The Relationship Between Primary and Secondary Control and Eating Behaviour

by

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CANDIDATE DECLARATION

I certify that the thesis entitled:

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is the result of my own work and that where reference is made to the work of others, due acknowledgement is given.

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The Relationship Between Primary and Secondary Control and Eating Behaviour

Abstract

There is evidence to suggest that locus of control (Rotter, 1966), that is, the degree to which attributions of control focus on internal factors (one's own characteristics) versus external factors (the influence of chance, fate, or powerful others), is relevant to disordered eating. However, the psychological bases of this relationship are not well understood. In the present thesis it is argued that inconsistencies in the literature may reflect the unwarranted characterization of control as a static, trait-like factor rather than as a dynamic and adaptive process, one in which control is attributed by the individual according to domain and context. An empirical investigation of this idea is conducted within the theoretical framework provided by the Optimization in Primary and Secondary Control model (OPS model; Heckhausen, 1999). According to this developmental model, goal engagement control strategies are implemented by individuals to facilitate the pursuit of goals, whereas goal disengagement control strategies are implemented to disengage from unattainable goals and manage the psychological impact of failed goal pursuit. The model emphasises taking into account the developmental constraints on control over developmental goals and how these constraints function to determine the types of control most adaptive in any given situation.

In Study One, the OPS model (Heckhausen, 1999) is tested in the context of body image in a convenience sample of 155 women (Age: M=26.64, SD=5.27). In this study, validated OPS scales (Heckhausen & Schulz, 1998) are modified in order to

measure control strategy use separately across life domains that are known to be relevant to the subjective well-being of young women – health, relationships, and achievements – as well as in the context of body satisfaction. The results of hierarchical regression analyses support the proposition that control strategy use is relevant to subjective well-being, and that in *most* domains of life, goal pursuit (the use of goal engagement strategies) is critical for domain satisfaction. However, the results indicate that in the domain of the body it is the use of goal disengagement strategies which is most important in determining body satisfaction. The findings of Study One confirm the need to examine control from a domain-specific perspective, in order to capture the subtleties and true nature of the relationships between control and subjective well-being.

In Study Two the role of goal engagement and goal disengagement are examined in a convenience sample of 180 women (Age: M=26.49, SD=5.03) in the context of disordered eating symptomatology. A series of path analyses conducted within the framework of Stice's (1994) dual-pathway model of bulimic pathology indicate that goal engagement is directly associated with increased dietary restraint, and directly and indirectly associated with purging, whereas goal engagement is indirectly associated with decreased restraint and purging, and reduced negative affect, by way of reduced body dissatisfaction. These effects of goal disengagement appear to result not from decreased internalization of the thin-ideal but from a reduction in engaging in appearance comparisons.

These findings are taken to suggest that body dissatisfaction is an important determinant of subjective well-being in women aged 18 to 40, and that although goal pursuit, and the use of goal engagement strategies are for the most part adaptive for this

age group in several life domains, their use within the domain of the body can be hazardous, perhaps due to the unrealistic nature of the goal – the thin-ideal. Several implications of these results are discussed. They suggest that maladaptive goal pursuit and the inability to disengage from or manage failed goals may contribute to the development of pathological eating behaviours. By contributing to our understanding of mechanisms involved in the etiology of eating disorders, the results identify possible targets (goal engagement and goal disengagement behaviours) for treatment programs that may account for the efficacy of cognitive-behavioural treatments for bulimia nervosa. However, the limitations of the research indicate several directions for future research – including replication of these results in different age groups and cultures, and male populations, and most importantly, in clinical populations.

