

## **Weight Maintenance: Self-Regulatory Factors Underpinning Success and Failure**

## Abstract

*Objectives:* To investigate the differences in the contributing factors involved in weight maintenance success and failure. *Design:* Semi-structured interviews were conducted with both successful and unsuccessful weight maintainers. 18 participants were recruited (16 women), 9 of who had lost 10% of their body weight and maintained this weight for a minimum of 12 months (Maintainers), and 9 individuals who met the above criteria for weight loss but had subsequently regained their weight (Regainers). A thematic analysis was employed to compare the differences between the two groups. *Results & Conclusions:* Two main themes highlighted the differences between the two groups, these were: Goal regulation and self-control. Within these overarching themes successful weight maintenance was related to the following subthemes: long-term, realistic goal setting, effective prioritisation and multiple goal management, consistent use of routines and self-monitoring, avoiding deprivation and effective coping skills. Unsuccessful maintenance was related to short-term unrealistic goal setting, inefficient multiple goal management, inconsistent routines and self-monitoring, experiencing deprivation and poor coping skills. Although the Regainers appeared aware of the factors necessary for success, their failure was perhaps a result of their inability to mobilize these factors into action.

*Keywords:* weight loss maintenance, goal setting, self-control, self-regulation

## Weight Loss Maintenance: Self-Regulatory Factors Underpinning Success and Failure

The prevalence of overweight and obesity has reached epidemic levels. It is estimated that there are currently one billion adults that are overweight, with 300 million being obese. Furthermore, at least 2.8 million people die each year as a consequence of being overweight or obese (Mathers, Fat, & Boerma, 2008). In direct response to such figures, the World Health Organization (WHO) has declared improving diet and physical activity a public health priority (Anderson et al., 2009). There is a large body of evidence that supports dietary and exercise-related interventions as a means to produce small to modest reductions in weight loss (around 5-10%). These losses have been consistently linked to enhanced physiological and psychological wellbeing (Wing & Hill, 2001). Unfortunately, the majority of individuals who are successful in these interventions are unable to maintain these losses over time (Green, Larkin, & Sullivan, 2009). Nearly half of the weight lost is regained one year post-intervention and the remaining weight is regained 3-5 years after the intervention with the majority of individuals returning to or exceeding their pre-intervention weight (Perri, 1998; Byrne, 2002).

Considering that weight maintenance success appears to be an unattainable goal for many individuals, it is increasingly important to understand the contributing factors relating to weight maintenance success and failure. Research to date has highlighted a number of such factors (Colvin & Olson, 1983; Green et al., 2009). These factors relate to both psychological and behavioural aspects of long-term weight maintenance such as the importance goal setting (Kitsantas, 2000), setting realistic goals (Byrne, 2002), consistent exercising to sustain weight maintenance (Wing & Hill, 2001), planning meals (Kruger, Blanck, & Gillespie, 2006), consistent use of food diaries (Hollis et al., 2008), not overly strict diets (Byrne, Cooper, & Fairburn, 2003) and active coping responses (Dohm, Beattie, Aibel, & Striegel-Moore, 2001). However, to our knowledge, it is relatively unknown, how these factors (in particular the

psychological factors) operate in terms of their relationship to both weight maintenance success and failure (Byrne, 2002).

Research has shown that a number of overweight individuals (20%) are able to successfully maintain their weight (when classified as having lost 10% of their original body weight and been able to maintain this new weight for at least a year to within a range of 2.2kg; Wing & Phelan, 2005). Understanding why these individuals are able to succeed when so many others fail is crucial for understanding the factors that underpin weight maintenance. Weight regain has been attributed to an inability to adhere to behaviours previously successfully adopted for weight loss, once trying to maintain rather than lose weight (Byrne et al., 2003). It is therefore vital to understand why these behaviours are abandoned when they are still needed. The present study aims to contribute to the existent literature by examining the differences between successful and unsuccessful weight maintainers in order to gain an insight into the factors related to success and failure in weight maintenance.

## **Method**

### **Participants**

We interviewed 18 participants, 16 of which were females ( $M_{\text{age}} = 44.75 \pm 14.51$ , age range: 26-71). Participants were non-academic university staff, self-employed, or retired members of the public and were of British ( $n = 10$ ), North American ( $n = 1$ ), Caribbean ( $n = 1$ ), Polish ( $n = 1$ ) and South Asian (Indian, Pakistani and Bangladeshi) ( $n = 5$ ) descent. Participants were recruited on the basis that they fit into one of two groups (see Table 1). The first group, successful weight maintainers (Maintainers), included those who had previously been overweight or obese ( $\text{BMI} \geq 25 \text{ kg/m}^2$ ), had intentionally lost 10% of their overall body weight (through diet and/or exercise), and maintained this new body weight for at least 12 months (to within a range of 2.2 kg up to and including the day of the interview, to allow for fluctuations). The second group, unsuccessful weight maintainers (Regainers), included those

who had previously met the above criteria of a loss of 10% of their total body weight; however they had been unable to maintain their new weight for a 12 month period and had subsequently regained the weight lost. This classification was based on the current criterion for long-term weight maintenance (Wing & Phelan, 2005; Epiphaniou & Ogden, 2010). The total number of participants was determined when a saturation point was reached in the data collection within both groups.

Insert Table 1 here.

## **Procedure**

Participants were recruited via email and web advertisements circulated to non academic staff and through flyers distributed at community weight loss groups. Participants received no compensation for their involvement. Ethical approval for the current research was granted by a university ethics committee. Participants were aware that they could withdraw from the study at any stage without consequences. Interview participants were reassured that their responses were confidential and would be referenced under a name different to their own. Having read and signed an information sheet and consent form, participants were interviewed and recorded via Dictaphone. All interviews were conducted by the lead researcher and lasted between 40-100 minutes. Pilot interviews were conducted on three separately recruited individuals to test the interview structure. A number of probes were developed and changed as an outcome of the pilot. The pilot interviews were not included in the analyses presented below.

