ensuring the participant's privacy. In the second case, the interviews took place in an office at the college institution and the researcher guaranteed appropriate conditions for carrying out the interviews, that is, ensured that it would also take place in a private room, during a suitable time for both the interviewer and the interviewee. No time limit was imposed and all interviews were recorded (using a computer's microphone and after obtaining written consent from the participant) and transcribed, both in verbal and non-verbal content (e.g., pauses, laughs).

Procedure for Data Analysis

The content of the interviews was analysed by means of a pluralistic qualitative approach – content analysis (Bardin, 1977) and thematic analysis (Braun & Clarke, 2006), using the software MAXQDA (version 12.3.5). Content analysis allowed for an inductive approach, since it provides an objective, systematic and quantitative description of the manifest content of the interviews, with codification being done *in vivo*, directly from the manifest content. This technique was performed according to the homogeneity, exhaustivity, objectivity and pertinence criteria (but not the exclusivity criterion). Complementarily, thematic analysis allowed for a deductive approach, since it enables the identification, exploration and description of patterns/themes informed by theory and scientific literature, throughout the interviews.

Results

The qualitative analysis revealed a total of 2814 coded segments, grouped into 209 codes, posteriorly divided into the themes psychological processes (85 codes, 634 coded segments), physical processes (32 codes, 437 coded segments), behaviours (118 codes, 1130 coded segments) and determinants (64 codes, 577 coded segments). Tables 3, 4, 5 and 6 present the codes pertained to each theme – psychological processes, physical processes, behaviours and determinants, respectively. For each code, a definition and an example are provided, along with the number of participants who mentioned the code (frequency, *n*), the number of coded segments (NCS) and the percentage of participants (*n*%). The codes are displayed in descending order of number of participants that mentioned each code and only codes mentioned by at least 15% of the sample are presented (psychological processes = 12 codes; physical processes = 11 codes; behaviours = 22 codes; determinants = 4 codes; see Appendixes F, G, H and I for a list of the remaining codes).

Table 3

Psychological Processes Involved in the Maintenance of Obesity

Code	Definition	Example	*n* (NCS)	*n*%
Perception of weight gain in a sudden and/or uncontrolled manner	Uncontrolled and sudden weight gain, with or without an identifiable cause, but without being able to stop it	"What was most sudden was that time which was less than 3 months, 23 kilos"	18 (35)	39.1
Perception of difficulty losing weight	Perceiving difficulty in losing weight	"But to lose is very, very difficult"	18 (28)	39.1
Acceptance/ conformism	Passively accepting or conforming with one's excessive weight	"And that was when I thought to myself, if this is the way I am, then this is the way I am, there's nothing to be done"	16 (32)	34.8
Belief of incapability of losing weight (low self-efficacy)	Central belief that one is incapable of losing weight (low self-efficacy)	"I can't do it, because I've already tried (...) I can't do it. It's not possible"	15 (23)	32.6

Avoidance as a coping mechanism: lack of responsibility in relation to weight management	Lack of responsibility in relation to one's weight loss behaviours, to the possibility of behaviour change and/or attributing responsibility to another person/object	"I would definitely like to lose weight and that is why I say if I were given a miracle..."	12 (30)	26.1
Negative emotion: stress	Feeling stressed, with or without an identifiable cause, contributes to weight gain or hinders the weight loss	"I also connect this little, this weight gain… To stress…"	12 (29)	26.1
Lack of identification with a certain weight loss strategy	Not engaging in a weight loss process or quitting trying to lose weight due a lack of identification with a certain strategy/regimen/ programme	"I thought it was going to be more based on food choices and motivation but no, it was a series of medications, which I bought but then couldn't bring myself to take them"	12 (24)	26.1
Lack of motivation	Lack of motivation to initiate a weight loss process	"I think it's lack of motivation"	11 (22)	23.9
Pleasure in eating	Taking pleasure in eating, getting a sense of well-being.	"I like to eat, it's my nature, it gives me pleasure"	9 (23)	19.6
Lack of motivation due to achieving none or little results in a weight loss attempt	Not achieving the expected results during a weight loss attempt contributes to loss of motivation and leads to quitting	"We started with lots of enthusiasm, or at least I did, but then after 15 days I gave up because I saw no results"	8 (10)	17.4
Perception of easiness in gaining weight	Perceiving easiness in gaining weight, making it more difficult to lose weight	"To gain is very easy"	7 (11)	15.2
Perception of gaining weight in a very slow manner	Perceiving the weight gain as a very slow process contributes to obesity maintenance because one is not aware of the weight gain	"Yes [gaining weight gradually], without realising it, without body memory, and we look in the mirror and because it's just a little we adapt to the profile"	7 (9)	15.2

Note. Codes mentioned by at least 15% of the participants. *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Table 4

Physical Processes Involved in the Maintenance of Obesity

Code	Definition	Example	*n* (NCS)	*n*%
Weight regain	Regaining weight after a weight loss, sometimes with further weight gain	"It was 7 kilos but I lost (...) After, wow, I quickly recovered all that and then some"	33 (81)	71.7
Unsuccessful weight loss attempt	Not losing weight or not losing any significant weight during a weight loss attempt, sometimes even gaining more weight	"I already had experience with a thing called Herbalife and funnily enough I put on a kilo"	25 (54)	54.3
Genetics	Genetic factors (family heredity) lead to a propensity to excessive weight development, thus maintaining obesity	"So, it's a little bit genetic"	13 (40)	28.3
Pregnancy at a time one was already overweight	Getting pregnant at a time the woman already had excessive weight, therefore maintaining it	"I weighed 120 kilos. (…) Then I had my kids, I kept gaining weight… (…), gaining and gaining"	12 (16)	26.1
Health problems	Health problems lead to excessive weight development	"The whole problem is, is... It's that. I think... It was the diabetes that started it"	11 (23)	23.9
Weight fluctuations	Small weight fluctuations in a small period of time, whether related to a weight loss attempt or not, make it difficult to lose weight and/or control the weight gain	"But I can weigh 80kg today, and tomorrow 78kg, and the day after tomorrow 82kg, I vary a lot from day to day"	11 (19)	23.9

Obesity onset during infancy/adolescence	Obesity onset during childhood or adolescence, persisting to this day, and making it difficult to lose weight	"Because that's the thing, my fat is from childhood, isn't it!"	9 (19)	19.6
Weight cycling	Repeated dieting behaviour, with constant weight loss and subsequent weight regain	"The other [diets] were a see-saw, I would lose, I would gain, lose, gain"	9 (29)	19.6
Metabolism	Obesity maintenance due to one's metabolism (e.g., slow, dysfunctional)	"I think it also has a bit to do with the metabolism of my body"	9 (29)	19.6
Negative consequences of a weight loss attempt	Negative/ uncomfortable aspects related to weight loss attempts (e.g., vomiting, mood deterioration), leading to quitting	"I think I almost had a serious health issue, because it gave me diarrhea and at a certain point it constantly made me vomit"	9 (28)	19.6
Bariatric surgery: negative consequences/ unsuccessful	Not losing weight after bariatric surgery or experiencing negative collateral effects, causing surgery failure	"I had the gastric band as tight as possible (...), I was on liquids and gaining weight"	8 (44)	(17.4)

Note. Codes mentioned by at least 15% of the participants. *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Table 5

Behaviours Involved in the Maintenance of Obesity

Code	Definition	Example	*n* (NCS)	*n*%
Unhealthy eating behaviour	Unhealthy eating habits	"Because the thing is I eat very badly"	27 (96)	58.7
Excessive ingestion (general)	Excessive food ingestion, without specifying any particular kind of food or motive	"I eat, and eat, and eat, until I burst"	26 (82)	56.5

Emotional ingestion due to anxiety	Food intake in response to anxiety	"I eat depending on my anxiety"	16 (39)	34.8
Non-compliance with the weight loss strategies (general)	Not complying with the weight loss strategies, without specifying why	"I did not follow the diet he prescribed"	14 (24)	30.4
Emotional ingestion (emotion nonspecific)	Food intake in response to emotional states, mainly negative, without specifying which emotion	"I think it was always my way of dealing with problems, to take refuge in food"	12 (27)	26.1
Emotional ingestion due to stress	Food intake in response to stress	"A lot... A lot of stress. A lot of stress. Really a lot. And I digested that stress through food"	12 (21)	26.1
Lack of physical activity/exercise (general)	Not practicing physical activity/ exercise, without specifying why	"In my case, I think it's really the lack of exercise"	12 (24)	26.1
Interruption/ decrease of physical activity/ exercise (general)	Interrupting or decreasing the level of physical activity/ exercise, leading to further weight gain	"I stopped working out regularly as I used to and it was 1kg, 2kg, 3kg until 86"	12 (24)	26.1
Interruption/ decrease of physical activity/ exercise due to health problems	Interrupting or decreasing the level of physical activity/ exercise due to health problems, leading to further weight gain	"And in the last 3 years, give or take, I had a new knee injury that forced me to stop again for a while..."	12 (38)	26.1
Non-compliance with the weight loss strategies due to the perception of difficulties in their implementation	Not complying with the weight loss strategies due to the perception of difficulties in their implementation, whether practical or personal, leading to quitting	"It's because I can't do it, it's like this, I have to bring lunch from home, I don't have the means to worry about those things at work, it's a... For me it's a bit complicated"	12 (22)	26.1
Lack of effort to control one's weight	Not making a conscious effort to control one's weight	"For a very long period in my life I did not make the effort to control my weight"	11 (21)	23.9
Lack of physical activity/exercise due to the perception of lack of availability/ time/will	Not practicing physical activity/ exercise due to the perception of lack of availability, time or will	"It's like this, I don't have time for the gym, as I usually say"	10 (29)	21.7

Sedentarism (general)	Having a sedentary lifestyle, without specifying where or why	"My life is a little sedentary"	10 (21)	21.7
Excessive ingestion of bread	Excessive bread intake	"And my biggest sin is, it's bread"	9 (20)	19.6
No difficulties performing tasks/ activities	Being capable of performing all kinds of tasks, chores and activities, and not experiencing mobility difficulties which could create a motive to lose weight	"And I, even at my highest weight, continued doing everything"	9 (29)	19.6
External eating due to a lack of self-control	Food intake in response to external food-related cues, without being able to exercise any self-control	"And then when I go, for instance if I go to a coffee shop the first thing that I come across, if it's a sweet, it's the sweets I'll eat, that is basically it"	9 (15)	19.6
Non-compliance with the diet due to tiredness with it	Not complying with the diet due to tiredness with the regimen/programme, leading to quitting	"That's the thing, in the beginning there's a lot of enthusiasm and so on, but then I start getting fed up and begin slacking today, slacking tomorrow, etc. and I end up giving up"	9 (12)	19.6
Excessive ingestion of candy/sweets	Excessive candy/ sweets intake	"But then the sweets, I have a very sweet tooth, I had to eat a little cake almost every day"	8 (22)	17.4
Fasting/eating few times a day	Having fasting periods during the day or eating few times throughout the day	"It's the whole day without eating"	8 (11)	17.4
Lack of self-control over one's eating behaviour	Not being able to control one's eating behaviour	"And then there's that, it ends up being out of control, because if I get hungry I go for things I know I should not eat"	8 (14)	17.4

Quitting smoking	Quitting smoking (sometimes more than once throughout one's lifetime) leads to weight gain	"I've always said that I gained weight until today because I quit smoking"	8 (44)	17.4
Excessive ingestion due to a desire to eat	Excessive food intake due to the desire to eat	"I was ashamed to say that my problem wasn't that I was hungry, it was that I wanted to eat"	7 (18)	15.2

Note. Codes mentioned by at least 15% of the participants. *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Table 6

Determinants Involved in the Maintenance of Obesity

Code	Definition	Example	*n* (NCS)	*n*%
Work characteristics/ problems	Obesity maintenance due to certain work characteristics/ problems that impede weight loss attempts	"Because I was working abroad. That and I was at the hotel and that's not possible... (...) I ate at the hotel, I always ate out and so it was a disaster"	20 (64)	43.5
Medication	Intake of medication that causes weight gain and/or hinders weight loss	"And all the medication helping me gain more weight"	13 (35)	28.3
Financial barriers	Not engaging in a weight loss process due to financial difficulties	"And you know that to go on a right diet... One has to have money (...) and that I don't have"	9 (42)	19.6
Life event: death of a loved one	Weight gain due to a loved one's passing	"My husband passed away 7 years ago and that's when I put on more weight"	7 (17)	15.2

Note. Codes mentioned by at least 15% of the participants. *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Discussion

The aim of this investigation was to explore the factors and processes perceived by the participants as contributing to the maintenance of their obesity. The analysis revealed a total of 209 codes which were then divided into four major themes: psychological processes, physical processes, behaviours and determinants. The 49 codes that were mentioned by at least 15% of the participants were reported here and will now be discussed in light of the most recent scientific literature.

In comparison with Horta and colleagues' (2018) work, it is possible to verify that a great number of codes remain within the most prevalent, such as weight cycling, the presence of comorbidities, the perception of weight loss difficulty, lack of physical activity/exercise, excessive ingestion of candy/sweets, stress, and lack of effort to control one's weight. This is a potential indicator of agreement between the two coders and a good indicator of the quality of the study, though no formal assessment of inter-rater reliability was carried out.