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Chapter One

An Overview of the Relationship Between Control and Disordered Eating

Preamble

Significant numbers of girls and women engage in potentially unhealthy activities aimed at controlling their body weight. This can involve a focus on calorie reduction through fasting or the use of appetite suppressants, and/or compensatory purging through exercise, or use of diet pills, laxatives, or diuretics (Grigg, Bowman, & Redman, 1996; McCabe & Ricciardelli, 2004; Tylka & Subich, 2002). In a small proportion of girls and women, the use of weight control strategies disrupts normal and healthy eating patterns to the extent that warrants diagnosis of an eating disorder, such as anorexia nervosa, bulimia nervosa, binge eating disorder, or eating disorder not otherwise specified. A recent Australian community study of adult females reported lifetime prevalence rates of 1.9% for anorexia nervosa, 2.4% for partial anorexia nervosa, 2.9% for bulimia nervosa, 2.9% for binge eating disorder, and 5.3% for a form of eating disorder not otherwise specified (Wade, Bergin, Tiggemann, Bulik, & Fairburn, 2006).

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) anorexia nervosa is characterised by intentional self-starvation resulting in a low body weight (Body Mass Index < 17), an irrational fear of fat and gaining weight, disturbed body image (often taking the form of an overestimation of body size), an undue influence of one's weight on self-evaluation, and denial of the seriousness of the consequences of having a low body weight. Bulimia

nervosa is characterised by periods of binge eating in which abnormally large quantities of food are consumed in short periods of time, accompanied by a perceived loss of control over one's eating, compensatory behaviours made in response to the binge episodes (including vomiting, laxative abuse, and excessive exercise), and an undue influence of one's weight on self-evaluation. As with bulimia, binge eating disorder also involves uncontrollable overeating, but in this case there are no accompanying compensatory behaviours. Finally, eating disorders not otherwise specified are diagnosed when symptoms do not meet the strict criteria for a diagnosis of anorexia nervosa or bulimia nervosa, although they may still cause similar levels of distress and functional impairment (Keel, Mayer, & Harnden-Fischer, 2001).

These eating disorders have been attributed, at least in part, to sociocultural factors that promote narrow and increasingly unrealistic body ideals, encourage an overvaluation of appearance and a preoccupation with weight, and which impact negatively on body satisfaction (Heinberg, Thompson, & Matzon, 2001). Stice (1994) posits three sociocultural factors of primary significance: (a) a cultural ideal for female body shape that emphasises thinness or slenderness (the 'thin-ideal'), (b) the centrality of appearance in the female gender role, and (c) the perceived association between a woman's appearance and her success and social status. From an early age, females are indoctrinated into the belief that appearance is important, although the experience of these factors is heightened once girls enter puberty (Striegel-Moore, Silberstein, & Rodin, 1986). Sociocultural pressures to be thin are reinforced by the over-representation of thin models and celebrities in the mass media, direct pressures to lose weight (e.g. weight-related teasing) from peers and family, and more indirectly by

association with friends who obsess about weight (Stice & Shaw, 2002). It is interesting that despite the pervasive, almost ubiquitous nature of these sources of sociocultural pressure in Western societies, there are substantial differences in the extent to which females experience a 'negative body image', with only a small proportion of these females exhibiting clinical levels of disordered eating (Tylka, 2004).

The primary aim of this thesis is to account for these individual differences by exploring the extent to which perceived control mediates the impact of sociocultural pressures on body image. A review of the relevant literature is first presented. This begins by examining the relationships between sociocultural factors, body image, traits and eating disordered behaviours. This leads into an examination of individual differences in the attribution of control, with a focus on the role of locus of control (Rotter, 1966) and its relationship to eating disordered behaviours. This conceptualisation of control as a trait-like property that biases an individual's response to sociocultural pressures will be critically evaluated and challenged in light of evidence that perceived control is highly domain specific, or a more state-like property influenced by context. It will be argued that perceived control may be achieved in ways other than that emphasised by the locus of control perspective, and involves more than simple attribution.