The interview script consisted of semi-structured questions with numerous probes. The script was intentionally loosely structured in order to allow participants to describe their own weight loss journey as opposed to responding to highly structured questions. The questions were selected with the aim of gaining greater understanding of each participant's individual

weight loss journey, for example ‘What does success mean to you in terms of weight loss?’ and ‘Tell me the story of your weight loss journey’.

### **Analysis.**

In light of the purpose of the current study being to identify the key differences between Maintainers’ and Regainers’, a thematic analysis was employed. This methodology was chosen as it is not strictly theoretically bounded, is adaptable, translatable and known to be particularly useful in terms of examining similarities and differences between groups (Braun & Clarke, 2006). The current study specifically followed Braun and Clarke's (2006) method of thematic analysis in order to identify, organize, evaluate and report patterns within the data for the two different groups. This methodology follows a 6 step approach from familiarisation with the data to writing up the report. The current study incorporated these steps in the follow way: 1. Familiarisation: The interview transcripts were read and re-read and the interview recordings were repeatedly listened to by the principal investigator. 2. Generating the initial codes: The data were coded by the principal investigator by systematically working through the transcripts and identifying any segments that appeared to reoccur and had the potential to form patterns. 3. Searching for themes: Items were included if it was felt that they had captured something important in a patterned response. Special consideration was given to any data which were different or suggested an alternative explanation from the main factors identified. 4. Reviewing themes: The entire data set was then examined for differences within and between the two groups. As an outcome of this process, it was felt that a number of the themes lacked distinctiveness. These themes were either excluded from the final list or, where relevant, condensed into subthemes of the main themes. 5. Defining and naming themes: The analysis detailed that the Maintainers and Regainers differed on two key themes: Goal regulation and self-control. These higher order themes were characterised by various subthemes that ran throughout the data. Firstly, the

dominant theme of goal regulation emphasised the differences between how Maintainers and Regainers approached their weight maintenance goals in terms of two subthemes. The first subtheme, goal setting, detailed whether participants adopted a long vs. short-term approach to their weight maintenance and its impact on their success. The second, multiple goal management, demonstrated how participants prioritised their weight loss goals alongside other goals and the extent to which other goals enhanced or interfered with their weight maintenance success. The second key theme was self-control which was divided into four contributing subthemes for which Maintainers and Regainers differed, these were: Routine, self-monitoring, avoiding deprivation and coping with lapses. The thematic map in Figure 1 illustrates these two primary themes and their relevant subthemes. 6. Writing the report: The last step in the thematic analysis involved revising the key themes and subthemes in order to select the final quotes for inclusion in the current paper. A subsection of the dataset (transcripts from two Maintainers and two Regainers) was analyzed by an independent researcher. This researcher acted as a “critical friend” separately coding and grouping potential patterns in the dataset. She was then given the opportunity to discuss her findings at length with the lead researcher without prior interference or influence. The conclusions drawn by the “critical friend” were virtually identical to those of the lead researcher. The “critical friend” identified both key themes in addition to the majority of the subthemes within the data.

## **Results/Discussion**

The analysis detailed how the Maintainers and Regainers differed on two key themes: Goal regulation and self-control. These themes and their component subthemes are illustrated below.

### **Goal Regulation**

Goal regulation is closely related to self-regulation which is broadly termed the ability of the self to alter the self (Vohs, Baumeister & Ciarocco, 2005). Goal regulation is in essence the self-regulation of goals. It involves the processes of goal setting and goal striving and the barriers needed to overcome these in order achieve a valued goal (Mischel, Cantor, & Feldman, 1996). The current study identified two subthemes relating to the overarching theme of Goal Regulation of weight related goals. These were: Goal setting and multiple goal management.

### **Goal Setting: Adopting a long-term vs. short-term approach to weight maintenance.**

The Maintainers frequently referred to setting weight maintenance goals and presented the idea of weight maintenance as a lifestyle change rather than a 'diet'. This is exemplified in the following quote by Stacey (37) who recently relocated to the UK where she joined a slimming club; she now maintains her weight at a healthy BMI and has done so for over two years:

*Interviewer: Was it difficult (weight maintenance)? Why? Stacey: I think it's just a matter of bringing it into your routine. Not thinking of it as a diet, thinking from the time you joined (a slimming club) that you have changed your life you're not dieting. I mean people say they are on a diet when they are a member of a slimming club sometimes but I don't think that's what you're on, you don't ever intend to go back to what you were doing before so that is not a diet you have just changed the way you eat now.*

Stacy's experience reflects that of the other 8 Maintainers (5 female, 2 male) in their awareness of how weight maintenance has now become an inherent part of their lifestyle. Laura (62), who has been maintaining her weight at a BMI of 21 for nearly two years, echoes Stacey's comments: *I think you've got to tell yourself you're not on a diet you're just changing your way of life..... you're not on a diet which is a temporary thing -you've got to educate yourself to eat differently all the time.*

Additionally, Leanne (35), who struggled to lose weight throughout adolescence, but now in adulthood, has been a successful Maintainer for the past two years noted: *I think seeing it (weight maintenance) as a long game is important.* Stacey, Laura and Leanne's comments typify those of the other Maintainers in the current study. This repeated emphasis on lifestyle change rather than being 'on a diet' which is seen as short-term or 'temporary' is consistent with previous research into weight maintenance success (Byrne, 2002; Epiphaniou & Ogden, 2010). Such research has demonstrated that post weight loss those who successfully maintain their weight often experience a shift in their personal identity from feeling restrained and trapped by their weight control practices to becoming a more liberated person in terms of both their weight control endeavours and in their own self-appraisal (Epiphaniou & Ogden, 2010). In other words by redefining themselves and their behaviours as long-term or lifestyle related the Maintainers could have perhaps unknowingly been insuring their weight maintenance future.