Several investigations have demonstrated that a moderate weight loss (i.e., of up to 5-10% of the initial body weight) can bring positive health consequences to the individual, along with an improved quality of life (Beaulac & Sandre, 2016; Mauro et al., 2008; Ogden & Clementi, 2010; Raman et al., 2013; Ryan, 2014; Stevens, Truesdale, McClain, & Cai, 2006; WHO, 2000). However, a vast number of studies show that weight loss maintenance is only achieved by a small minority of people, with those who manage to lose weight regaining it within a period of 1 to 5 years (Dombrowski, Knittle, Avenell, Araújo-Soares, & Sniehotta, 2014; Halali et al., 2018; Hammarström et al., 2014; Hindle & Carpenter, 2011; Mauro et al., 2008; Raman et al., 2013; Ryan, 2014; Seaman, 2013; Stevens et al., 2006; Westerveld & Yang, 2016; WHO, 1995; Young, Morgan, Plotnikoff, Callister, & Collins, 2012). The fact that weight regain (NCS = 81, 71.7%) and unsuccessful weight loss attempts (NCS = 54, 54.3%) were the two most mentioned physical processes perceived as responsible for the participants' excessive weight adds to this extensive literature. Weight cycling, which refers to the process of repeated dieting, with recurrent weight loss and regain, was also mentioned by the participants in this study (NCS = 29, 19.6%). This phenomenon is associated with negative consequences and difficulty with future attempts to lose weight (WHO, 1995, 2000). Taken together, these results are congruent with studies that highlight that (a) the majority of people with excessive weight have previously tried to lose weight, unsuccessfully (Halali et al., 2018; Hindle & Carpenter, 2011; Sabinsky et al., 2010), (b) that losing weight is a lifelong struggle (Ali et al., 2010; Hindle

& Carpenter, 2010), and (c) that most individuals with obesity are unsatisfied with their current weight (Ali et al., 2010, Halali et al., 2018).

In the present sample, the lack of success of the weight loss attempts and the weight regain could be explained by the experience of adverse effects during a weight loss attempt (e.g., vomiting, mood deterioration; NCS = 12, 19.6%), which inevitably lead to quitting. They could also be related to the non-compliance with the weight loss strategies (NCS = 25, 30.4%), in some cases because of difficulties in their implementation (NCS = 22, 26.1%), which discourage individuals, or because the participants got tired of dieting (NCS = 12, 19.6%). Since losing weight involves constant control over one's energy intake and energy expenditure (Byrne, 2002), it's very common for people with obesity to lose this self-control in the long-term, which explains why these patients typically lose adherence to dietary regimes over time (Müller, Bosy-Westphal, & Heymsfield, 2010). Self-control refers to the conscious, deliberate and effortful capacity to restrain or override one's responses, so as to align them with one's ideals, values and social expectations, as well as to support the pursuit of long-term goals, like losing weight (Baumeister, Vohs, & Tice, 2007). According to the Self-Control Strength Model proposed by Baumeister and colleagues (2007), repeated exertions of self-control cause deterioration of this capacity over time, leading to subsequent worse performances on tasks that require it, which is the case of dieting – this phenomenon was termed "ego-depletion".

Despite this, evidence suggests that self-control can be enhanced through practice (Baumeister et al., 2007), which makes it a very important resource for weight loss, in the sense that the ability to resist highly caloric/energy dense foods and persevere with physical activity are key factors for successful weight loss maintenance (Leahey, Xu, Unick, & Wing, 2014). In this study, however, participants claimed they lacked self-control over their eating behaviour in general (NCS = 14, 17.4%) – and particularly when one takes special pleasure in food and eating (NCS = 23, 19.6%) – and whenever presented with food-related cues, a process called "external eating" (NCS = 15, 19.6%), which refers to the tendency to overeat in response to food-related cues, as a result of hyperresponsiveness to the external food environment (e.g., attractive smell or sight of food; Van Strien et al., 2007). Additionally, more than half of the participants reported having unhealthy eating habits (NCS = 96, 58.7%), with excessive food ingestion (NCS = 82, 56.5%, namely of bread, NCS = 20, 19.6%, and candy/sweets, NCS = 22, 17.4%), and approximately a quarter stated that they didn't practice any kind of physical activity (NCS = 24, 26.1%) – for instance, due to lack of time, availability or will (NCS = 29, 21.7%). Alternatively, some participants had interrupted or decreased the amount of physical activity (NCS = 24, 26.1%) – in some cases due to the presence of health problems (NCS = 38, 26.1%),

which varied from temporary injuries to chronic conditions. Furthermore, many of them reported leading sedentary lifestyles (NCS = 21, 21.7%). This is consistent with Elina, Ilmari, Terttu and Johanna's (2012) study of perceptions and motives associated with weight management, for example, in which the most frequently identified variables affecting participants' weight were also exercise and eating habits. Given that weight is regulated by an energy balance, that is, energy intake and energy expenditure (Müller et al., 2010; Ogden, 2004; Seaman, 2013; WHO, 1995, 2000, 2017), it is not surprising that, if energy intake supplants energy expenditure, the result will be an imbalance, or a positive energy balance, leading to excessive weight gain (Müller et al., 2010) and, ultimately, obesity maintenance.

In spite of this recognition from the participants, many confessed that throughout their lives, there had been a lack of conscious effort to try to lose weight (NCS = 21, 23.9%). Several factors could account for this, namely, the lack of difficulty in performing tasks and activities (NCS = 29, 19.6%): participants explicitly stated that because obesity wasn't an impediment to their household, professional and social activities, they had no reason for wanting to change their weight. This is similar to studies which suggest that health is among the most important motivators for weight loss and lifestyle change (Elina et al., 2012; Sabinsky et al., 2007) – the absence of health hazards poses, thus, an obstacle to weight loss motivation.

However, this lack of effort to lose weight could also be attributable to a general lack of motivation (NCS = 22, 23.9%), one of the psychological processes more frequently reported in the literature (Ali et al., 2010; Halali et al., 2018; Hammarström et al., 2014; Moraes et al., 2013; Munt et al., 2017; Sabinsky et al., 2007; Sand et al., 2017; Sinfield, Baker, Pollard, & Tang, 2013; Westerveld & Yang, 2016). Within the context of Self-Determination Theory (SDT), by Deci and Ryan (2000), it could be argued that the participants place themselves at the far end of the motivation continuum proposed by the authors, which corresponds to amotivation, a state in which there's no intention to behave. According to the authors amotivation is likely to occur when individuals lack a sense of efficacy or a sense of control regarding the desired outcome. This is consistent with two other psychological processes identified by the participants: the core belief that one in incapable of losing weight successfully (i.e., low self-efficacy; NCS = 23, 32.6%) and the avoidance coping mechanism centred on the lack of responsibility for one's weight management behaviours (NCS = 30, 26.1%).

Self-efficacy (or efficacy expectations) concern the belief people have that they can successfully perform the behaviour required to achieve a desired outcome, influencing behaviour initiation and persistence (i.e., the amount of effort they will expend and how long they will persevere when confronted with obstacles and aversive experiences; Bandura, 1977).

Expectations of personal efficacy are derived from four sources of information, one of which being performance accomplishments (i.e., personal mastery experiences, with successes raising the sense of mastery and repeated failures lowering it) – in Byrne's (2002) review of the psychological aspects of weight maintenance and relapse, it was observed that successful weight maintainers reported greater confidence in their ability to control their weight and dietary behaviour, compared to weight regainers. As such, it seems natural that the repeated failures at weight loss or weight maintenance lower participants' self-efficacy expectations and, consequently, lead to loss of motivation, specifically in the long-term.

This phenomenon has been described in several investigations (Halali et al., 2018; Hammarström et al., 2014; Sinfield et al., 2013; Spörndly-Nees et al., 2014) and can also be confirmed by participants' statements that not achieving results (or the expected results) during a weight loss attempt resulted in the loss of motivation (NCS = 10, 17.4%), causing them to quit. In a qualitative study with Arab women at risk for type 2 diabetes (including women with excessive weight and obesity), loss of motivation to continue with the weight loss occurred when no results were achieved (Ali et al., 2010). In Moraes and colleagues' (2013) investigation, participants' lack of motivation was a result of the slowness of the weight loss process. Similarly, in Westerveld and Yang's (2016) review of barriers to bariatric surgery and weight loss maintenance, lack of satisfaction with the achieved progress was associated with higher rates of attrition.

Subjects' lack of responsibility for their weight management behaviours, as an avoidance coping mechanism, could be interpreted in light of the construct "weight locus of control", defined as the expectancy that one can, at least partially, affect or control one's weight. An internal weight locus of control corresponds to the belief that one's own behaviour or characteristics determine one's weight, whereas an external weight locus of control refers to the belief that one's weight is attributable to factors outside the person's control, such as luck, fate or genetics (Stotland & Zuroff, 1990). Individuals' weight locus of control has been found to relate to weight regain or maintenance, with an internal weight locus of control being associated with successful weight loss maintenance, compared to an external weight locus of control (Anastasiou, Fappa, Karfopoulou, Gkza, & Yannakoulia, 2015). This could explain why nearly 30% of the participants pointed genetics as a maintenance factor (NCS = 40, 28.3%) and why almost 20% attributed their weight gain to metabolism (NCS = 28, 19.6%), factors which lie outside people's control – a view compatible with an external weight locus of control. There is indeed some evidence that points to a genetic susceptibility to excessive weight gain in some individuals (Byrne & Hills, 2013; Ogden, 2004; WHO, 1995, 2000, 2017) and to active

biological mechanisms of weight control – Müller and colleagues (2010) even argue that body weight is the product of genetic effects, epigenetic effects and the environment. However, in Byrne and Hills's (2013) review, the authors conclude that, although it is likely that there are different "obesities" (to which different factors may play the leading role in causing weight gain), behaviour seems to be the strongest contributor to individual differences in weight gain, namely food and beverage intake, level of body movement and physical activity, sleeping habits, smoking, and use of pharmaceutical and surgical treatments.

Also consistent with participants' external weight locus of control is the attribution of their present excessive weight to their overweight condition during infancy (NCS = 29, 19.6%), claiming that because overweight had been part of their lives for such a long time, there was very little they could to change it. According to Simmonds, Llewellyn, Own and Woolacott's (2016) literature review, children and adolescents with obesity are indeed five times more likely to develop obesity in adulthood than those without obesity – more specifically, 55% of children with obesity will maintain it during adolescence, approximately 80% of adolescents with obesity will maintain it during adulthood and around 70% will still maintain their excessive weight over the age of 30. Nonetheless, the authors added that 70% of adults with obesity didn't have obesity during childhood or adolescence. This means that the impact of participants' childhood obesity on their current weight is debatable, and questions remain regarding the factors that maintain some adolescents' obesity throughout adulthood. A possible explanation may rely on identity formation in the course of adolescence, a period during which self-regulation skills also develop (Todd, Street, Ziviani, Byrne, & Hills, 2015). According to Identity Theory, identity formation is highly correlated with the adoption of identity-congruent behaviours (Strachan & Brawley, 2009), which means that identifying oneself as a "healthy eater" or as an "exerciser", cultivating the corresponding behaviours from an early age, may contribute to the development of healthy weight regulation habits throughout adulthood (Todd et al., 2015). The same may be true for those who develop identities centred on unhealthy weight management practices, thus making behaviours, attitudes and beliefs towards diet and physical activity more difficult to change after adolescence and early adulthood.

Lastly, participants' external weight locus of control – coupled with their lack of self-efficacy and their lack of motivation – may explain why more than a third referred to acceptance and conformism (NCS = 32, 34.8%) as responsible for the maintenance of their excessive weight. This implies that although they aren't satisfied with their current weight, they don't believe weight management is within their personal control and/or that they are capable of successfully performing the behaviours required for a sustained weight loss. Likewise, in an

investigation of barriers to eating behaviour change among individuals with obesity and obstructive sleep apnea, participants expressed feelings of helplessness and perceived their excessive weight condition as impossible to control (Spörndly-Nees et al., 2014). Moreover, the participants of this investigation perceived their weight gain to be fast and/or uncontrolled (NCS = 35, 39.1%), thus adding to their external weight locus of control.

One of the most mentioned psychological processes was the perception of difficulty losing weight (NCS = 28, 39.1%), in contrast with the perception of easiness in gaining weight (NCS = 11, 15.2%). From a biological perspective, Müller and colleagues (2010) explain that leptin, a homeostatic signal in weight regulation, sends signals concerning levels of or changes in fat mass to the hypothalamus, which in turn regulates a decrease in energy intake and an increase in energy expenditure. The most recent evidence, however, suggests that leptin protects the body not against increases in fat mass, but against fat loss, which means that, at low levels of leptin (i.e., food deprivation and depleted fat stores), a signal is induced to activate biological actions that lead to an increase in energy intake and a decrease in energy expenditure. This suggests that the control system that regulates the energy balance is asymmetric and may only be efficient in response to negative energy balances (e.g., fasting), which is in line with participants' experiences that it is easier to gain weight compared to losing weight (since the latter is so firmly controlled and the first is not fully compensated). This phenomenon was also found in Byrne and Hills's (2013) review, who added that the variance in the size of the body's "defense" against negative energy balances is also biologically determined.