On the basis of the results of the review, it is argued that a more complete explanation of the role of control requires an understanding of the processes by which individuals seek to maintain, restore and enhance their perceptions of control in various contexts. A shift in theoretical focus will be recommended – away from a singular focus on locus of control, towards a conceptualisation of control – the Optimization in Primary

and Secondary control model (OPS; Heckhausen, 1999) - that acknowledges the multidimensional nature of control, considers domain-specific influences (with a particular focus on the body), and allows for an interplay between different processes of control, particularly between 'primary' and 'secondary' control.

In the present thesis, two studies were conducted in order to test the relevance of control strategy use to subjective satisfaction with life and the body, and to disordered eating behaviours. The first study was designed to highlight the impact of control strategy use on subjective well-being and the importance of a domain-specific approach to control; the second study focussed on the domain of the body and the applicability of the OPS model for accounting for individual differences in body image and disordered eating symptomatology.

Individual Differences in Body Image and Disordered Eating

Vulnerability to sociocultural pressures on appearance

The ideal of the female body promoted by various sources within society, particularly within Western societies, is unrealistically thin and unattainable for the average woman (Jambor, 2001). Thus, for many women, the thin-ideal has the potential to impact negatively on their evaluations of their own bodies (Rodin, Silberstein, & Striegel-Moore, 1984; Stice & Shaw, 2002; Tiggemann & McGill, 2004). Indeed, body dissatisfaction, or 'negative body image', is so pervasive among women in contemporary society that it has been described as a 'normative discontent' (Rodin et al., 1984).

Body dissatisfaction is considered detrimental to psychological health and is associated with anxiety, depression (Holsen, Kraft, & Roysamb, 2001; Kostanski &

Gullone, 1998), and low self-esteem (Pokrajac-Bulian & Zivcic-Becirevic, 2005), while positive body image, or elevated body satisfaction, is associated with positive effects on one's quality of life (Cash & Fleming, 2002). Women with greater body dissatisfaction also report that their body image has a more negative influence within various life domains (Cash, Jakatdar, & Fleming Williams, 2004). Body dissatisfaction is also associated with a variety of unhealthy and potentially hazardous behaviours designed to change one's body, especially to reduce weight (Stice, 2002). It has been suggested that the same sociocultural influences that promote body dissatisfaction also serve to educate women about how to attain the thin-ideal, including how to diet (Striegel-Moore et al., 1986). Concordant with this suggestion, up to 70 percent of women report dieting during their lives, and approximately 40 percent are dieting at any one time (Ogden, 2003). Of more concern, however, is the link between body dissatisfaction and restrictive eating, bulimic behaviours including purging, abuse of laxatives or diet pills, and excessive exercise (Heinberg et al., 2001). Indeed, a meta-analysis of prospective and experimental studies indicated that body dissatisfaction is one of the most consistent and robust risk and maintenance factors for eating pathology, including anorexia nervosa, bulimia nervosa and binge eating disorder (Stice, 2002). Thus, there exists a general consensus that body dissatisfaction plays a causal role in the development of eating disorders (Polivy & Herman, 2002).

According to Stice and Shaw (2002), body dissatisfaction, coupled with the belief that dieting is an effective weight-loss method, leads to dietary restraint. If dieting is successful, and the weight loss is positively reinforced by others, anorexia nervosa may develop. However, for some individuals, restricted eating may act as a

predisposing factor for binge eating, as a means of satiating hunger and providing distraction from the negative emotions associated with self evaluation. Compensatory behaviours (e.g. purging, laxative abuse) may then be used to reduce anxiety associated with the post-binge weight gain, or as a form of emotional catharsis. Both eating disordered women, and those considered at-risk, report higher levels of negative affect than normal controls (Kitsantas, Gilligan, & Kamata, 2003). Furthermore, negative affect has been found to predict risk scores for eating disorders (Leon, Fulkerson, Perry, Keel, & Klump, 1999) and the onset of bulimic symptoms (Tyrka, Waldron, Graber, & Brooks-Gunn, 2002). However, research also indicates that not just negative emotion, but intensely unpleasant or uncomfortable emotions, are associated with eating disordered attitudes in behaviours in clinical samples (Overton, Selway, Strongman, & Houston, 2005) suggesting that any intense affect – positive or negative – may trigger eating disordered behaviour. Although there exists substantial support for an association between negative affect and eating pathology, negative affect is probably best construed as a general vulnerability or risk factor, rather than one specific to eating pathology (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Leon et al., 1999).