Further, in relation to goal setting, a number of the Maintainers emphasised the danger of being 'unrealistic' in their weight-related goals. Mary (26), who suffered from childhood obesity involving a ten year struggle to reach a healthy weight, has in adulthood, successfully maintained her weight for the past three years. She highlights the importance setting of realistic weight-related goals: *Mary: I think people set themselves such a high goal that when they can't reach it straight away, when it's a hard goal, they kind of think "Oh forget it, I can't do it" .... I think that's quite an important thing to think of realistic goals rather than ones you can't achieve.... that was something I did the whole way through was set my own little goals.*

The above comments of the Maintainers in terms of the importance of setting realistic goals and not seeing weight maintenance as 'temporary' are in stark contrast to those of the Regainers (9 female). Similarly to the work of Cooper, Byrne, and Fairburn (2003) the

majority of the Regainers in the current study appeared dissatisfied with their weight following weight loss and subsequently strived to achieve further weight loss. Often, regardless of whether they had already achieved their ideal weight. A number of the Regainers detailed that they reached a point where they were so focused on their ultimate and often knowingly ‘*unrealistic*’ weight-loss goal that they just gave up completely. Amy (42), a Regainer, who has been battling with her weight since she was 15 years old, described this process: *I think we all focus on all the mistakes we make rather than remembering the achievements but I’ve never in my adult life got down to a point where I was going to be able to maintain my weight at. I always wanted to lose more but never managed to carry on losing more. I always went back. Sometimes I managed to maintain at a certain level for a period of time but it wasn’t the ultimate level that I wanted to stay at and then eventually went back up again when I got tired of it I don’t know lack of progress or the effort maybe.*

Amy’s quote exemplifies the danger of unrealistic and unachievable weight loss goals. A danger that has been well documented in the literature, with the setting of unrealistic goals being repeatedly coupled with weight gain over time (Colvin & Olson, 1983; Jeffrey, Wing, & Mayer, 1998, Elfhag & Rössner, 2005). Indeed the feelings of frustration or ‘*getting tired of it*’ experienced by a number of the Regainers have been linked with ongoing dietary failure, anger, low self-esteem and oftentimes self-hatred (Polivy & Herman, 2002). This unrealistic goal striving documented by a number of the Regainers may provide one possible reason for the desertion of their weight related goals. The literature has noted that failure to reach a self-determined weight discourages an individual’s belief in their ability to control their weight and can subsequently result in the abandonment of weight loss goals (Cooper & Fairburn, 2001). Leanne, (Maintainer), detailed a similar battle to Amy (Regainer) in terms of having unrealistic goals: *Interviewer: If you were to do it again what would you do differently?*  
*Leanne: I think I wasted a lot of time feeling like a failure at weight loss when I wasn’t really.*

*Instead of going up and down and now essentially at the same weight, I wish I just stayed here. I think I would spend less time beating myself up about it, it's much more helpful see it in a positive way –look at the lbs you lost as progress rather than seeing the pounds you still have to lose as failure.*

Although comparable to that of Amy in the struggle with weight cycling, in the latter end of her quote Leanne refers to seeing the *'lbs you lost as progress'* this offers an insight into the mechanisms that may have lead to her subsequent weight maintenance success. Leanne's quote exemplifies the importance of focusing on accomplishments to date, which has been found to subsequently signal motivation to continue with the goal (Koo & Fishbach, 2008). This is known to be especially relevant at the beginning of goal pursuit as it conveys the message of progress and encourages the individual to adhere to the goal (Koo & Fishbach, 2012).

### **Multiple goal management; prioritisation, facilitation and interference.**

Multiple goal management involves the ongoing prioritisation process of deciding how much effort to invest in one's goals, when to invest it, and which goals to invest it in (Gollwitzer & Heckhausen, 1990). For the Maintainers, prioritisation of weight maintenance appears to have become innate and almost automatic. Sally (37), an office worker, who has been maintaining her weight loss for over three years. Here she discusses how over time weight maintenance has naturally become a priority: *Interviewer: Are there any particular times you feel you may have to prioritise your other goals over your weight loss? Sally: No because I've been doing it that long its part of my life now... I don't even think about the goals, I don't think about the choices I make I just do them and it's afterwards that I think "Oh I actually made the right choice there and I didn't even think about it". It's integrated into my life now which makes it a good bit easier.*

Jen (42), a marathon runner, who through the help of a slimming club has maintained a healthy weight for the past 5 years, responded similarly when posed with the same question: *No, I think now that I've been doing it for so long it's like second nature.. I think now I don't have to think about it anymore it's just natural to me. I don't feel like I do a diet.*

Similarly to Sally, Jen has been making weight maintenance a priority for so long that it has now become an inherent or 'natural' part of her life. This reemphasises the importance of seeing weight maintenance as a long-term goal or lifestyle change, and echoes what was posited above in terms of the potential shift that may occur over time from someone who is trapped by their dieting practices to a freer more liberated person.