From a psychological perspective, to the author's knowledge, perceived weight loss difficulty hasn't been investigated yet. Two studies were identified, though, that focused on the perception of exercise difficulty, a behaviour intimately related to successful weight loss and maintenance. The first study, by Brock and colleagues (2010) demonstrated that perception of exercise difficulty during a common, submaximal aerobic exercise modality predicted weight regain at 1-year follow-up in women who successfully completed a weight loss programme. These authors hypothesize, then, that perceived exercise difficulty relates to weight regain via actual engagement in physical exercise. The second study, by Valerio et al. (2014), focused on children with obesity and found that compared to normal-weight or overweight children, those with obesity had higher perceived difficulty in most physical activities of daily living, were less engaged in sports and had lower physical performance. Thus, Valerio and colleagues (2014) suggest that enhancing children's perceived motor and skill competence would be the best approach for increasing their levels of physical activity.

Based on the results of these studies, it seems reasonable to argue that perceived weight loss difficulty operates in a very similar way to self-efficacy expectations, in the sense that both determine behaviour initiation and persistence, while still remaining different constructs (e.g., some participants stated that, despite being difficult, weight loss was possible for them and they had previously succeeded). It is important to note, however, that perceived difficulty remains a subjective interpretation and, as such, may not necessarily reflect actual difficulty. Coupled with a low sense of self-efficacy, then, perceived weight loss difficulty poses an added obstacle for weight loss, undermining participants' motivation to an even greater extent.

With regards to determinants, some of those with higher number of coded segments have been systematically reported in the literature. Such is the case of intake of medication (NCS = 35, 28.3%), whether it causes weigh gain or hinders weight loss, including anti-diabetes therapy (e.g., insulin), psychotropic drugs (e.g., antipsychotics, antidepressants), steroid hormones, among others (Hsieh, Sweeting, Suryawanshi, & Caterson, 2014; Mauro et al., 2008), and financial barriers to weight management (NCS = 42, 19.6%), whether it's because the individual cannot afford obesity treatment (Sinfield et al., 2013) or because he/she perceives a healthy diet and/or enrolment in a sports facility as too expensive, thus not engaging in a weight loss process (Sabinsky et al., 2007; Spörndly-Nees et al., 2014). In this investigation, financial difficulties were also among the reasons for quitting the diet, much like in Hammarström et al.'s (2014) study, in which the cost of the new diet posed a reason for participants to abandon the intervention. Bariatric surgery is nowadays considered the most effective treatment for obesity (Beaulac & Sandre, 2016; Mauro et al., 2008; Westerveld & Yang, 2016), but this therapeutic option, along with pharmacological treatments, are usually not reimbursed by healthcare systems, placing all costs on the patient and, consequently, making these forms of treatment inaccessible (Mauro et al., 2008, Westerveld & Yang, 2016). In Portugal, the National Healthcare System contemplates in its National Health Plan that bariatric surgery should be provided to people with obesity. Nonetheless, eligibility criteria for bariatric surgery are very strict, waiting lists are long and services are highly concentrated in the North and Lisbon areas (Entidade Reguladora da Saúde, 2019), thus considerably limiting access to treatment.

The presence of comorbidities (i.e., health problems, NCS = 23, 23.9%) has also been mentioned in previous studies as a factor affecting people's weight and weight management behaviours, namely (a) pain (Mauro et al., 2008), (b) cardiovascular or respiratory disease (Ali et al., 2010, Mauro et al., 2008), (c) digestive disease, (d) endocrine disorders (Mauro et al., 2008), and (e) temporary injuries (Hammarström et al., 2014).

Lastly, as for adverse life events (such as the death of a loved one, NCS = 17, 15.2%) and stressful life situations (such as work characteristics and problems, NCS = 64, 43.5%), Byrne (2002) verified that it is not the presence or absence of adverse or stressful situations as much as the ability to cope with them that influences weight gain. In other words, studies that compared weight maintainers with weight regainers found that maintainers have a tendency to cope more successfully with such events, employing problem-solving skills that don't interfere with their weight management efforts, whereas weight regainers were found more likely to overeat in response to such situations, using food or eating as a way of coping with, avoiding or minimizing negative emotional states (Byrne et al., 2002; Raman et al., 2013). This phenomenon has been termed "emotional eating" (Frayn & Knäuper, 2018; Van Strien et al., 2007) and it derives from psychosomatic theory, which postulates that stress-induced eating is an abnormal response to distress that occurs in those who mistake physiological correlates of emotional distress for hunger (Van Strien et al., 2007). Like in many other studies (Halali et al., 2018; Hammarström et al., 2014; Munt et al., 2017; Ogden & Clementi, 2010; Spörndly-Nees et al., 2014; Westerveld & Yang, 2016), the participants of this investigation mentioned emotional ingestion (NCS = 27, 26.1%) as a way of coping with anxiety (NCS = 39, 34.8%) and stress (NCS = 21, 26.1%). According to Frayn and Knäuper (2018), about 60% or more of people with excessive weight and obesity are emotional eaters, which means they are particularly susceptible to high-fat, high-sugar and high-calorie food consumption in response to negative emotions, as well as less likely to achieve a successful weight loss.

This investigation presents several limitations. First and foremost, there was no stabilization of the coding frame, that is, new codes were being generated up to the last analysed interview. This could be due to the high heterogeneity of the sample, in terms of participants' sociodemographic characteristics and their weight history/experience, with each participant providing very specific, detailed, rich and unique information. Also, despite the study's qualitative nature, the relatively small number of participants and the non-probabilistic sampling procedure make generalization of the results impossible. Furthermore, as in many investigations, this sample was primarily composed of women and, as such, inferences regarding the male gender should be made with caution.

Another significant limitation of this investigation concerns the selected obesity classification criterion – BMI. Although being the most useful population-level measure of obesity, BMI does not distinguish between fat mass, bone mass, muscle mass and fluid, and because all these components contribute differently to one's weight, using this measure may

result in misclassification. Additionally, BMI was requested from participants in the form of self-report, which increases the risk of biases.

What is more, as previously mentioned, inter-rater reliability was not formally assessed in this study, which diminishes its methodological quality, although the coding was performed by psychologists (in a dependent/shared way).

Finally, conducting some of the interviews over the telephone poses another limitation, as the absence of the interviewer seriously limited opportunity for further exploration of the manifest content, particularly with respect to non-verbal content. The fact that all interviews were performed by junior psychologists also limited information collection, since several opportunities for detailed exploration and clarification were missed (e.g., on occasion, participants mentioned maintenance factors already reported in the literature but didn't identify them as such). Despite this, due to the research setting (i.e., not clinical), for ethical reasons, interviewers were instructed not to elicit discomfort in the participants, given the sensitive nature of the topic being discussed.

Despite this investigation's limitations, the findings presented here constitute a worthy contribute to the present knowledge on obesity and weight management. The large number of codes generated is indicative of the variety of factors underlying obesity maintenance, all of which should be taken into account when designing interventions. The fact that participants named, to a larger extent, behaviours, compared to psychological processes, physical processes and determinants implies that they may not always be aware of the processes that underlie and drive their behaviours, much in the same way that they are not conscious of the environment's influence on their lifestyle choices. This may also be the case of healthcare professionals and the existing weight management interventions, which continuously emphasize behaviour change without always paying the necessary attention to the other obesity maintenance factors, highlighted in this study. Several phenomena have been reported here that merit further investigation, including motivational aspects, self-control, self-efficacy, weight locus of control and coping mechanisms. Weight loss and weight maintenance interventions should be tailored to each individual's needs and personal, social and environmental context, and obesity should be recognized as a chronic condition that requires the adoption of long-term treatment strategies – there is a need for lifelong, sustained changes.

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Appendixes

Appendix A – Extended Literature Review

Introduction

Obesity Definition, Aetiology, Epidemiology and Consequences

Overweight and obesity are defined as the accumulation of abnormal or excessive fat in adipose tissue to the extent that it represents a risk to one's health, being therefore associated with great rates of morbidity and mortality (Komaroff, 2016; World Health Organization [WHO], 1995, 2000, 2017). Obesity is considered a chronic progressive disease (Mauro, Taylor, Wharton, & Sharma, 2008; Ogden, 2004; Westerveld & Yang, 2016; WHO, 1995, 2000, 2017), with its main cause being the imbalance between caloric consumption and expenditure (i.e., energy intake exceeds energy expenditure), associated with an increase in the consumption of high-fat/energy-dense foods and a decrease in physical activity (Ogden, 2004; Seaman, 2013; WHO, 1995, 2000, 2017). Still, there is some scientific evidence indicating a genetic susceptibility of some people to develop excessive weight (Ogden, 2004; WHO, 1995, 2000, 2017).

Other factors that potentially associate with weigh gain include ethnicity/race, family history of overweight, socioeconomic factors (e.g., a lower educational level is associated with higher risk for weight gain), smoking (i.e., smoking cessation is usually associated with weight gain), and parity (i.e., higher parity may associate with greater weight gain; WHO, 1995). Several behaviours related to the modern lifestyle also contribute to weight gain and obesity, such as eating too quickly, inadequate sleep and high levels of psychological stress (Seaman, 2013).

Nowadays, obesity is considered an epidemic and a major public health problem, with accelerated increases in rates worldwide (Komaroff, 2016; Seaman, 2013; WHO, 1995, 2000), and Portugal is no exception. In a study with 4819 Portuguese participants aged between 25 and 74 years old, Gaio and colleagues (2017) estimated that the prevalence of excessive weight and obesity in 2015 was 39.1% and 28.6% respectively. Similarly, according to WHO's (2017) global estimates for 2016, 39% of adults (≥18 years old) were overweight and 13% (11% of men and 15% of women) were obese. Women usually present higher obesity rates, whereas men have higher rates of overweight (WHO, 2000).

Obesity is most generally measured using the body mass index (BMI), which expresses a relation between one's weight and height (weight[kg]/height^2[m^2]). Since BMI does not measure fat mass or fat percentage, and since there are no clearly established cut-off points, different BMI levels represent different degrees of underweight or overweight (WHO, 1995). Therefore, a BMI $\geq$ 25 kg/m^2 is considered excessive weight and a BMI $\geq$ 30 kg/m^2 is considered obesity (Komaroff, 2016; WHO, 1995, 2000, 2017). This classification is based on the association observed between BMI and mortality rates (Komaroff, 2016; WHO, 1995, 2000). Caution is advised when using this measure for classification purposes, given that bone mass, muscle mass, fat and fluid contribute differently to one's weight (i.e., two individuals with the same BMI may not have the same degree of fatness). Using BMI may therefore result in misclassification (WHO, 1995, 2017). Nevertheless, this is still the most useful population-level measure of obesity (WHO, 2000, 2017).

A high BMI is associated with a higher probability of premature death, as well as developing a number of health problems, both physical and psychological, with significant negative impact on quality of life, the activities of daily living and the healthcare system, posing a great economic burden. Within the physical domain, there's a higher risk for cardiovascular disease, diabetes *mellitus*, gallbladder disease, musculo-skeletal disease, pulmonary disease, and some types of cancer, especially hormone-dependent and gastrointestinal cancers (e.g., cervical, breast, prostate, colon and gallbladder; Ogden, 2004; WHO, 1995, 2000, 2017). Endocrine disorders, infertility and sleep apnea can also pose a threat to the overweight individual (approximately 70% of the patients with obstructive sleep apnea are overweight and obese; Spörndly-Nees, Igelström, Lindberg, Martin, & Asenlöf, 2014; WHO, 1995, 2000). These are usually the main motive for contact with the health care system (WHO, 2000).

Within the psychological sphere, obesity can lead to decreases in self-esteem, body image dissatisfaction and poor quality of life, and is often associated with depression, anxiety and eating disorders, such as binge eating (Moraes, Almeida, & Souza, 2013; Ogden, 2004; Ogden & Clementi, 2010; WHO, 2000), an eating disorder defined as recurrent episodes of binge eating, that is, eating in a discrete period of time an amount of food larger than most people would eat in a similar period of time under similar circumstances, accompanied by a sense of lack of control (American Psychiatric Association [APA], 2013). An increased BMI has been associated with an increase in weight loss attempts (both in men and women) and an increase in weight dissatisfaction (Halali et al., 2018). Furthermore, people with obesity suffer more easily from discrimination and stigmatization (Hammarström, Wiklund, Lindhal, Larsson, & Ahlgren, 2014; Moraes et al., 2013; Ogden & Clementi, 2010; WHO, 2000), being

considered, for instance, less attractive, less self-disciplined, less intelligent, less hardworking, less successful and lazier than their thinner counterparts (Ogden & Clementi, 2010).