The observation that there are individual differences in the extent to which females experience body dissatisfaction and engage in unhealthy body change practices (Tiggemann, 2002), has motivated researchers to explore the factors that determine psychological and emotional vulnerability of body image to the thin-ideal. Two such factors are internalisation of the thin-ideal and body comparison (cf. the Tripartite Influence model; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

Internalisation refers to an individual's acceptance, and perceived importance, of cultural ideals regarding beauty. Research suggests that it is not just exposure to sociocultural pressures, but the acceptance of them, that leads to body dissatisfaction (Dittmar & Howard, 2004; Stice & Shaw, 2002; Stice & Whitenton, 2002), restrained eating (Griffiths et al., 2000), and clinical levels of disordered eating (Griffiths et al., 1999). Interventions designed to decrease thin-ideal internalisation have been found to reduce body dissatisfaction (Stice, Mazotti, Weibel, & Agras, 2000).

The concept of social comparison, or the tendency to compare oneself to others, derives from Festinger's (1954) Social Comparison Theory. Social comparison has been identified as an important psychological process linked to body dissatisfaction (Thompson & Stice, 2001). In the context of body image research, social comparison has been operationalised as the comparison of oneself with individuals in the media (Kashubeck-West & Saunders, 2001). Since female bodies depicted in the media tend to be thinner than the average woman, appearance comparisons tend to encourage feelings of inadequacy (Tiggemann, 2002), contribute to body dissatisfaction (Tiggemann & McGill, 2004; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002), and lead to increased frequency of dieting and the use of extreme weight control practices (Morrison, Kalin, & Morrison, 2004).

Trait differences and vulnerability to sociocultural pressures

Although appearance concern is undoubtedly a central factor in the development of disordered eating behaviour, the relationship between appearance concern and disordered eating is likely to be more complex than initially proposed. This is illustrated by research finding that the relationship between appearance concern and disordered

eating weakens with age, suggesting that "while weight concern may remain stable across the lifespan, the meaning and experience of weight may change with age" (Johnston, Reilly, & Kremer, 2004, p. 399). Such research provides support for the idea that whilst body dissatisfaction may be a necessary factor for the development of disordered eating behaviour, it is not the sole determining factor. Research investigating the role of other individual difference factors recognises the complexity of this relationship.

In addition to internalisation and social comparison tendencies (thought to influence women's vulnerability to the thin-ideal), individual differences in personality factors have been investigated in the context of disordered eating, with particular attention paid to perfectionism, self-esteem, neuroticism and impulsivity (Haas & Clopton, 2001). These factors may either directly predispose an individual to developing an eating disorder, result from an eating disorder, co-occur with an eating disorder due to a common underlying cause, or serve to influence the course of an eating disorder (Wonderlich, Lilenfeld, Riso, Engel, & Mitchell, 2005).

Perfectionism refers to high standards of performance which are accompanied by excessively critical evaluations of behaviour and concern over mistakes (Franco-Paredes, Mancilla-Diaz, Vazquez-Arevalo, Lopez-Aguilar, & Alvarez-Rayon, 2005). Consistent with theoretical accounts of disordered eating (e.g. Slade, 1982), a number of studies have found evidence suggesting that perfectionism is linked with, and is possibly a pre-condition for, both anorexic and bulimic behaviours (e.g. Bulik et al., 2003; Jacobi, Hayward et al., 2004; Tyrka et al., 2002). Recent research indicates perfectionism shows its strongest associations with fasting and purging, with the association between binge