When further probed about what it takes to be successful, a number of the Maintainers' cited the instrumentality of exercise in their weight maintenance journey. Ali (40), a Maintainer who took up running to assist her weight loss, has now completed a number of half marathons and has been maintaining her weight for nearly two years. Here she discusses how exercise is vital to her weight maintenance success: *I think it must be the exercise that's key, as it gives you stuff, it gives you endorphins. It gives you a sense of pride-I've run for charity and I've raised thousands of pounds and that's a real source of pride for me. Where if I had just gone on a diet and if you are successful at being on a diet then you can easily stray into really bad ways of being can't you?*

Kate (45) another keen exerciser who recently joined a running club and has been successfully maintaining her weight for close to three years, she echoes Ali's and many of the other Maintainers' views on the instrumentality of exercise for weight maintenance success: *Kate: I think it wasn't just the diet really I think people who just do the diet are more likely to give up. I think you need both-you need really regular exercise and the diet as well.....I think exercise helps your diet and diet helps your exercise. I think one helps the other they are interlinked really-you do one and it encourages the other.*

Exercise has been frequently associated with long-term weight maintenance (Crawford, Jeffery, & French, 2000; Wing & Hill, 2001). For many of the Maintainers, in particular Kate, it appears that exercise may facilitate or assist their pursuit and commitment to weight maintenance. Multiple goal facilitation can occur when the pursuit of one goal (e.g. exercise) enhances success in another goal (e.g. weight maintenance). It has been found that the more mutually facilitative a person's goals are the more likely this person is to persist and commit to them (Riediger & Freund, 2004).

In contrast to the potentially facilitative nature of exercise and weight maintenance experienced by the Maintainers, the Regainers often cited the numerous barriers to their prioritisation of weight maintenance, detailing how they often '*struggled*' to manage it alongside their other goals. Nancy (49), a Regainer, gained a large amount of weight post pregnancy and after quitting her slimming club, she is now trying to lose it again. Here she talks about how she finds it hard to make weight loss a priority: *You've got so much else going on in your life that (weight loss/maintenance), that's something that you know you need to tackle but its way down on the list with everything else and I suppose that's an issue in itself.*

Furthermore, these barriers detailed by Nancy and some of the other Regainers in terms of weight maintenance prioritisation appeared to also translate to exercise goals. A number of the Regainers cited that they found it difficult to prioritise exercise amongst their other goals. Rachel (45) had previously lost a significant amount of weight through a slimming club. However since leaving a year ago she has regained this weight and more. Here she notes how exercise is currently incompatible with her lifestyle: *Rachel: There's no way I could do exercise before I went to work. I don't want to do it when I get home either-so I'm struggling to get that in.*

Nancy echoes Rachel's comments in terms of experiencing barriers to exercise: *I did go to the gym for a while but I stopped doing that because it was quite expensive and it was very badly run so I lost interest and stopped going.*

The potential lack of prioritization of both weight maintenance and exercise goals seen in a number of the Regainers could potentially signify a lack of expectancy of success in reaching their goals, which is known to be the benchmark for establishing goal priorities (Louro, Pieters, & Zeelenberg, 2007). A high expectation of success in one's weight-related goals has been repeatedly linked to weight maintenance success (Elfhag & Rössner, 2005). Nancy and Rachel's other priorities and goals appear to interfere with their weight loss and weight maintenance pursuit. It is thought that goal interference tends to occur when the concurrent pursuit of multiple goals creates competition for and consumes the same finite resource such as time (in Rachel's case) or money (Nancy) (Riediger & Freund, 2004). It is recommended in the literature that one way to tackle such interference is to establish and adapt one's goal priorities (Louro et al., 2007).

### **Self-Control**

The second key theme identified in the current study was self-control. Self-control is the ability to override or inhibit behaviours, urges, emotions or desires that would otherwise hinder goal-directed behaviour (Baumeister & Vohs, 2007). A number of differences were identified between the Maintainers and Regainers, in particular in how they exerted self-control over their weight control practices. The use of self-control appeared to influence how participants' established routines, exercised vigilance in their daily weight control, dealt with temptations, and coped with lapses. There were four subthemes identified relating to the overarching theme of self-control: Establishing routines, self-monitoring, dietary deprivation, and coping with lapses.

## **Routine.**

A number of the Maintainers highlighted the importance of being highly organised in their weight maintenance journey. They detailed how they planned in advance in order not to be 'caught out' and have to make unhealthy choices. They often emphasised the importance of having an established routine as pivotal to their weight maintenance: *Kate: Once I had a new routine and that was sort of established it wasn't that difficult to stick to it, I guess the difficult bit was coming up with what that new routine would be but once that was in place it was kind of comforting.*

Conversely, many of the Regainers detailed that they found that organising themselves and establishing a routine for weight loss quite difficult: *Hazel: I think a lot of my weight problems are because I'm not organised, like not preparing meals beforehand and making sure the shopping is delivered every week. I go shopping every other week and then I'm stuck and then I'm looking for things to eat.*

Pamela (53) a Regainer, who after having two children and giving up attending her local slimming club regained a substantial amount of weight, which is now starting to affect her health. Here she details her battle with being organised on her own after leaving the slimming club: *The way a lot of these slimming clubs work is that they give you diets to start off with and I can follow the diets but when I have to start cooking and planning meals for myself it all goes to pot and the weight just comes back on again. Because I was actually following diets to the point that the meals were all planned out for me.....somebody telling me "have a boiled egg, slice of toast, glass of orange juice and then at 11 o' clock have a piece of fruit" I could do it but when I have to sit and plan meals it goes all out the window.*

Nancy, another Regainer, reflects this view, here she makes reference to 'going it alone' after giving up attending the slimming club: *I just found it really too much to think*

*about; when you got to the point you had to start planning meals and meal management on my own, I give up with it.*

Similarly to how they were aware of the dangers of setting unrealistic goals, the Regainers seemed acutely aware of the significance of having a routine and its impact on their weight loss. Here Pamela, a Regainer, notes: *Interviewer: If you were to do it all again, is there anything that you would do differently next time? Pamela: I think I would be a bit more prepared...it's just, you know, try not to be lazy. I would need to get myself back into a routine.*

Many of the Regainers discussed how they relied on attending slimming classes and being told what to do by others in order to keep organised. As with Nancy and Pamela above, the Regainers often cited that they had lost the motivation to continue with their weight control routine once they had left their slimming classes. One possible reason for this may be that their participation was more for extrinsic or external reasons i.e. they may have relied on other people telling them what to do to motivate them rather than working out how to do it for themselves. Self-determination theory (Deci & Ryan, 1985) proposes that the behavioural change necessary to achieve weight maintenance must be self-determined, i.e. integrated within one's sense of self. For the Maintainers, as discussed above, their transition from being a *'dieter'* into becoming a person who leads and associates themselves with a healthy lifestyle illustrates this integration. In line with self-determination theory, successful maintenance will not occur if the motivation for behavioural change is not self-determined (e.g., relying on others to tell you what to do). This type of reliance does not allow for the development of the empowering skills needed in order to sustain weight maintenance (Williams, Grow, Freedman, Ryan, & Deci, 1996).