Obesity Treatment

Given their main determinants, overweight and obesity, albeit serious, are preventable conditions, mainly through lifestyle changes (Seaman, 2013; Tang, Abraham, Greaves, & Yates, 2014; Westerveld & Yang, 2016; WHO, 2000, 2017), namely limiting energy intake from total fats and sugars, increasing the consumption of fruit and vegetables, and engaging in regular physical activity. With this in mind, and in order to prevent greater physical and mental health deterioration in overweight and obese individuals, countless weight loss and weight management programmes and interventions have been tested and implemented (Beaulac & Sandre, 2016; Dombrowski, Knittle, Avenell, Araújo-Soares, & Sniehotta, 2014; Peirson et al., 2015; Stevens, Truesdale, McClain, & Cai, 2006), including self-directed interventions (i.e., interventions that require minimal or no contact with professionals and that can be used with existing infrastructures in the context of one's everyday life; Tang et al., 2014), pharmaceutical and surgical interventions (Ryan, 2014; Westerveld & Yang, 2016), among other behaviour change interventions targeting lifestyle, diet and physical activity (e.g., Beaulac & Sandre, 2016; Kirk, Penney, McHugh, & Sharma, 2012; Peirson et al., 2015; Westerveld & Yang, 2016).

Several studies have shown that a moderate weight loss (i.e., a weight loss of up to 5-10% of the initial body weight) can bring positive health consequences to the individual, along with an improved quality of life (Beaulac & Sandre, 2016; Mauro et al., 2008; Ogden & Clementi, 2010; Raman, Smith, & Hay, 2013; Ryan, 2014; Stevens et al., 2006; WHO, 2000). However, a successful weight loss, with long-term maintenance of the lost weight, is very hard to achieve, and the majority of people regain all the lost weight within 1-5 years (Dombrowski et al., 2014; Halali et al., 2018; Hammarström et al., 2014; Hindle & Carpenter, 2011; Mauro et al., 2008; Raman et al., 2013; Ryan, 2014; Seaman, 2013; Stevens et al., 2006; Westerveld & Yang, 2016; WHO, 1995; Young, Morgan, Plotnikoff, Callister, & Collins, 2012). Weight maintenance can be defined as "a weight change of less than ±3% of a designated body weight under standardized conditions" (Stevens et al., 2006, p. 397). These authors also recommend that changes in weight between 3-5% should be considered small weight fluctuations, while changes ≥5% should be regarded as potentially clinically relevant.

Effective treatment of overweight and obesity require thus long-term and daily strategies (Mauro et al., 2008; Peirson et al., 2015; Seaman, 2013; WHO, 2000). However, contrary to weight loss programmes, weight maintenance programmes have not been thoroughly investigated yet (Gilmartin & Murphy, 2015; Young et al., 2012), despite clear evidence that weight maintenance is less often achieved (Stevens et al., 2006). Repeated dieting can lead to "weight cycling", a process of recurrent weight loss and regain, which is itself related to negative consequences and difficulty with future attempts to lose weight (WHO, 1995, 2000). Also, as adipose mass is accumulated, the body set point (higher in obese individuals) is altered, leading to metabolic changes that work physiologically to resist weight loss attempts (Seaman, 2013). Regardless of the amount of evidence available, there are already some reviews (systematic, non-systematic, with and without meta-analysis) that point out the effectiveness of particular interventions and modes of delivery in prompting weight loss and even weight maintenance (e.g., Beaulac & Sandre, 2016; Dombrowski et al., 2014; Gilmartin & Murphy, 2015; Kirk et al., 2012; Peirson et al.,. 2015; Robertson et al., 2017; Tang et al., 2014; Young et al., 2012).

Obesity Maintenance

In consideration of all the adverse consequences that arise from overweight and obesity, and bearing in mind all available treatment options that have proven to be effective, it becomes relevant to question why the majority of people remain overweight or obese. In other words, it is pertinent to study the psychological processes, physical processes, behaviours, and determinants that contribute to the maintenance of obesity. The present study will therefore focus on such factors.

Throughout the years, researchers have been investigating this phenomenon both directly (e.g., the Clinical Obesity Maintenance Model; Raman et al., 2013) and indirectly, through the study of the perceived barriers to obesity management (e.g., Halali et al., 2018; Sabinsky, Toft, Raben, & Holm, 2007), and the negative consequences of a successful weight loss (e.g., Rosas, Pimenta, Marôco, & Leal, 2017), which potentially contribute to weight regain and, consequently, obesity maintenance. A non-systematic literature review of such investigations is presented next.

Barriers to obesity management. Barriers to obesity management refer to anything that potentially challenges one's weight management efforts (Halali et al., 2018). In their review, Mauro and colleagues (2008) stated that identification and modification of potential

barriers to weight loss or weight maintenance were essential in order to facilitate adherence to weight management plans, since barrier perception can predict failure at weight management (Halali et al., 2018). Hence, according to Mauro et al. (2008) and Halali et al. (2018), addressing such barriers could save resources and increase one's chances of long-term success, protecting the individual from the physical and emotional consequences of weight cycling.

In most of the analysed studies, the majority of participants stated that (a) they had previously tried to lose weight, unsuccessfully (Halali et al., 2018; Hindle & Carpenter, 2011; Sabinsky et al., 2010), (b) losing weight had been a lifelong struggle (Ali, Baynouna, & Bernsen, 2010; Hindle & Carpenter, 2010), (c) they were unsatisfied with their current weight (Ali et al., 2010, Halali et al., 2018), and (d) they were currently trying to lose weight (Halali et al., 2018) or wanted to lose weight (Ali et al., 2010; Sand, Emaus, & Lian, 2017) and adopt healthier lifestyles, voicing their negative feelings related to being overweight (e.g., difficulties with clothes and lower self-confidence; Sand et al., 2017).

Acceptance of obesity as a chronic disease. First and foremost, obesity needs to be recognized as a chronic disease and failing to accept this poses a barrier to treatment. Mauro and colleagues (2008) argue in their review that both physicians and patients fail to acknowledge this and, thus, share a common misconception that weight loss is the solution to the problem. Consequently, the importance of long-term treatment strategies is overlooked and patients remain unaware and unprepared for the need to make lifelong lifestyle changes.

Sociodemographic characteristics. Certain patients' sociodemographic characteristics may also be an obstacle to obesity management. For instance, one's place of living could significantly affect participation in weight loss programmes – in Hammarström et al.'s (2014) qualitative study of barriers to weight loss among Swedish women participating in a diet intervention, those who lived in rural areas had to pay more for the new diet compared to those who lived in urban areas, who had big supermarkets nearby, and encountered further time constraints when trying to balance the project demands (e.g., group meetings) and the time needed to prepare the intervention diet.

In Westerveld and Yang's (2016) review of barriers to bariatric surgery and weight loss maintenance, male sex and being over 60 years old were factors related to recidivism.

Conversely, among a sample of young women aged 18 to 21 years old (including overweight and slightly obese women; Sand et al., 2017), the practical and environmental aspects of transiting into adulthood, including moving away from the parents' home and integrating new school or work settings, were viewed as stressful challenges, often obstructing

the implementation of healthy lifestyle choices. The maintenance of such choices was further complicated for students, compared to those who had jobs with regular schedules.

The male sex has been commonly associated with feelings of apathy towards diet and health, both among young adults (Munt, Partridge, & Allman-Farinelli, 2017) and adults (Sabinsky et al., 2007). The studies that have focused on the male population have highlighted crucial gender differences that need to be taken into consideration when planning weight management strategies for men (Robertson et al., 2017; Sabinsky et al., 2007; Young et al., 2012). In comparison with women, men are less likely to perceive themselves as overweight, less likely to consider their weight a risk for health, they try to lose weight to a lesser extent and usually participate less in weight loss programmes (Robertson et al., 2017; Sabinsky et al., 2007; Young et al., 2012). This could be due to the unappealing nature to men of current public health campaigns and weight loss programmes (Sabinsky et al., 2007), especially if the majority of participants are women, possibly making the men feel reluctant to join (Young et al., 2012). The results of Sabinsky and colleagues' (2007) qualitative investigation of barriers to weight loss among a sample of overweight Danish men with a lower educational background clearly indicate a need to change the way weight management is communicated and advertised to men.

Finally, within one's sociodemographic characteristics, socioeconomic status represents a major barrier to weight loss, in the sense that the prevalence of obesity is greater in lower socioeconomic groups (Mauro et al., 2008; WHO, 1995). This is mainly due to the greater density of fast-food restaurants in low-income neighbourhoods, the higher cost of healthy diets, safety concerns (that keep people from performing outdoor activities, such as walking), and greater social acceptance of overweight. In these populations, enrolling in commercial weight loss programmes or gyms, taking obesity medication or having surgery may not be affordable options (Mauro et al., 2008).

Time constraints. Time constraints are among the most mentioned barriers to obesity treatment, mainly because engaging in physical activity and planning healthy meals takes extra time (Mauro et al., 2008). Indeed, cooking and following a healthy diet are considered time-consuming and difficult to incorporate into daily routines (Spörndly-Nees et al., 2014). Lack of time to plan, shop, prepare and cook decent meals was one of the barriers found in the studies reviewed by Munt and colleagues (2017) on the barriers to healthy eating in young adults aged 18 to 24 years old, and also mentioned by the young women who participated in Sand and colleagues' (2017) study. Such lack of time possibly resulted in the employment of "time-deepening" behaviours, such as eating quickly, snacking frequently as opposed to having main

meals, and eating while studying or watching TV (Munt et al., 2017), which further impede the adoption of healthy lifestyles.

This barrier is also particularly relevant for those who have busy or constantly changing work schedules or travel loads (Mauro et al., 2008), like the participants in Hammarström et al.'s (2014) study – for some women, work travels and shift work with regular night work made it harder to maintain any dietary changes, and all project demands (e.g., group meetings), together with the time required to prepare the new diet, were found to be very stressful and time-consuming, ultimately representing a reason for drop out.

In a qualitative study with Arab women at risk for type 2 diabetes (including overweight and obese women), competing demands (e.g., housework and childcare) constituted a time constraint, as well as having frequent social gatherings or obligations (e.g., family visits; Ali et al., 2010). In Sabinsky et al.'s (2007) investigation, lack of time for exercising or cooking differently was a prominent issue, along with the difficulty balancing the time spent practicing physical activity and the time spent with the men's families. Lastly, in Halali et al.'s (2018) quantitative investigation of barriers to weight management among Finnish adults (which counted on the participation of overweight and obese individuals), the "life situations" component (which was part of the questionnaire developed by the authors and included the item "time restriction") explained the highest percentage of variance among the barrier component, indicating that lack of time posed yet again an obstacle to weight management.

Cost. Cost constitutes another barrier to obesity treatment (Mauro et al., 2008), with patients not being able to afford treatment services (Sinfield, Baker, Pollard, & Tang, 2013) and perceiving healthy diets and enrolment in sports facilities as too expensive (Sabinsky et al., 2007; Sand et al., 2017; Spörndly-Nees et al., 2014), compared with the low cost of unhealthy foods. This may be aggravated by young adults' financial instability (Munt et al., 2017) and one's lower socioeconomic status, as previously mentioned (Mauro et al., 2008). In Hammarström et al.'s (2014) study, the cost of the new diet constituted another reason for drop out.

The pharmacological and surgical treatment of obesity are usually not reimbursed by health care systems, which means all costs are placed on the patient, often making these treatment options unaffordable (Mauro et al., 2008; Westerveld & Yang, 2016). Physicians themselves also find cost to be a deterrent factor and, as such, don't discuss this option with their patients, raising yet another barrier (Westerveld & Yang, 2016).

Medication, alcohol and substance use. Intake of certain medication has been associated with weight gain, as a side effect, including antidiabetic medication, antipsychotics,

antidepressants, mood stabilizers, among others (Hsieh, Sweeting, Suryawanshi, & Caterson, 2014; Mauro et al., 2008). Alcohol consumption is frequently associated with higher BMI (Mauro et al., 2008), and active substance use influences surgical outcomes (Westerveld & Yang, 2016).

Comorbidities. A series of comorbidities can promote weight gain or hinder weight loss, and these may include (a) pain, either chronic or related to musculo-skeletal problems or lower back pain, resulting in significant decreases in well-being, quality of life and functional capacity (Mauro et al., 2008); (b) cardiovascular disease or respiratory disease (e.g., asthma or hear disease), which can limit physical activity and, consequently, promote sedentary behaviours and weight gain (Ali et al., 2010; Mauro et al., 2008); (c) digestive disease, including dental status (which influences the ability to eat high-fibre foods) and reflux (which is often interpreted as hunger and therefore relieved by eating); and (d) endocrine disorders (e.g., profound insulin resistance is associated with a reduced response to weight-loss interventions; Mauro et al., 2008). Certain injures (e.g., inability to be physically active due to a broken leg) and other people's health problems may further complicate the implementation of healthier routines (e.g., Hammarström et al., 2014).

Emotional distress and current life stressors have been pointed as barriers to weight management, as well (Halali et al., 2018), also influencing surgical outcomes (Westerveld & Yang, 2016). Sleep disorders, possibly resulting from a lack of structured routines (Sand et al., 2017), also have an impact on one's weight (Halali et al., 2018; Mauro et al., 2008). For example, sleep deprivation increases insulin resistance and influences the neuroendocrine regulation of appetite and food intake (Seaman, 2013).