eating and purging appearing to be mediated by fasting (Forbush, Heatherton, & Keel, 2007). Stice (2002) accounted for this relationship by suggesting that perfectionism serves as a risk factor by encouraging an *uncompromising* pursuit of the thin-ideal, and maintains bulimic behaviours by fostering the rigid dieting thought to trigger the binge-purge cycle. Perfectionism may also have its effects by reinforcing social comparison behaviours (van den Berg et al., 2002), by interacting with other factors, such as body dissatisfaction (Downey & Chang, 2007) and self-esteem (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999), or being mediated by negative affect (Downey & Chang, 2007) to influence eating behaviours. It should also be noted that perfectionism is likely to be a complex, multidimensional construct, represented in cognitions and behaviours, and present in normal and pathological forms (Slade & Owens, 1998) and that different aspects of the construct may differentiate between different subtypes of eating disorders (Reba et al., 2005).

Self-esteem refers to "the individual's positive or negative attitude towards the self" (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995, p. 141). Women with eating disorders have consistently been found to have poor self-esteem (Gual et al., 2002; Jacobi, Paul, de Zwaan, Nutzinger, & Dahme, 2004). There is also some indication that poor self-esteem may increase the risk of developing eating disorders (Cervera et al., 2003; McCabe & Vincent, 2003), and that increasing self-esteem may be associated with positive change in eating attitudes (Newns, Bell, & Thomas, 2003). However, some studies have questioned the relevance of self-esteem to disordered eating (Cooley & Toray, 2001; Rogers & Petrie, 2001).

Neuroticism can be defined as a tendency towards hypersensitivity and emotional instability (the bipolar opposite of stability and self-control), which is thought to imply a greater vulnerability to stress and negative life events (Eysenck & Eysenck, 1964). High levels of neuroticism have been found to be strongly associated with eating disorders (Gual et al., 2002), to increase the risk of developing an eating disorder (Cervera et al., 2003) and to moderate the relationship between body dissatisfaction and eating disorder symptomatology (Tylka, 2004). Neuroticism may represent both a cause and consequence of eating disorders, creating a vicious cycle involving heightened sensitivity that serves to maintain eating pathology (Cervera et al., 2003). It may also exacerbate other negative psychological characteristics (e.g., body dissatisfaction), increasing the likelihood of maladaptive behaviours (Tylka, (2004).

Poor impulse regulation is defined as a predisposition to engage in impetuous, irresponsible, self-destructive, and hostile acts (Garner, 1991). It has been suggested that women with poor impulse regulation (and an underlying dissatisfaction with appearance) may be more likely to engage in self-destructive behaviours, including hazardous weight control techniques (Garner, 1991). In support of this proposition, Tylka and Subich (1999) found that women with anorexia and bulimia scored more highly than women without eating disorders on a measure of poor impulse regulation. Additional research supports the association between impulsivity and bulimia (Engel et al., 2005), and impulsive characteristics (e.g., novelty seeking) and the individuals propensity to chose certain methods of purging (Reba et al., 2005). On the other hand, Tylka (2004) found that poor impulse regulation did not strengthen the relation between body dissatisfaction and eating disorder symptomatology. A recent study also found that

trait impulsivity failed to predict the onset of eating disorders in adolescents, whilst behavioural measures of impulsivity (e.g. delinquency, substance abuse) did, in most analyses (Wonderlich, Connolly, & Stice, 2004). The authors suggested that trait measures may not reliably assess trait impulsivity in adolescents, or that such measures may be assessing a broad construct non-specific to eating disordered behaviour. Thus, methodological issues pertaining to the measurement of impulsivity may have contributed to inconsistencies in research findings. Further research is required before any definitive conclusions can be drawn about the role of impulsivity in eating pathology (Stice, 2002).