### **Self-monitoring.**

Self-monitoring skills involve deliberate attention to one's behaviour and the recording of some details of that behaviour (Butryn, Phelan, Hill, & Wing, 2007). For example, monitoring ones weight or keeping a food diary. The majority of the Maintainers made reference to consistently monitoring their weight maintenance, in particular through the use of food diaries. The Maintainers often noted that they had learned from previous experience how important it was to keep track of what they ate for weight maintenance success. Here Jeff (63), a maintainer, who has kept note of his food intake and exercise for the last five years, details why he feels self-monitoring is important: *As long as you're counting something either calories or grams of fat it's helpful. I think it's that little mind trickery of it, it makes it present in the mind, it makes it something that you just can't kind of go "Well I'll think about that tomorrow", its difficult but if you just write it down and then when you see it, for me it's like "wow" and it makes you honest to yourself.*

Jen, a maintainer, who kept food diaries for four years up to and including the day of interview, echoes Jeff's feelings on the importance of self-monitoring for weight maintenance: *I write everything down. I think if I don't, I'm only cheating myself and if I get to the end of the week and I have put weight on, I know the only person I've got to blame is me-it's in my hands sort of thing.*

Weight loss trials have shown that keeping food diaries increases weight loss (Hollis et al., 2008) and weight maintenance success (Elfhag & Rössner, 2005). It is thought that this occurs through the heightened attention, awareness and increased accountability that comes with writing things down-all factors necessary for successful self-regulation (Burke, Wang, & Sevick, 2011). This sense of accountability is reflected above, with many of the Maintainers often mentioning how self-monitoring kept them 'honest' and 'on track'. In contrast, the Regainers did not appear to practice self-monitoring as conscientiously as the Maintainers. Here Nancy, a Regainer, details how she stopped her daily weighing once she had achieved

her goal weight: *In maintenance you're not actually achieving anything as such, well you are, but not in terms of the tangible result of losing weight. Initially I keep weighing myself and then you get to a point where it starts to creep up a bit and then you stop weighing yourself because you don't want to know how much it is.*

This 'not wanting to know' was in direct contrast to the honesty and sense of responsibility seen in the Maintainers. The Regainers' general attitude to self-monitoring appeared to indicate a lack of accountability and autonomy with regard to their weight control. Unlike the majority of the Maintainers who continually kept food diaries or regularly weighed themselves, a number of the Regainers, as illustrated by Nancy above, appeared to stop their self-monitoring practices once they had reached or were close to their goal weight. Here, Rachel noted that ceasing her weight loss tracking was concurrent with when she started to regain weight: *I think that writing it (what you eat) down is really important.... though I'm not doing it now, I'm fairly sure that I stopped writing it down once I reached my goal which was ok for a bit but then I started to eat crap and then I couldn't stop.*

Similarly to Rachel above, a number of the other Regainers cited that they were aware of the importance of self-monitoring however had stopped it once they had reached their goal weight. It seems that these crucial self-monitoring activities were abandoned when they were needed most. One possible reason for this could be explained with reference to Louro, Pieters, and Zeelenberg's (2007) goal proximity theory. If commitment to the goal is uncertain, when attainment of the focal goal is in sight and emotions signal progress, individuals seem to then coast or ultimately abandon the focal goal in pursuit of other things. The quote below by Leanne, a maintainer, exemplifies this thought process. Whilst considering why she was unable to maintain her weight in the past, she commented: *I hadn't actually kind of thought about it, you know, the closer you get to your goal the less incentive you have to keep working*

*hard. Which of course you need think really hard about how much you want to lose the last stone because it's got to genuinely matter more than eating that piece of cake or whatever.*

In the case of the Regainers it may be that once they get to their goal weight or 'focal goal' they become less motivated to continue into weight maintenance.

### **Deprivation.**

The Maintainers and Regainers were wholly different in their approach to food and their experience of dietary temptations. The Maintainers often discussed the importance of preventing feelings of 'missing out' or 'deprivation' when it came to their weight maintenance practices: *Ali: You have to have some treats if you deny yourself completely, you're just going to go mad and start eating rubbish.*

*Interviewer: If you were to give people advice from what you've learnt what would you tell them? Jen: Try to follow a diet where you don't deprive yourself because that's the thing usually and that's why other diets failed for me ...you just don't want to do something that you're not going to enjoy and I think when you do enjoy it, as I say, I don't think about this as a diet anymore.*

The Maintainers repeatedly emphasized how feelings of deprivation can lead to 'self-destructive' dieting behaviour and how this is often the tipping point from partial success into weight maintenance failure. They talked about 'savouring' their treats and always felt that they had 'earned their reward'. They appeared to have learnt the importance of not feeling deprived through their own dietary failures. Here, Leanne, a Maintainer, notes: *I had this sort of massive realization the way I had behaved it was like, if I don't eat this now, I'll never be able to eat anything else like it again. So you end up feeling that you're deprived of chocolate or whatever-but chocolate will always exist.*