Mental health problems play a very particular role in the maintenance of obesity (Mauro et al., 2008) and uncontrolled psychopathology also affects surgical outcomes (Westerveld & Yang, 2016), including depression (which is a risk factor for obesity and vice-versa; Mauro, 2008; Moraes et al., 2013; Raman et al., 2013; Seaman, 2013), binge eating disorder, night eating syndrome and attention-deficit/hyperactivity disorder (ADHD; Cortese, Comencini, Vincenzi, Speranza, & Angriman, 2013; Mauro et al., 2008).

Cognitive factors. Several cognitive factors, identified in Westerveld and Yang's (2016) review, may further contribute to obesity maintenance, namely high expectations regarding the weight loss, motivation based primarily on appearance and lack of satisfaction with the progress – these factors were associated with higher rates of attrition. Moreover, in Spörndly-Nees and colleagues' (2014) investigation of barriers to eating behaviour change among obese individuals with obstructive sleep apnea syndrome, participants expressed feelings of

helplessness and perceived their obesity as impossible to control, simultaneously disregarding the risks of their condition (i.e., low susceptibility). As such, patients may feel uncertain about their health needs and be reluctant to seek treatment, increasing their sense of helplessness (Beaulac & Sandre, 2016). One study added to these findings by showing that there might be a lack of comprehension among young adults on the benefits of healthy eating in the future (Munt et al., 2017).

Denial regarding one's overweight or obesity (Sinfield et al., 2013), viewing obesity as one's own fault (Beaulac & Sandre, 2016; Sinfield et al., 2013), not perceiving oneself as obese (Ali et al., 2010) or having positive self-perceptions about oneself (Ogden & Clementi, 2010) are major obstacles to weight management, a common finding throughout the reviewed studies. For instance, in Ali et al.'s (2010) research, it is interesting to note that, among the participants, (a) some of those who didn't want to lose weight were overweight or obese, (b) some felt their weight was appropriate for their height despite being overweight or obese, and (c) one woman wanted to gain more weight even though she was already obese.

Similarly, the participants in Sabinsky et al.'s (2007) study found the ideal weight for a man to be at least 100 kg, therefore not perceiving themselves as overweight: men who weighed less than that were viewed as weak or homosexual. This indicates that a slim appearance is of lesser importance to men compared with the experience of a personal health threat (instead of being generally healthy; e.g., the diagnosis of high cholesterol levels or high blood pressure) or the desire to be effective, valuable and attractive to the work place (with obese men being perceived as less effective, giving the company a bad image and having a lot of sickness absence).

What is more, in Ogden and Clementi's (2010) research, which looked into the experiences of being obese, it was found that obesity may actually have positive consequences in people's lives: a minority of participants felt confident and comfortable with their excessive weight and even thought that they were better people because of it. Thus, overweight had little or no impact on participants' self-perception. Lastly, some of the young women who participated in Sand et al.'s (2017) investigation didn't express any concerns regarding their appearance, emphasizing the importance of having healthy lifestyle habits instead of a thinner body.

Previous unsuccessful weight loss attempts. Several studies pointed out the influence of previous experiences of failure at weight loss or weight maintenance on individuals' willingness to try again. According to these investigations (Halali et al., 2018; Hammarström et al., 2014; Sinfield et al., 2013; Spörndly-Nees et al., 2014), a history of unsuccessful weight

loss attempts or weight regain following a successful weight loss (potentially coupled with current difficulties in losing weight) lead to feelings of insecurity and to low levels of self-confidence and self-efficacy, undermining individuals' motivation for future attempts at weight management and behaviour change, particularly in the long-term. Specifically, the study by Halali et al. (2018) found an association between the higher scores in the barrier component "personal issues" (which includes the item "not enough motivation") and the higher number of weight loss attempts.

Lack of motivation. This barrier was mentioned in nearly all the reviewed studies (Ali et al., 2010; Halali et al., 2018; Hammarström et al., 2014; Munt et al., 2017; Sabinsky et al., 2007; Sand et al., 2017; Sinfield et al., 2013; Westerveld & Yang, 2016), sometimes even being identified as the main obstacle to weight loss (Sabinsky et al., 2007). In some cases, loss of motivation to continue with weight management strategies occurred when no weight loss was achieved (Ali et al., 2010), but in the majority of cases, loss of motivation was due to previous unsuccessful weight loss attempts, as formerly mentioned (Halali et al., 2018; Hammarström et al., 2014). In Hammarström and colleagues' (2014) study, participants' cheating behaviours during the intervention were associated with difficulties in finding motivation to change, constituting a reason for drop out.

In Munt and colleagues' (2017) review, the lack of motivation to eat healthily included risk-taking behaviour, and in Sand and colleagues' (2017) study, some of the participants showed unwilling to change in spite of being aware of the inadequacy of their habits. Other investigations state that simply not wanting to lose weight contributes to obesity maintenance (Ali et al., 2010), and insufficient effort at formal diet interventions is a risk factor for weight regain following bariatric surgery (Westerveld & Yang, 2016).

Lack of knowledge on healthy eating and nutrition and lack of cooking skills. Some investigations demonstrated the importance of knowledge on nutrition and cooking skills when treating obesity (Ali et al., 2010; Spörndly-Nees et al., 2014). However, this barrier was more predominant among young adults (Munt et al., 2017; Sand et al., 2017), being one of the main obstacles raised by young women (Sand et al., 2017), with the majority stating that they do not actually know what kind of food is truly healthy, accompanied by confusion and ambivalence regarding social media messages on this topic. Besides cooking, the lack of knowledge and skills extended to the phases of planning, shopping and preparing healthy meals (Munt et al., 2017), all of which are essential when treating in obesity.

Food as an addiction and lack of self-control. According to Seaman (2013), the reason why individuals overeat highly palatable comfort foods, such as refined carbohydrates, is the

same as why they abuse of alcohol and recreational drugs – the limbic reward/pleasure system (i.e., the hedonic properties of food) is activated to the point of overriding one's intellectual ability to avoid unhealthy foods, giving way to desire. Thus, for many individuals, food intake is very much like an addiction (e.g., sugar; Hammarström et al., 2014), related to difficulties in controlling oneself (Ogden & Clementi, 2010) and one's appetite (Ali et al., 2010).

In the context of a diet intervention (Hammarström et al., 2014), this lack of self-control made it easier for participants to fall into temptation, thereby interfering with their weight loss. Food ingestion was also regarded as a compensation or substitute for other undesired behaviours, such as smoking (Spörndly-Nees et al., 2014), and baseline hunger and lack of satiation were issues brought up by young adults (Munt et al., 2017).

Emotional eating. Emotional eating refers to the tendency to overeat in response to negative emotions (Frayn & Knäuper, 2018; Van Strien et al., 2007), a concept derived from the psychosomatic theory, which posits that stress-induced eating is the abnormal response to distress that occurs in people who confuse physiological correlates of emotional distress with hunger (Van Strien et al., 2007). According to Frayn and Knäuper (2018), about 60% or more of overweight and obese individuals are emotional eaters, which makes them particularly susceptible to high-fat, high-sugar and high-calorie food consumption in response to negative emotions, as well as less likely to achieve a successful weight loss. Such a behaviour may function as a strategy to cope with, avoid or minimize the negative emotion (Raman et al., 2013).

This barrier was reported in several studies (Halali et al., 2018; Hammarström et al., 2014; Munt et al., 2017; Ogden & Clementi, 2010; Spörndly-Nees et al., 2014; Westerveld & Yang, 2016), in which participants stated that food and eating were used as means to regulate, control and cope with negative emotions (e.g., whenever they felt depressed or stressed) and when they were in need for comfort, console or support (Halali et al., 2018; Hammarström et al., 2014; Ogden & Clementi, 2010; Spörndly-Nees et al., 2014). Once again, overeating tendencies as a coping mechanism were pointed by Westerveld and Yang (2016) as being related to negative outcomes after bariatric surgery.

Other studies found that certain emotional responses heightened one's appetite (e.g., stress; Munt et al., 2017) and that food intake was also driven by cravings, with emotional state having a negative impact on food choice (Spörndly-Nees et al., 2014).

Nonetheless, the effectiveness of this strategy was found to be only temporary – following these moments, individuals stated that they often felt guilty and more self-critical about it (Ogden & Clementi, 2010).

Restricted diet. Seaman (2013) argues that it is unlikely that people with obesity will develop the necessary motivation to exercise daily and minimize the consumption of hedonic and comfort foods for the rest of their lives when anticipating that they will be told to eat less and, hence, suffer. This perception of the need for a restricted diet in order to succeed at losing weight was commonly detected in the analysed studies – an excessively restricted diet, lacking in food variation, was usually found to be boring (Hammarström et al., 2014), as well as stopping eating sweets and snacks (Sand et al., 2017). For men, not being allowed to drink beer or red wine was referred as a barrier to weight loss (Sabinsky et al., 2007).

Intervention expectations. Throughout the interviews, the men who participated in Sabinsky and colleagues' (2007) investigation expressed their wishes for a quick and easy way to lose weight (e.g., taking a pill at night and waking up slim in the morning), and one that took place in the work setting, in the company of other male colleagues with whom they could identify, and with individually designed strategies, such as counselling. For these men, dietary change was a major barrier, given their shared misinformed perception of the type of diet they would have to follow in a weight loss intervention, which they believed would imply a lot of vegetable consumption and little or no intake of meat and alcohol. Thus, these individuals' expectations regarding weight management interventions constituted an obstacle to weight loss.

Not liking the food of the diet intervention or preferring unhealthy foods. The fact that participants didn't like the food they were given in the diet intervention (Hammarström et al., 2014) complicated their attempts at changing dietary habits, especially in the long run. Some young adults (Munt et al., 2017) also mentioned that they actually prefer unhealthy food and its taste, in comparison with healthier dietary options.

Lack of positive reinforcement. This difficulty was specific to the maintenance phase, following a weight loss process (Hindle & Carpenter, 2011). That is, the main difference felt by the participants between the losing and maintenance phases was the lack of positive reinforcement in the latter, reflected in the positive comments from significant others, the noticeable decreasing weight and the ability to buy smaller sizes of clothes or different clothing styles. According to the participants, weight maintenance required the same amount of effort, cost and investment, while not resulting in the same positive experiences and rewards, and the support from others significantly decreased at this stage, since others felt encouragement was no longer needed and unknowingly pressed the participants to eat more so they wouldn't miss out.

Environmental factors. Certain environmental factors might interfere with one's attempts at weight loss, including hot weather conditions (which hinder outdoor exercise),

safety concerns for women walking alone in the streets (Ali et al., 2010), sharing kitchen facilities (Sand et al., 2017), lacking facilities for preparing, cooking and storing healthy foods and the wide accessibility of unhealthy foods (Munt et al., 2017).

In Halali et al.'s (2018) investigation, though, contrary to what would be expected, there were no associations between the barrier component "food environment" (consisting of the items "high food supply", "large portion sizes", "food advertisements", "other people present at meals" and "special occasions") and any of the participants' sociodemographic or weight-related characteristics. This finding might imply that the individual aspects are more important for weight management than an obesogenic environment, or that people might not be aware of the influence of their food environment on their behaviours.

Social factors. A majority of individuals describe how food and eating are a dominant part of their social lives, with food being related to celebrations and family time, and cooking for others being a sign of caring (Ogden & Clementi, 2010). Having frequent social gatherings or social obligations (e.g., family visits) not only formed a time constraint but also prompted overeating among Arab women (Ali et al., 2010), and such gatherings brought up difficulties in combining the dietary changes with being with family, friends or work colleagues (Hammarström et al., 2014). If these events revolved around food, they potentially led to feelings of isolation (when the participants had to eat healthy food and everyone else could eat sweets), difficulties in turning down or resisting forbidden foods when offered, and fears of hurting the hostesses who prepared the food, therefore not keeping to the diet (Hammarström et al., 2014).

Social support, namely low social support (Ali et al., 2010), was another barrier to weight loss, one with a significant impact on participants' motivation for change, whether formal or informal: on the one hand, receiving too much attention from others regarding the behaviour change was considered irritating, sometimes participants did not received support as it was intended and the overall perception of lack of support was demoralising; on the other hand, a poor identification between the patient and the health professional was reported as an obstacle for participation in behavioural change programmes (Spörndly-Nees et al., 2014).

On a more general level, as previously stated, the "life situations" component of the questionnaire designed by Halali et al. (2018), which explained the highest percentage of variance among the barrier factor, contained the item "situations in life", indicating that one's social context influences weight management behaviours.

Saboteurs play a very special role within one's social world. Saboteurs refer to the factors within people's social and cultural environment that potentially sabotage the attempts

at weight loss or weight maintenance, by means of influencing lifestyles and health-related beliefs regarding nutrition and physical activity (e.g., dieting may be seen as a "woman's thing", suspicion of infidelity when a spouse engages in a weight loss process, or social and professional obligations revolving around food and alcohol consumption, as discussed; Mauro et al., 2008).

For example, some of the Arab women (Ali et al., 2010) stated that having housemaids contributed to weight gain because they did all the food preparation and performed all household activities, further preventing women from doing some type of physical activity (e.g., cleaning). On a different level, for young women, pressure from family members to lose weight, such as weekly weight monitoring, undermined their motivation for weight loss (Sand et al., 2017).