The corollary of the relation between impulsivity and disordered eating is that a general *lack of control* over one's behaviour should contribute to disordered eating symptomatology. This point is significant, as the attribution of control has been demonstrated to be an important predictor of a range of health-risk behaviours, resilience to various environmental challenges, as well as the likelihood of adopting healthy behaviour change. More specifically, individuals with eating disorders - particularly those engaging in binge eating and/or purging - commonly report feeling out of control in one or more aspects of life (Haas & Clopton, 2001).

In the following section, the evidence supporting a relationship between perceived control and unhealthy body change will be reviewed. It will be argued that the influence of perceived control may involve a complex interplay between: (a) vulnerability to sociocultural pressures that imply a lack of control over one's sense of self, (b) how one interprets and responds to feelings of body dissatisfaction that stem from sociocultural pressures, (c) the enforcement of self-imposed behavioural

restrictions, such as extreme dieting and fasting that imply a heightened sense of behavioural control, and (d) dramatic fluctuations in control (e.g. bingeing), implying a dramatic but transient lack of behavioural control. The following section will explore the pathways through which perceived control may impact on unhealthy body change and disordered eating.

Perceived Control and Health-Related Behaviours

Defining perceived control

Actual control is defined as "the objective control conditions present in the context and the person" (Skinner, 1996, p. 551) whereas perceived control is defined as the "belief held by an individual that he/she is able to determine or influence important events or situations" (Walker, 2001, p. 11). Perceived control may differ from the actual control available in a given context, and the accuracy of such perceptions may differ between individuals. Such variation may be due to the influence of the individual's frame of reference, their knowledge and skills, past history of control or lack of control in similar situations, personality traits and cultural beliefs (Walker, 2001). This notion is neatly captured in the statement made by Thompson (1991) that "perception of control resides within the person, not within the situation" (p. 608). The past few decades has seen a shift away from focussing on actual control to focussing on perceived control. This shift has been motivated in large part by evidence that a *perceived* lack of control, impacts negatively on both physical and psychological health, irrespective of objective levels of control (Evans, Shapiro, & Lewis, 1993). Conversely, the 'illusion' of personal control is thought to be fundamental to good mental health (Taylor & Brown, 1988), and is associated with a range of positive states, including health, coping, self-esteem and

personal adjustment (Skinner, 1996). Thus, perceived control is considered fundamental to life quality (Cummins, Gullone, & Lau, 2002). This proposition is supported by the observation that, across a range of illnesses, psychological adjustment is positively associated with perceptions of control (Wenzel, Glanz, & Lerman, 2002), and, more generally, a perceived lack or loss of control is associated with anxiety and depression (Walker, 2001).

It has been suggested that perceptions of control comprise two subsets of control-related cognitions: (a) generalised belief expectancies, which refer to the extent to which the individual believes they can control outcomes of importance, and (b) self-efficacy beliefs, which refer to whether the individual believes they have the ability to accomplish the desired outcome (Evans et al., 1993). These two types of beliefs have also been referred to as contingency and competency beliefs, respectively (Weisz, 1990). Self-efficacy beliefs are specific to a given behaviour and are not considered a global personality trait (Wenzel et al., 2002). On the other hand, generalised belief expectancies reflect the individual's perception of the influence they have across a range of contexts, and may be considered as a relatively stable trait influencing behaviour across multiple domains. The locus of control (Rotter, 1966) perspective reflects a type of generalised belief expectancy which has substantially influenced research related to control.

Locus of control

Locus of control refers to beliefs about whether one's response will or will not influence the attainment of reinforcement, regardless of the specific nature of the outcome. The expression 'locus of control' refers to beliefs about where, or to whom, control is attributed. An internal locus of control refers to a belief that outcomes are

determined by one's own ability to influence events, while an external locus of control refers to a belief that chance, fate or powerful others determine outcomes (Rotter, 1966). In comparison to internals, externals perceive their behaviour as less influential in obtaining desired outcomes and avoiding undesired outcomes (Leone & Burns, 2000). This may impact upon the amount of personal control they perceive they have over their lives generally, with a more external locus of control indicating a perceived lack of control over one's life, and a more internal locus of control reflecting a greater belief in personal control.