In contrast, the Regainers often talked about *'forbidden foods'* and banning treats whilst dieting. Yet, in retrospect they appeared to recognize the danger of their behaviours and the importance of *'not feeling deprived'*. Noting similarly to the Maintainers that being overly restrictive can be detrimental to their goal by leading to loss of motivation and even periods of binge eating: *Interviewer: If you were to give others advice, based on what you learned, what would you tell them? Pamela: If I were to do it again I wouldn't restrict myself too much. If you really want something, have it..... because the more you deny yourself the more it builds up, and if you go two or three days, (you would say) "right, now I'll eat a box of chocolates". Don't deprive yourself too much because I think that's what makes people fall off the wagon.*

Self-control has been compared to a muscle; if too much force is exerted over a short-term period the muscle becomes depleted or fatigued and performance in subsequent exertions declines (Muraven & Baumeister, 2000). As mentioned by Pamela, being overly restrictive can often, over time result in binging on foods contrary to ones dieting goals. Thus the Regainers' extreme bouts of self-deprivation may have left their self-control fatigued or depleted. Potentially making them more vulnerable to future tempting situations and consequently more likely to *'fall off the wagon'*. One would have to exert huge amounts of self-control to restrict certain foods long-term. This sort of rigid control has been considered a risk factor for dieting failure and overeating (Urbszat, Herman, & Polivy, 2002).

Although it can be subject to depletion, if a muscle is consistently trained and given adequate rest (e.g. allowing for occasional treats), over time it can become stronger (Muraven, 2010). Through avoiding deprivation the Maintainers' consistent and moderate exertions of self-control potentially served to strengthen their future self-control efforts. Allowing for the occasional treat is a sign of flexibility in their weight loss pursuit. Having a flexible approach

to ones diet is known to be associated with weight maintenance success (Byrne et al., 2003; Epiphaniou & Ogden, 2010)

### **Coping with lapses.**

A dietary lapse is known as “an incident where you felt that you broke your diet (e.g., overeat, eat a forbidden food, etc.)” (Carels, 2001). The Maintainers and Regainers differed in their ability to instigate effective coping responses following lapses. The Maintainers appeared to understand that one lapse does not constitute a complete dietary failure and were able to move on from lapses and continue with their weight maintenance goals: *Jen: If you have a bad day it's just a bad day, don't beat yourself up about it, just think it's a bad day and now I've got the rest of the week to get over it.*

*Kate: You can think one day, right I might have something I fancy like biscuits but you know you're just having them there and then and you're not thinking “oh I've messed up the diet I'll just have a load of rubbish then” you just carry on as before. What you do 95% of the time is what counts.*

These quotes reflect the adaptable view of the Maintainers regarding having treats and overcoming lapses. They seemed to perceive a lapse as something temporary, making dietary allowances and increasing exercise to compensate; such behaviours have been associated with weight maintenance success (Dohm et al., 2001). The Regainers appeared to have a completely contrasting view in terms of dealing with periods of lapses. For example here, Amy discusses how she copes with dietary temptation and lapse: *I find it hard I guess it's that all or nothing mentality, you think “oh I will start my diet again on Monday and in the meantime I might as well have that pizza I've been missing”. You know? And then it's sort of a steady decline. I think oh this is so good maybe I'll just have a couple of more things that I miss before I get back to healthier eating.*

This 'all or nothing' or dichotomous thinking style is known to be detrimental to weight maintenance success (Byrne et al., 2003). Here, Leanne, a Maintainer, reflecting on her past mistakes summarises the destructiveness of such thinking: *It's an obvious self-defeating concept that just because you have eaten one bad thing you should then eat lots of it. It's some sort of weird psychological thing to think it's all or nothing; if you can't do it perfectly you might as well not do it at all.*

The Regainers appeared passive or submissive in their responses to a lapse; rather than do something about it, they seemed to let a lapse turn into a relapse using it as an excuse to 'come off the wagon'. This type of passiveness has been linked with weight regain and overeating (Kayman, Bruvold, & Stern, 1990). However, the Regainers appeared to be aware of what was needed in order to overcome lapses, yet they seemed unable to instigate the behaviour necessary to do so. This is exemplified by the following quote by Amy: *It's trying to stop that lapse becoming a pattern of behaviour is where I seem to struggle. I should have probably made a better note of the time I've overcome a lapse and that it didn't become a relapse but I didn't remember at the time. You never appreciate all those successes you remember the ones that turn into relapses. I guess the simple answer is you just say "oh that was a piece of chocolate well I'll not do it again" and you know get back to where I was.*

## **Conclusion**

Many weight loss interventions to date, have produced small to moderate results, with the majority of individuals who lose weight in these interventions regaining this weight over time (Elfhag & Rössner, 2005). In an effort to explain these findings, calls have been made in the literature for further research to explore the contributing factors behind both weight maintenance success and failure (Byrne, 2002). An enhanced understanding of these processes will enable researchers to improve the effectiveness of future interventions.

Participants in the current study discussed their understanding and experiences of the factors related to their weight maintenance success or failure. Two main overarching factors for which the Maintainers and Regainers differed were identified in the interviews: Goal Regulation and Self-Control. Goal regulation consisted of the subthemes; goal setting and multiple goal management. Self-control consisted of four contributing subthemes; Routine, self-monitoring, avoiding deprivation, and coping with lapses.. The aim of the current study was to explore the differences between Regainers and Maintainers in order to gain an insight into the factors related to success and failure in weight maintenance. Considering the findings of the current study it appears that weight maintenance success and failure does not occur in isolation; rather it is part of a bigger web of interlinking relationships. Seemingly there is an interplay occurring among these factors in both the Regainers and Maintainers with a number of factors potentially influencing and affecting success in the others. This brings about a “domino” or cascade effect amongst the individual factors. For instance in the case of weight maintenance failure; the Regainers tended to see weight control as a short-term concept rather than a long-term or lifestyle change. It appears that this mindset potentially had a knock on effect on the other factors relating to their weight control practices. Due to the temporary nature of their goals the Regainers may not have applied any of the factors necessary for success long enough for them to become routine or habitual and thus perhaps why they frequently commented on struggling with fitting in their weight loss alongside their other priorities. Indeed, they detailed that they self-monitored for only short periods and exercised sporadically. During these short periods of weight loss they appeared to be overly restrictive with their diets and hence their frequent reference to feelings of depletion and deprivation, potentially making them more vulnerable to lapsing. Furthermore, perhaps due to their inability to instigate adequate coping measures, these lapses had the potential to turn into relapses and consequently weight regain. However, interestingly, the Regainers seem to be