In Hindle and Carpenter's (2011) study, two-thirds of the participants mentioned the presence of saboteurs among family or friends, who would make fun of theirs attempts to eat healthily (e.g., when eating out), make discouraging comments regarding their lost weight, minimize their efforts or even urge them to stop dieting. Likewise, partners or spouses were pointed as major obstacles to weight loss (Hammarström et al., 2014), either by permanently tempting the women with forbidden foods or by not caring about their new dietary regimen. Additionally, most of the partners did not cook, and thus expected the women to still cook for them in the traditional way, forcing them to prepare two separate dishes. Family visits from grown-up children were also seen as barriers, for these expected to be served traditional food.

On the contrary, in some studies, the social context could provide obese people with positive experiences, such as unconditional love and support from others, regardless of one's weight (Ogden & Clementi, 2010) – this potentially inhibits motivation for change, as well. Similarly, among young adults, the unhealthy dietary habits of family and friends were often replicated and adopted, creating a sense of inclusion, belonging and acceptance (Munt et al., 2017), thus not prompting behaviour change.

Sociocultural norms also influence individuals' weight management behaviours and this was observable in some studies. For men (Sabinsky et al., 2007), having a slim appearance was perceived as less important, and this was even considered a women's subject. In addition, adopting certain eating habits (e.g., low consumption of meat and alcohol) would be seen as a deviation from the social norms among family members and friends, since men are supposed to eat a lot and whatever is served to them, and, as such, choosing a healthier option over a piece of meat would just be unacceptable. For young adults, certain settings or situations (e.g., a party) require the consumption of unhealthy foods (Munt et al., 2017), and for Arab women

(Ali et al., 2010), not having enough space at home to do indoor exercise and not being socially allowed to perform outdoor activities, such as walking outside alone, considerably limited the opportunities for physical activity. Additionally, they noted that there is a lack of culturally appropriate exercise facilities for women, representing another barrier for being physically active – this study highlights some cultural-specific aspects related to weight management that keep women from following or implementing recommendations regarding diet and physical activity (Ali et al., 2010).

To conclude, obese individuals often feel a sense of stigma (Beaulac & Sandre, 2016), although stigma and discrimination can have opposite effects on obese people's motivation for change (Ogden & Clementi, 2010). On the one hand, feeling stigmatized and discriminated could either motivate people towards behaviour change, or exacerbate their negative sense of self (i.e., low self-esteem, self-criticism and low self-identity) and lead them to overeat, therefore undermining any motivation for change. On the other hand, those who experience minimal levels of stigmatization as a result of their overweight seem less motivated towards behaviour change and even appear satisfied with their excessive weight.

Still, the most common scenario is that being subjected to stigma and discrimination reduces individuals' status, increases their self-blame, their negative self-image, their sense of powerlessness and their negative psychobehavioural responses, possibly hampering the ability to adopt positive health behaviours (Hammarström et al., 2014). Particularly, obstacles for being physically active were linked to feelings of embarrassment, humiliation and discomfort when undressing in dressing rooms (Sand et al., 2017).

Physician factors. On the basis that effective implementation of the NICE guidelines on adult obesity in primary care settings has the potential to improve people's health and reduce the economic burden of obesity and its consequences, Sinfield and colleagues (2013) aimed to identify the barriers to the implementation of these guidelines. The results of the semi-structured interviews performed with healthcare professionals revealed several obstacles, namely lack of counselling skills and time, inconsistent approaches across the practice or deviation from the guidelines, guidelines not relevant to the patient, perceiving a lack of motivation on the patient's behalf to change his/her lifestyle, lack of education or support to implement the guidelines, considering that implementation of guidelines is not their responsibility, patient referred elsewhere, using guidelines only as a reference for medication prescription, unwillingness to raise sensitive issues, and limited knowledge.

On a similar note, Westerveld and Yang (2016) sought in their review to uncover which factors related to physicians constituted barriers to bariatric surgery, considering that this is

nowadays the most effective and durable treatment option for obesity but still a scarcely pursued one (Beaulac & Sandre, 2016; Mauro et al., 2008; Westerveld & Yang, 2016). The authors found that only a minority of the patients interested in learning more about bariatric surgery discussed options with their physicians and that many had inaccurate perceptions of this procedure, with the majority having unfavourable impressions and perceiving it as unsafe and ineffective. What is more, physicians themselves do not always directly address patients' weight issues and most of them feel little confidence in their ability to inform and guide their patients, despite recognizing the severity of obesity.

These investigations indicate that obesity maintenance occurs not only on the patient and environmental levels, but also on the healthcare system level, despite the existence of clinical guidelines on the management of obesity. Addressing such barriers, alongside the patient's, should assist in the tailoring of interventions, promoting one's chances of long-term success.

Negative consequences of a successful weight loss. A successful weight loss does not exclusively lead to positive consequences, with the changes that follow often failing to live up to individuals' expectations. Rosas and colleagues (2017) and Damião (2018) explored this phenomenon by means of a qualitative methodology and found several negative consequences subsequent to a weight loss. Such consequences may work as barriers to weight maintenance, thereby contributing to the maintenance of obesity, particularly if the costs of maintenance outweigh its benefits.

The major consequences found by these authors relate to one's social and/or familial environment, particularly, an unsatisfactory social impact with difficulties in interpersonal relationships – worsening of pre-existing relational problems (Damião, 2018) or emergence of new problems with a significant one (Damião et al., 2018; Rosas et al., 2017), perception of jealousy from the spouse (Damião, 2018; Rosas et al., 2017), perception of depreciation of one's success (Damião, 2018; Rosas et al., 2017), negative reactions from others (Rosas et al., 2018), eating behaviour changes accompanied by food or environmental restriction (e.g., restricted alcohol consumption or declining social invitations due to cautions with the diet; Damião, 2018; Rosas et al., 2017), lack of comprehension among family members regarding the eating changes (Damião, 2018), worries about one's thinness (Damião, 2018), and need for social isolation (Damião, 2018). The fact that the most frequently mentioned consequences were success depreciation and relationship problems emphasizes the importance of one's social environment, namely, social support, for a successful weight loss (Hindle & Carpenter, 2011; Rosas et al., 2017).

Several psychological consequences were also revealed by the authors, such as confrontation with unmet expectations (Rosas et al., 2017), higher irritability (Damião, 2018; Rosas et al., 2017) or increased bad mood (Damião, 2018), obsession about losing weight, fear of not being loved for who he/she really is in comparison with whom one appears to be following the weight loss, and frustration due to the fact that maintaining the lost weight required the same amount of effort, but didn't result in same rewards (i.e., decreased or slowed weight loss; Damião, 2018), which is line with Hindle and Carpenter's findings (2011).

Body image was also negatively affected by the weight loss, with participants reporting the occurrence of undesirable physical outcomes, such as increased flaccidity (especially among those who lost a very high percentage of their weight; Damião, 2018; Rosas et al., 2017), stretch marks, excessive weight loss (Rosas et al., 2017), identification of the weight loss as a sickness or disease, loss of muscle mass and decreased breast size (Damião, 2018).

Within the biological domain, participants detected adverse organic effects (e.g., body aches, altered bowel function and decreased physiological indicators, such as haemoglobin), and within one's sexual life, they reported loss of or decreased sexual desire (Damião, 2018). With regards to economic consequences, they stated having added financial expenses due to the need to buy new clothing (Damião, 2018).

Obesity maintenance factors. Only three studies were identified in the literature search that addressed obesity maintenance per se. The first, by Raman and colleagues (2013), reviewed and discussed existing literature on the psychological and neuropsychological aspects of obesity maintenance, and proposed a theoretical framework for the management of obesity – the Clinical Obesity Maintenance Model (COMM). The COMM is composed of a network of interconnecting psychological mechanisms that explain the maintenance of obesity and regulate weight management behaviours (whether accompanied by binge eating disorder or not). The authors note that the components don't necessarily operate simultaneously and that not all may be present in every case. This model has not yet been empirically tested.

The first mechanisms identified by the authors concerns the effect of executive function, which encompasses a series of cognitive processes that may have an impact on eating behaviour, such as "facilitating initiation, planning, regulation, inhibition, sequencing and attainment of complex goal-oriented behaviour and thought" (Raman et al., 2013, p. 2). A negative association between obesity and cognition has been reported in several studies, particularly with regards to executive function (Raman et al., 2013), which is line with Cortese and colleagues' (2013) findings with respect to the influence of ADHD on obesity maintenance.

The second mechanism refers to habitual cluster behaviours, that is, the automatic performance of habitual behaviours in the presence of specific cues or internal drive states, which means that any intention to change the behaviour has to be strong enough to supersede the existing habit. Long-term behaviour change is particularly difficult for people with obesity because the behaviours that need changing are habitual. Besides, certain lifestyle-related risk factors tend to co-occur among individuals with obesity, hence the term "cluster" (e.g., smoking, excessive alcohol consumption, unhealthy diet and physical inactivity; Raman et al., 2013).

Emotional dysregulation, otherwise known as "emotional eating", a construct already described (Frayn & Knäuper, 2018; van Strien et al., 2007), is the third component identified by Raman et al. (2013), and depression is the fourth, being closely associated with obesity, as previously mentioned; Mauro et al., 2008; Raman et al., 2013; Seaman, 2013).

Lastly, the authors named healthy literacy as a mechanism contributing to obesity maintenance. By including this construct, Raman et al. (2013) add to the model (a) awareness of risks and consequences of overeating, (b) perception of personal control over obesity and its treatment, (c) perception of barriers to treatment and maintenance of a successful weight loss, and (d) other beliefs and attitudes related to overweight and obesity.

The second study is by Moraes and colleagues (2013), who sought to investigate the perceptions of obese individuals with depression regarding the factors involved in the maintenance of their obesity. The factors identified by the participants related to (a) pain, which was considered debilitating, kept them from being physically and, consequently, increased sedentary behaviour; (b) emotional eating and its subsequent guilt and lower self-esteem, creating a vicious circle; (c) body image dissatisfaction, coupled with feelings of self-depreciation and humiliation (e.g., when one couldn't buy the clothes he/she wanted); (d) physical limitations (only among the male participants, upon which they perceived obesity to be the a problem, as already found by Sabinsky et al., 2007); (e) excessive ingestion, that is, intake of large amounts of food and/or high energy-dense foods, prompted by the industrialization of food or lack of self-control; (f) binge eating disorder; (g) an obesogenic family environment (e.g., when all family members are obese), in which inadequate dietary habits are considered loyalty, or on the contrary, an attempt to rebel against the family's behaviour change efforts; (h) low social support from the family (e.g., making negative comments or calling derogatory names), contributing to a sense of stigma and lower self-esteem; (i) difficulties with social interactions, deriving from one's negative self-perception and possibly leading to social isolation; and (j) lack of motivation, stemming from the slowness of

the weight loss process. Interestingly, the factors mentioned by the depressed individuals in this investigation are not all different from those raised by the participants of the investigations formerly described.

To conclude, Horta, Pimenta, Leal and Marôco (2018) compared obesity beginning and maintenance factors in a sample of 38 Portuguese individuals with and without binge eating disorder. The most frequently mentioned maintenance factor (identified by 57.9% of the participants) was the presence of negative comments, followed by weight cycling, the presence of comorbidities, the perception of difficulty losing weight, being physically inactive, lack of mobility, excessive ingestion of candy/sweets, stress, lack of effort to control weight and avoidance as a coping mechanism (unspecified and with regards to body image), which were identified by at least 30% of the individuals. Certain factors were gender-dependent: for instance, men referred more often sedentary behaviour as maintenance factor, as opposed to women, who reported more often the presence of negative comments and lack of mobility. Contrary to what the authors expected, thought, there were no significant differences in any maintenance factor between those with binge eating and those without.

Appendix B – Sociodemographic Questionnaire and Health and Lifestyle Questionnaire

(a preencher pelo Investigador) Código do Participante: _____/_____

Identifique, por favor, em que contexto recebeu este questionário: _____

QUESTIONÁRIO SÓCIO-DEMOGRÁFICO

a) Idade: _____

b) Raça: Caucasiana (branca)___ Negra___ Asiática___ Outra___

c) Estado civil:

Casado(a)___ Divorciado(a)___ Separado(a)___

Solteiro(a)___ União de Facto___ Viúvo(a)___

d) Tem actualmente uma relação afectiva e/ou sexual: Sim___ Não___

e) N.º de filhos que tem: _____

f) Situação profissional:

Activo(a)___ Reformado(a)___ Desempregado(a)___ Outra_____

Que profissão exerce/exerceu? _____

g) Habilitações literárias:

4 anos de escolaridade ou menos___ 6 anos de escolaridade___ 9 anos___ 12 anos___

Bacharelato (3 anos/faculdade)___ Licenciatura (4 ou 5 anos/faculdade)___

Outro _____

h) Rendimento total anual bruto do agregado familiar:

Até 10.000€___ De 10.001 a 20.000€___ De 20.001 a 37.500€___

De 37.501 a 70.000€___ Superior a 70.000€ ___

QUESTIONÁRIO DE SAÚDE

A – Menopausa (só para mulheres):

1. Tem ciclos menstruais regulares, com a menstruação a acontecer todos os meses?

Sim___ Não___

2. Nos últimos 12 meses teve alterações no seu ciclo menstrual (a duração dos ciclos alterou-se significativamente ou passou 2 ou mais meses sem ter o período)? Sim__ Não__

3. Já esteve 12 meses (ou mais tempo) sem ter menstruação? Sim___ Não___

4. Que idade tinha quando teve a sua última menstruação?_____ anos

B – Saúde Geral e Peso:

5. Teve recentemente alguma(s) doença(s)? Sim___ Não___

i) Se sim, qual(quais)?_____

6. Teve recentemente algum problema psicológico? Sim___ Não___

i) Se sim, qual(quais)?_____

7. Qual o seu peso actual?_____ kg

8. E a sua altura? _____ m

9. Qual foi o peso mais alto que teve em toda a vida adulta (excluindo gravidez)? ____ kg

i) Quando (em que ano) teve este peso (mais alto)?_____

ii) Durante quanto tempo manteve este peso (mais alto)?_____ meses.

10. Qual o peso mais baixo que teve em toda a vida adulta? ____ kg

i) Quando (em que ano) teve este peso (mais baixo)? _____

ii) Durante quanto tempo manteve este peso (mais baixo)? _____ meses.

11. Desde quando começou a ter peso a mais?

Desde criança___ Desde a adolescência___ Desde o início da idade adulta___

Desde a menopausa___ Outro (explique, por favor)_____

12. Quantas tentativas fez para emagrecer na sua vida:

i) que tenham resultado numa perda de peso:_____

ii) que não tenham resultado numa perda de peso:_____

13. Caso tenha perdido peso de forma significativa:

i) quanto pesava antes de iniciar a perda de peso:_____ kg

ii) quantos quilos já perdeu, desde que começou a perda de peso:_____ kg

iii) como conseguiu perder peso de forma significativa:

Cirurgia___ Mudança de comportamentos alimentares___ Exercício físico___

Outro _____

C – Consumo de Tabaco, Álcool e Café:

14. É fumadora? Sim, sou fumadora___ Não, sou ex-fumadora___ Não, nunca fumei___

i) (Caso seja fumadora) Fuma todos os dias? Sim___ Não___

ii) (Caso seja fumadora) Quantos cigarros fuma: por dia_____ ou por mês_____?

15. Consome bebidas alcoólicas? Sim___ Não___

i) Se sim, com que regularidade?

Diariamente___ Todos os fins-de-semana___ Raramente___

ii) Se sim, em que quantidades?

Até ficar embriagado(a)___ Moderadamente___

Menos de um copo por cada ocasião___

16. Costuma tomar café? Sim___ Não___

i) Se sim, quantos cafés costuma tomar?

Mais de 5 cafés por dia___ Entre 4 e 3 cafés por dia___ Entre 2 e 1 café por dia___

Só tomo café ocasionalmente___

D – Exercício Físico e Peso:

17. Pratica algum tipo de exercício físico (ir ao ginásio, caminhadas, etc.)? Sim___ Não___

i) Se sim, quantas vezes por semana? _____

ii) Se sim, durante quanto tempo (horas ou minutos) exercita? _____

Muito obrigada pela sua colaboração.

Appendix C – Informed Consent

A presente investigação, efectuada na especialidade de Psicologia da Saúde, da responsabilidade da Prof. Doutora Filipa Pimenta (ISPA – Instituto Universitário), e com a orientação da Prof. Doutora Isabel Leal (ISPA – Instituto Universitário) e co-orientação da Prof. Doutora Jane Wardle (University College London), é financiado pela Fundação para a Ciência e Tecnologia (referência SFRH/BPD/77799/2011).

Esta investigação estuda os factores associados à manutenção de um peso excessivo e explora igualmente processos associados à perda de peso bem-sucedida.

Neste momento, convido-o(a) a participar nesta fase da investigação através do preenchimento das questões que encontrará nas páginas seguintes e da participação numa entrevista sobre a experiência e história pessoais com o seu peso.

Esta investigação tem igualmente o objectivo, numa segunda fase, de ajudar os participantes com excesso de peso a diminuírem o seu peso, de uma forma apoiada, através de uma intervenção psicológica.
Algumas pessoas poderão ser convidadas a participar nesta segunda fase, convite esse que poderão rejeitar, se assim o desejarem, sem que isso tenha quaisquer consequências. Se quiser participar na segunda fase, deverá preencher também a última folha.

A sua participação é de elevada importância para que possamos conhecer de uma forma mais objectiva e abrangente como é que as mulheres e os homens portugueses vivem a obesidade e o excesso de peso, e conseguem, nos casos de sucesso, diminuir o peso corporal excessivo.

Sublinha-se que a participação é voluntária e que todos os dados são totalmente confidenciais.
Assegura-se ainda que a sua participação (ou recusa em participar) em nada interfere com o seu acompanhamento multidisciplinar, no caso de estar ser contactado em contexto hospitalar/clínico.
Esclarece-se ainda que poderá ter acesso aos resultados do estudo contactando a investigadora responsável por e-mail.

Muito obrigada pela sua participação.
A investigadora responsável,
Filipa Pimenta, Ph.D.
Unidade de Investigação em Psicologia e Saúde
ISPA - Instituto Universitário
Rua Jardim do tabaco, 34, 1149-041 Lisboa
Tel.: 218 811 700
e-mail: filipa_pimenta@ispa.pt

Se aceita participar, por favor rubrique esta página.

Data: ____/____/____ _____ (Rúbrica da participante)

Appendix D – Interview Audio Recording Consent

Declaro que dei autorização para os investigadores fazerem a gravação áudio desta entrevista, sabendo que todos os meus dados são confidenciais e que nenhuma identificação pessoal será associada aos conteúdos ou revelada.

_____ (Rúbrica)

Appendix E – Interview Protocol

Antes de começar: Qual o seu peso actual? _____ kg. E a sua altura? _____ m. Na área da saúde, nós costumamos utilizar o cálculo do Índice de Massa Corporal, para termos noção do peso em função da altura da pessoa; vou apenas muito rapidamente calcular o IMC porque essa informação é importante para nós. Dê-me só um minuto. IMC (kg/m^2) = _____ (25-29,9 = Excesso de Peso; > 30 = Obesidade)

– Há quanto tempo tem este peso? _____

– Processos/factores de manutenção:

Conte-me por favor a história sobre o seu peso.

O que acha que contribui para manter o seu peso actual?

Acha que para si é difícil perder peso? Porque acha que é difícil PARA SI perder peso?

Qual foi o peso mais elevado que teve? O que acha que contribuiu para atingir esse peso máximo? Em que altura da vida sentiu que tinha este peso mais elevado? (O que se passava na sua vida na altura? Como se sentia?)

Alguma vez se sentiu a ganhar peso descontroladamente, sem que conseguisse travar o aumento? Quando? Porque acha que isso aconteceu?

O processo de aumento de peso aconteceu de forma gradual ou repentinamente? O que gradualmente (ou repentinamente) foi mudando?

Notou neste processo de ganho de peso alguma ordem específica em relação às mudanças que aconteceram (por exemplo, primeiro notou pequenas mudanças em si e na sua vida e depois grandes mudanças, ou exactamente ao contrário – primeiro grandes mudanças e depois pequenas). Que mudanças foram estas?

Sentiu que perdeu, que ficou privado de alguma coisa no processo de aumento de peso? Se sim, o quê? _____ Era importante para si? Porquê?_____ E mais, o que perdeu mais com esse aumento de peso?_____ Era importante para si? Porquê?_____

Sentiu-se a ganhar algo ao engordar? Se sim, o quê?_____ Foi importante para si ganhar isto? Porquê? _____

Houve alguém que tenha contribuído para o aumento de peso? Se sim, quem?_____ Qual o papel desta pessoa neste ganho de peso? _____ Ela continua a influenciar o seu ganho/manutenção de peso elevado? De que forma? _____ Se por alguma razão esta pessoa deixasse de exercer esta influência, o que pensa que iria acontecer? Como assim, pode falar-me um pouco mais dessa mudança?

Appendix F – Psychological Processes

Table 7

Psychological Processes Involved in the Maintenance of Obesity

Code	*n* (NCS)	*n*%
Instrumentalisation of the relationship with the healthcare professional, leading to inaction	6 (13)	13
Lack of motivation for weight loss maintenance	6 (7)	13
Avoidance as a coping mechanism: lack of responsibility in relation to weight management due to biological/organic reasons	5 (13)	10.9
Food compensation	5 (6)	10.9
Perception of lack of time	5 (14)	10.9
Psychological factors (without specifying)	5 (10)	10.9
Perception of rigid dietary restriction	5 (8)	10.9
Reluctance in relation to performing bariatric surgery	4 (7)	8.7
Bias interpretation of reality	4 (8)	8.7
Avoidance as a coping mechanism: no weight monitoring	4 (6)	8.7
Negative emotion: depressive mood	4 (23)	8.7
Lack of information regarding weight management strategies	4 (5)	8.7
Not valuing the negative consequences of obesity	4 (11)	8.7
Perception of lack of time due to family constraints	4 (8)	8.7
Regret after excessive food ingestion	4 (6)	8.7
Social life	4 (9)	8.7
Perception of dieting for life	4 (5)	8.7
Perception of impossibility of losing weight	4 (5)	8.7
Perception of weight loss slowness	4 (6)	8.7
Comfortable with one’s body	3 (8)	6.5
Avoidance as a coping mechanism	3 (3)	6.5
Avoidance as a coping mechanism: avoiding one’s body	3 (7)	6.5

Avoidance as a coping mechanism: partial lack of responsibility	3 (6)	6.5
Unaware of excessive food ingestion	3 (3)	6.5
Normalization of one's excessive weight	3 (5)	6.5
Considering one's body image as inconsequential	2 (2)	4.3
Negative body image	2 (7)	4.3
Positive body image	2 (2)	4.3
Constant warnings from other people, leading to an increased desire to eat	2 (8)	4.3
Emotional instability	2 (4)	4.3
Food addiction	2 (21)	4.3
Food addiction: craving	2 (6)	4.3
Food addiction: experiencing withdrawal symptoms	2 (7)	4.3
Mental breakdown	2 (2)	4.3
Minimization of one's excessive weight	2 (2)	4.3
Lack of information regarding nutrition	2 (2)	4.3
Perception of lack of availability of healthy foods	2 (3)	4.3
Perception of lack of time due to work constraints	2 (3)	4.3
Pleasure in cooking	2 (3)	4.3
Social life: children's birthday	2 (2)	4.3
Unhappiness	2 (4)	4.3
Reluctance in relation to performing bariatric surgery due to a change of surgeon	1 (3)	2.2
Stress in relation to performing bariatric surgery	1 (1)	2.2
Experiencing anxiety as a result of waiting time for performing bariatric surgery	1 (3)	2.2
Biased medical information	1 (2)	2.2
Perception that other people find one's body image as inconsequential	1 (1)	2.2
Difficulty dealing with problems	1 (1)	2.2
Food addiction: development of tolerance	1 (1)	2.2

Food obsession at night	1 (3)	2.2
Guilt	1 (1)	2.2
Obesity onset during childhood/adolescence, leading to feelings of being accustomed	1 (1)	2.2
Unaware of the negative consequences of obesity during childhood/adolescence	1 (1)	2.2
Unhappiness during childhood/infancy	1 (1)	2.2
Needing to ingest solid food, for this provides more satisfaction	1 (2)	2.2
Lack of information regarding obesity	1 (1)	2.2
Not liking vegetables	1 (1)	2.2
Not being used to dieting	1 (2)	2.2
Having other priorities	1 (1)	2.2
Feeling accepted by others	1 (2)	2.2
Perception of disapproval from others	1 (1)	2.2
Perceiving control over one's eating behaviour without the corresponding expected weight loss	1 (3)	2.2
Perception of embarrassment from others	1 (2)	2.2
Perceiving oneself as having an extreme physical capacity	1 (2)	2.2
Perception of helplessness	1 (6)	2.2
Perception of lack of availability of the food one likes	1 (1)	2.2
Perception of lack of well-being	1 (1)	2.2
Perceiving oneself as a role model	1 (1)	2.2
Social family life	1 (1)	2.2
Tiredness	1 (3)	2.2
Feeling unhappy due to the perception of unfulfilled plans	1 (5)	2.2
Perceiving that others find weight loss to be easy	1 (9)	2.2
Unhappy with one's work situation	1 (1)	2.2

Note. Codes not displayed in the Results section (mentioned by less than 15% of the participants). *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Appendix G – Physical Processes