acutely aware of what they should be doing to improve their weight control, consistently citing the importance of setting realistic goals, avoiding feelings of deprivation, establishing a routine, keeping a food diary and learning from lapses as key factors for weight maintenance. However, although they seem aware of their failures, the Regainers, appear to have failed to learn from them. As a consequence of seeing weight control as something temporary they have potentially experienced a 'domino' or knock on effect on the other factors necessary for weight maintenance success, perhaps therein preventing Regainers from making the crucial transition from weight loss to weight maintenance.

In contrast, the Maintainers appear to have learnt from their previous failings and tended to take a more long-term approach to their weight control. As a result of their long-term outlook and their consistent prioritisation of their weight maintenance, rather than interfering with their other goals, it is embodied in their lifestyle and reflected in their sense of self. As a consequence, they have established routines and exercise regularly to complement it. They often talked about how they managed to avoid feelings of deprivation, yet manage to ensure they remain in control of their weight by allowing for the occasional treat. They seem to instigate active and effective coping skills and, therefore, can potentially deal more effectively with lapses. In addition, by keeping a food diary it may heighten their awareness of what they are eating-perhaps allowing them to avoid periods of mindless consumption. For the Maintainers, their repeated reference to why they failed in the past is perhaps a reflection of the learning process that occurred during the journey from weight loss to weight maintenance. A journey which over time insured graduated from the short-term mindset towards a more long-term lifestyle change.

In sum, the present study, in congruence with previous literature, provides support for the importance of setting realistic goals (Byrne, 2002), exercising to sustain weight maintenance (Wing & Hill, 2001), planning meals (Kruger et al., 2006), consistently using

food diaries (Hollis et al., 2008), avoiding overly restrictive diets (Byrne et al., 2003) and using active coping responses (Dohm et al., 2001). In addition to these findings, the current research exposes the interrelationships and influences that the above factors have on one another and their subsequent impact on weight maintenance success or failure, highlighting the importance of seeing weight maintenance as a long-term goal. Future longitudinal research is needed to further explore and verify the potential relationships identified. Furthermore there is a necessity to specifically understand why some people carry on consistently employing these factors while others stop once they have come close to their ideal weight. In order to encourage ongoing weight maintenance, less focus must be placed on continuous weight loss and more emphasis on the maintenance of losses and the self-regulatory and goal management skills needed for successful weight maintenance. Perhaps weight loss groups should devote more attention and focus on getting participants to view weight control as a long-term objective and highlighting the benefits of such an approach. Such an approach is concurrent with research that argues that long-term behaviour change should be viewed as a chronic ongoing process and not as a short-term ideal (Anderson, 1999).

In conclusion, our study demonstrates that Maintainers have perhaps managed to learn from their past experiences in terms of weight maintenance thus enabling their current success. In contrast the Regainers appeared aware of the factors necessary for success, yet their failure may have been a result of their inability to mobilize these factors into action. Essentially, in order for the Regainers to transition into maintenance they must examine their previous failings at the above factors and make efforts to rectify these failings. The conclusion of the current study echoes that of multi-millionaire Malcolm Forbes: *Failure is success if we learn from it* (Winans, 1990).

## References:

- Anderson, J., Parker, W., Steyn, N. P., Grimsrud, A., Kolbe-Alexander, T., Mciza, & Lambert, E. V. (2009). *Interventions on diet and physical activity: What works. Implementation of the global strategy on diet, physical activity and health. Summary Report*. Geneva.
- Anderson, J. W., Konz, E. C., Frederich, R. C., & Wood, C. L. (2001). Long-term weight-loss maintenance: A meta-analysis of US studies. *The American Journal of Clinical Nutrition*, *74*, 579–84.
- Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass*, *1*, 115–128. doi:10.1111/j.1751-9004.2007.00001.x
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*, 77–101. doi:10.1191/1478088706qp063oa
- Burke, L. E., Wang, J., & Sevick, M. A. (2011). Self-monitoring in weight loss: a systematic review of the literature. *Journal of the American Dietetic Association*, *111*, 92–102. doi:10.1016/j.jada.2010.10.008
- Butryn, M. L., Phelan, S., Hill, J. O., & Wing, R. R. (2007). Consistent self-monitoring of weight: A key component of successful weight loss maintenance. *Obesity*, *15*, 3091–6. doi:10.1038/oby.2007.368
- Byrne, S. (2002). Psychological aspects of weight maintenance and relapse in obesity. *Journal of Psychosomatic Research*, *53*, 1029–1036. doi:10.1016/S0022-3999(02)00487-7
- Byrne, S., Cooper, Z., & Fairburn, C. (2003). Weight maintenance and relapse in obesity: a qualitative study. *International journal of obesity and related metabolic disorders : journal of the International Association for the Study of Obesity*, *27*, 955–62. doi:10.1038/sj.ijo.0802305
- Colvin, R. H., & Olson, S. B. (1983). A descriptive analysis of men and women who have lost significant weight and are highly successful at maintaining the loss. *Addictive Behaviors*, *8*, 287–295. doi:10.1016/0306-4603(83)90024-2
- Cooper, Z., & Fairburn, C. G. (2001). A new cognitive behavioural approach to the treatment of obesity. *Behaviour Research and Therapy*, *39*, 499–511. doi:org/10.1016/S0005-7967(00)00065-6,
- Crawford, D., Jeffery, R. W., & French, S. A. (2000). Can anyone successfully control their weight? Findings of a three year community-based study of men and women. *International Journal of Obesity*, *24*, 1107–1110. doi:10.1038/sj.ijo.0801374
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

- Dohm, F. A., Beattie, J. A., Aibel, C., & Striegel-Moore, R. H. (2001). Factors differentiating women and men who successfully maintain weight loss from women and men who do not. *Journal of Clinical Psychology, 57*, 105–17. doi:10.1002/1097-4679(200101)57:1<105::AID-JCLP11>3.0.CO;2-I
- Elfhag, K., & Rössner, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obesity Reviews, 6*, 67–85. doi:10.1111/j.1467-789X.2005.00170.x
- Epiphaniou, E., & Ogden, J. (2010). Successful weight loss maintenance and a shift in identity: From restriction to a new liberated self. *Journal of Health Psychology, 15*, 887–96. doi:10.1177/1359105309358115
- Green, A. R., Larkin, M., & Sullivan, V. (2009). “Oh stuff it!” The experience and explanation of diet failure: An exploration using interpretative phenomenological analysis. *Journal of Health Psychology, 14*, 997–1008. doi:10.1177/1359105309342293
- Hollis, J. F., Gullion, C. M., Stevens, V. J., Brantley, P. J., Appel, L. J., Ard, J. D., Champagne, C. M., et al. (2008). Weight loss during the intensive intervention phase of the weight-loss maintenance trial. *American Journal of Preventive Medicine, 35*, 118–26. doi:10.1016/j.amepre.2008.04.013
- Jeffrey, R. W., Wing, R. R., & Mayer, R. R. (1998). Are smaller weight losses or more achievable weight loss goals better in the long term for obese patients? *Journal of Consulting and Clinical Psychology, 66*, 641–645. doi:10.1037/0022-006X.66.4.641
- Kayman, S., Bruvold, W., & Stern, J. (1990). Maintenance and relapse behavioral aspects after weight loss in women. *The American Journal of Clinical Nutrition, 52*, 800–807.
- Kitsantas, A. (2000). The role of self-regulation strategies and self-efficacy perceptions in successful weight loss maintenance. *Psychology & Health, 15*, 811–820. doi:10.1080/08870440008405583
- Koo, M., & Fishbach, A. (2008). Dynamics of self-regulation: How (un)accomplished goal actions affect motivation. *Journal of Personality and Social Psychology, 94*, 183–95. doi:10.1037/0022-3514.94.2.183
- Koo, M., & Fishbach, A. (2012). The small-area hypothesis : Effects of progress monitoring on goal adherence. *Journal of Consumer Research, 39*, 0–17. doi:10.1086/663827
- Kruger, J., Blanck, H. M., & Gillespie, C. (2006). Dietary and physical activity behaviors among adults successful at weight loss maintenance. *The International Journal of Behavioral Nutrition and Physical Activity, 3*, 17. doi:10.1186/1479-5868-3-17
- Louro, M. J., Pieters, R., & Zeelenberg, M. (2007). Dynamics of multiple-goal pursuit. *Journal of Personality and Social Psychology, 93*, 174–93. doi:10.1037/0022-3514.93.2.174
- Mathers, C. D., Fat, D. J., & Boerma, J. T. (2008). *The Global Burden of Disease: 2004 Update*. World Health Organisation. Switzerland.

- Muraven, M. (2010). Building self-control strength: Practicing self-control leads to improved self-control performance. *Journal of Experimental Social Psychology, 46*, 465–468. doi:10.1016/j.jesp.2009.12.011
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*, 247–259. doi:10.1037//0033-2909.126.2.247
- Perri, M. G. (1998). The maintenance of treatment effects in the long-term management of obesity. *Clinical Psychology: Science and Practice, 5*, 526–543. doi:10.1111/j.1468-2850.1998.tb00172.x
- Riediger, M., & Freund, A. (2004). Interference and facilitation among personal goals: Differential associations with subjective well-being and persistent goal pursuit. *Personality and Social Psychology Bulletin, 30*, 1511–1523. doi:10.1177/0146167204271184
- Urbszat, D., Herman, C. P., & Polivy, J. (2002). Eat, drink, and be merry, for tomorrow we diet: Effects of anticipated deprivation on food intake in restrained and unrestrained eaters. *Journal of Abnormal Psychology, 111*, 396–401. doi:10.1037//0021-843X.111.2.396
- Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology, 70*, 115–126. doi:10.1037/0022-3514.70.1.115
- Winans, C. (1990). *Malcolm Forbes: The man who had everything*. New York: St. Martin.
- Wing, R. R., & Hill, J. O. (2001). Successful weight loss maintenance. *Annual Review of Nutrition, 21*, 323–41. doi:10.1146/annurev.nutr.21.1.323
- Wing, R. R., & Phelan, S. (2005). Long-term weight loss maintenance. *The American Journal of Clinical Nutrition, 82*, 222S–225S. doi:82/1/222S

Table 1

*Participant Characteristics*

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	Regainers	Maintainers
	n = 9	n = 9
Mean age in years ( <i>SD</i> )	47.21 (13.06)	41.30 (12.71)
Current BMI <sup>1</sup>	32.42 (5.50)	24.3 (4.16)
Highest weight (kg)	92.65 (13.78)	90.11 (19.75)
Lowest weight (kg)	73.14 (17.45)	70.15 (15.61)
Average length of maintenance (months)	7.8 (2.13)	31.6 (16.5)

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<sup>1</sup>Body mass index is calculated as kg/m<sup>2</sup>

Figure 1

*Self-regulatory Factors Underpinning Weight Maintenance Success and Failure*