Table 8

Physical Processes Involved in the Maintenance of Obesity

Code	*n* (NCS)	*n*%
Absence of health problems	5 (13)	10.9
Bone structure	4 (10)	8.7
Physiological habituation/stabilization after an initial weight loss	4 (11)	8.7
Unsuccessful weight loss after a big investment	4 (4)	8.7
Further weight gain during infancy/adolescence	3 (4)	6.5
Menopause	3 (3)	6.5
Not being able to perform bariatric surgery due to health impediments	2 (3)	4.3
Heavy constitution	2 (5)	4.3
Pain	2 (9)	4.3
Wider structure due to practicing physical activity/exercise	2 (6)	4.3
Frustration during post-partum due to the lack of weight loss	2 (2)	4.3
Pregnancy after weight loss	2 (3)	4.3
Attributing weight gain to an endogenous mechanism	2 (7)	4.3
Losing weight too fast and considering this unhealthy, thus interrupting the process	2 (3)	4.3
Heavy body fluids: blood	1 (1)	2.2
Needing to ingest sweets/candy due to hypotension	1 (1)	2.2
Not getting pregnant	1 (3)	2.2
Postpartum	1 (2)	2.2
Many pregnancies	1 (1)	2.2
Stopping breastfeeding after pregnancy	1 (4)	2.2
Weight regain after rigid dietary restriction	1 (3)	2.2

Note. Codes not displayed in the Results section (mentioned by less than 15% of the participants). *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Appendix H – Behaviours

Table 9

Behaviours Involved in the Maintenance of Obesity

Code	*n* (NCS)	*n*%
Fasting/eating few times a day, leading to more hunger and overeating	6 (7)	13
Onset of dieting behaviour during childhood/adolescence	6 (9)	13
Non-compliance with the weight loss strategies due to disinhibition	6 (10)	13
Eating out	5 (16)	10.9
Emotional ingestion: depressive mood	5 (20)	10.9
Excessive ingestion of food due to social life	5 (16)	10.9
Not having an eating schedule	5 (8)	10.9
No self-control: unable to stop eating	5 (9)	10.9
Sedentarism at home	5 (6)	10.9
Self-control and diet restriction lead to overeating	5 (11)	10.9
Non-compliance with the weight loss strategies due to social life	5 (14)	10.9
Eating fast	4 (9)	8.7
Emotional ingestion: anger	4 (7)	8.7
Emotional ingestion: ineffective	4 (11)	8.7
Emotional ingestion due to work	4 (9)	8.7
Excessive food ingestion at dinner	4 (4)	8.7
Excessive ingestion of fast food	4 (4)	8.7
Excessive ingestion of high-fat foods	4 (7)	8.7
Excessive ingestion of snacks	4 (5)	8.7
Excessive ingestion due to hunger	4 (4)	8.7
Lack of physical activity/exercise due to needing buddying	4 (11)	8.7
Lack of physical activity/exercise because one gets tired easily	4 (9)	8.7

Non-compliance with the weight loss strategies due to the need to cook for the family	4 (5)	8.7
Emotional ingestion due to the death of a loved one	3 (5)	6.5
Emotional ingestion due to loneliness	3 (3)	6.5
Excessive ingestion of alcohol	3 (27)	6.5
Excessive ingestion of cheese	3 (4)	6.5
Excessive ingestion of fried foods	3 (7)	6.5
Lack of physical activity/exercise due concerns with one's body image	3 (5)	6.5
Interruption/decrease of physical activity/exercise in the winter	3 (4)	6.5
Self-control/diet restriction lead to negative emotions	3 (7)	6.5
Self-control/diet restriction during the day lead to overeating at night	3 (4)	6.5
Sleeping few hours	3 (4)	6.5
Social isolation/loneliness	3 (7)	6.5
Non-compliance with the weight loss strategies due to the perception of sacrifice	3 (3)	6.5
Non-compliance with the weight loss strategies due to tiredness	3 (4)	6.5
Mobility difficulties	2 (21)	4.3
Emotional ingestion of food one doesn't like	2 (5)	4.3
Emotional ingestion due to frustration	2 (4)	4.3
Emotional ingestion due to the presence of health problems	2 (2)	4.3
Excessive ingestion of food one doesn't like	2 (6)	4.3
Excessive ingestion of meat	2 (3)	4.3
Excessive ingestion of potatoes	2 (2)	4.3
Excessive ingestion of refrigerants	2 (5)	4.3
Excessive ingestion of salty foods	2 (3)	4.3
Excessive ingestion at home with one's family	2 (3)	4.3
Excessive ingestion due to sleep deprivation	2 (2)	4.3
Going to be immediately after dinner	2 (3)	4.3

Excessive food ingestion during childhood/adolescence	2 (3)	4.3
No weight monitoring	2 (2)	4.3
Sedentarism due to depressive mood	2 (5)	4.3
Non-compliance with the weight loss strategies due to difficulties eating several times a day	2 (4)	4.3
Non-compliance with the weight loss strategies due to difficulties eating small quantities	2 (3)	4.3
Non-compliance with the weight loss strategies due to fear	2 (10)	4.3
Non-compliance with the weight loss strategies due to inadequate support	2 (7)	4.3
Non-compliance with the weight loss strategies due to laziness	2 (3)	4.3
Non-compliance with medication to lose weight because it doesn't involve habit change	2 (2)	4.3
Non-compliance with the weight loss strategies due to a lack of dietary flexibility	2 (4)	4.3
Non-compliance with the weight loss strategies due to a lack of self-control	2 (2)	4.3
Non-compliance with the weight loss strategies due to lack of time	2 (2)	4.3
Non-compliance with the weight loss strategies due to not liking the diet food	2 (3)	4.3
Being addicted to psychopharmacological drugs	1 (6)	2.2
Difficulty performing tasks/activities	1 (2)	2.2
Drinking water	1 (1)	2.2
Eating behaviour change	1 (5)	2.2
Choosing unhealthy options when eating out	1 (1)	2.2
Excessive food ingestion after physical activity/exercise	1 (1)	2.2
Excessive ingestion of daily despite being lactose intolerant	1 (1)	2.2
Excessive ingestion of highly caloric foods	1 (1)	2.2
Excessive ingestion of leftovers	1 (8)	2.2
Excessive food ingestion when happy	1 (1)	2.2
Excessive ingestion during the holidays	1 (1)	2.2
Excessive ingestion at night	1 (1)	2.2

Excessive food ingestion due to not having had dinner and, thus, feeling hungrier in the morning	1 (1)	2.2
Lack of eating schedule during childhood/adolescence	1 (4)	2.2
Onset of unhealthy eating behaviour during childhood/adolescence	1 (7)	2.2
Late dinner	1 (2)	2.2
Not having breakfast	1 (2)	2.2
No difficulty with clothes	1 (2)	2.2
Not having dinner	1 (1)	2.2
Lack of eating schedule, leading to lack of self-control	1 (2)	2.2
Lack of physical activity/exercise due to mobility problems	1 (2)	2.2
Lack of physical activity/exercise due to living in an urban setting	1 (3)	2.2
Not drinking enough water	1 (1)	2.2
Not going often to the toilet	1 (2)	2.2
Quitting taking birth control pill	1 (1)	2.2
Self-control/diet restriction at night leading to overeating the next day	1 (1)	2.2
Unhealthy habits	1 (2)	2.2
Non-compliance with the weight loss strategies due to cold weather	1 (1)	2.2
Non-compliance with the weight loss strategies during family dinners	1 (1)	2.2
Non-compliance with the weight loss strategies due to forgetfulness	1 (1)	2.2
Non-compliance with the weight loss strategies due to others' health problems	1 (1)	2.2
Non-compliance with the weight loss strategies due to lack of buddying	1 (2)	2.2
Non-compliance with the weight loss strategies due to family problems	1 (1)	2.2
Non-compliance with the weight loss strategies due to family social life	1 (1)	2.2
Non-compliance with the weight loss strategies during the weekends	1 (2)	2.2

Note. Codes not displayed in the Results section (mentioned by less than 15% of the participants). *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Appendix I – Determinants

Table 10

Determinants Involved in the Maintenance of Obesity

Code	*n* (NCS)	*n*%
Christmas	6 (7)	13
Lack of negative consequences of obesity	6 (17)	13
Lack of informal support	6 (9)	13
Waiting time for performing bariatric surgery	5 (14)	10.9
Other people's health problems	5 (8)	10.9
Life event: marriage	5 (6)	10.9
Problems within the couple	5 (25)	10.9
Inadequate professional support for weight loss	5 (13)	10.9
Family sabotage	4 (16)	8.7
Inappropriate eating conditions	4 (6)	8.7
Life event: moving away	4 (8)	8.7
Pressure to eat	4 (17)	8.7
Problems with one's children	4 (9)	8.7
Stigma/discrimination	4 (25)	8.7
Unemployment/staying at home	4 (6)	8.7
Other people's unemployment/staying at home	4 (10)	8.7
No availability of the weight loss strategy	4 (6)	8.7
Food convenience	3 (4)	6.5
Life event: abortion	3 (5)	6.5
Life event: birth of a child	3 (3)	6.5
Life event: moving away and subsequent habit change	3 (13)	6.5
Negative comments	3 (22)	6.5
Daily nonspecific problems	3 (3)	6.5

Overload of responsibilities	3 (11)	6.5
Constant warnings from others	2 (11)	4.3
Holidays	2 (3)	4.3
Life event: divorce	2 (3)	4.3
Lack of formal support: psychological intervention	2 (8)	4.3
Obesogenic environment	2 (5)	4.3
Problems with one's family	2 (2)	4.3
Rural setting	2 (3)	4.3
Spouse cooks good food	2 (3)	4.3
Studying and working, thus having a busy schedule	2 (3)	4.3
Inadequate professional support for weight loss, leading to lack of motivation	2 (3)	4.3
Abuse/aggression from one's mother	1 (13)	2.2
Abuse/aggression from one's spouse	1 (4)	2.2
College	1 (5)	2.2
Food control from one's family	1 (2)	2.2
Delayed diagnosed health problems	1 (7)	2.2
Family restaurant during childhood/adolescence	1 (2)	2.2
Problematic family relationships during childhood/adolescence	1 (2)	2.2
Instability	1 (3)	2.2
Instability associated with one's mother	1 (1)	2.2
Life event: accident and consequent hospitalization	1 (4)	2.2
Life event: end of a romantic relationship	1 (12)	2.2
Life event: working a cook during military service	1 (5)	2.2
Life event: start of a romantic relationship	1 (2)	2.2
Surgical menopause	1 (2)	2.2
Not experiencing stigma/discrimination	1 (11)	2.2
Lack of formal support: multidisciplinary team	1 (9)	2.2

Lack of formal support: self-help group	1 (4)	2.2
Problems with one's spouse	1 (3)	2.2
Problems with work relationships	1 (3)	2.2
Receiving food from others as a sign of love	1 (3)	2.2
Repression from the father	1 (4)	2.2
Retirement	1 (1)	2.2
Spouse	1 (1)	2.2
Unfinished academic degree	1 (4)	2.2
Lack of diet variety during a weight loss	1 (1)	2.2
Working as a cook	1 (4)	2.2

Note. Codes not displayed in the Results section (mentioned by less than 15% of the participants). *n* = frequency (number of participants that mentioned the code); NCS = number of coded segments; *n*% = percentage of participants that mentioned the code.

Appendix J – Abstract V Congresso Ibero-Americano e Luso-Brasileiro de Psicologia da Saúde (Maio, 2019)

MANUTENÇÃO DE OBESIDADE NUMA AMOSTRA DE ADULTOS PORTUGUESES: RESULTADOS PRELIMINARES DE UM ESTUDO QUALITATIVO

Constança Moniz Galvão (constanca.damg@gmail.com)[1], Filipa Pimenta (filipa_pimenta@ispa.pt)[1,2], & Isabel Leal (ileal@ispa.pt)[1,2]

[1] ISPA – Instituto Universitário de Ciências Psicológicas, Sociais e da Vida;
[2] William James Center for Research

Introdução: As taxas de obesidade têm vindo a aumentar, estimando-se que, em 2015, 28.6% dos adultos portugueses entre os 25-74 anos sofressem desta patologia. Esta pode levar a graves consequências físicas e mentais, contudo, é ainda escassa a investigação qualitativa nesta área. O objectivo do presente estudo é explorar os factores, comportamentos e mecanismos de acção percebidos que contribuem para a manutenção da obesidade, numa amostra de adultos portugueses com obesidade, apresentando os resultados preliminares de uma investigação em curso.

Método: A amostra é composta por 9 mulheres e 1 homem com uma idade média de 37.4 anos (DP=9.16) e um IMC médio de 39.39 (DP=5.86). Foram realizadas entrevistas semiestruturadas individuais, posteriormente transcritas e analisadas de acordo com as técnicas da análise de conteúdo e análise temática.

Resultados: Os factores percebidos mais mencionados pelos participantes foram o início da obesidade na infância (número de menções, NM=25), reganho de peso após uma perda de peso (NM=25), toma de medicação (NM=18), ganho de peso de forma súbita e descontrolada (NM=17), consequências negativas ou falta de sucesso após cirurgia bariátrica (NM=17), e problemas no relacionamento conjugal (NM=16).

Discussão: Estes resultados preliminares indicam que, na intervenção na obesidade, é essencial identificar factores de manutenção, como a história de vida da pessoa, presença de comorbidades, factores de risco de recidiva e insucesso, e problemas ao nível do contexto social. A futura análise dos dados de 46 indivíduos trará esclarecimentos adicionais sobre a forma como podem ser aprimoradas as intervenções nesta área.

Palavras-chave: obesidade, manutenção, análise de conteúdo, análise temática, adultos.