Locus of control was originally conceptualised as unidimensional, in the sense that individual locus of control beliefs were considered to vary along a continuum ranging from internal to external. Internality and externality were considered mutually exclusive, with individuals having either an internal or external control orientation. The assumption of uni-dimensionality is evident in the first locus of control scale derived – the Internal-External Locus of Control Scale (I-ELOCS; Rotter, 1966). Individual's control orientations are reflected by a single score, with lower scores indicating a more internal orientation and higher scores indicating a more external orientation.

Factor analytic studies indicate that Rotter's (1966) scale, and the locus of control construct itself, are actually multidimensional (Fournier & Jeanrie, 2003; Marsh & Richards, 1987; Palenzuela, 1984). The general consensus is that locus of control consists of at least two or three factors that can coexist (Levenson, 1974; Wong & Sproule, 1984). Levenson (1974) divided external beliefs into beliefs about the influence of chance and beliefs about the influence of powerful others, on the basis that "people who believe the world is unordered (chance) would behave and think differently from

people who believe the world is ordered but that powerful others are in control. In the latter case a potential for control exists. Furthermore…a person who believes that chance is in control…is cognitively and behaviorally different from one who feels that he himself is not in control" (p. 378). On the basis of this argument, a multidimensional locus of control scale, the Internality, Powerful Others and Chance Scales (IPC Scales; Levenson, 1974) was formed, comprised of three dimensions – an internal scale and two external scales (chance and powerful others). Although both the constructs of Powerful Others and Chance are positively correlated with each other and negatively correlated with Internal LOC, research suggests that Powerful Others and Chance are distinct dimensions of External LOC (Levenson 1974, 1981; Walkey 1979; Zimmerman and Rappaport 1988).

Despite the fact that that Internal, Powerful Others, and Chance loci of control are seen as independent constructs, and that findings generally support the idea that people can believe simultaneously in the control of external and internal forces research on locus of control has tended to treat it as a continuous variable, using median splits to differentiate between 'internals' and 'externals' (Hoffman, Novak, & Schlosser, 2000).

Early research also tended to conceptualise locus of control as a general expectancy, independent of behavioural domains. Despite defining perceived control in different ways (i.e., as unidimensional versus multidimensional) both Rotter's (1966) scale and Levenson's (1974) scale assess individual differences in control attributions that generalise across domains. Consequently, perceived control, as a measurement concept, was most often measured as dispositional and stable across time and domains. However, Rotter (1990) proposed that the extent to which an individual's expectancy for

control would generalise across situations (predicting specific behaviours) should be influenced by situational variables. Although the construct is often still conceptualised as a stable, trait-like property (Lefcourt & Davidson-Katz, 1991), in practice it tends to be treated as domain-specific in nature (Grob, 2000), and it is increasingly recognised that locus of control "can vary according to the situation and does not refer to a fixed, innate personality trait. If we are to understand and predict a person's behaviour, locus of control must be examined in context and take into account the associated reinforcements" (Fournier & Jeanrie, 2003, p. 143).

This belief has contributed to the development of a range of domain-specific locus of control measures. Focussing on domain-specific versus general beliefs has clear empirical effects. The more specific a construct is to a particular domain, the more effective it will be in predicting behaviours within that domain, whilst the more general a construct is, the greater its potential to relate (albeit to a lesser magnitude) to behaviours across a range of domains (Skinner, 1996). However, it should be noted that although a domain-specific approach may result in greater predictive power in research, it is still not ideal, as control beliefs may vary even *within* domains. For example, research has found that individuals' perceptions of control in social relationships may vary across relationships, according to certain qualities, and appear unrelated to general measures of control, indicating that individual's perceptions of control in their relationships are not trait-like – even within the designated domain (Hay & Fingerman, 2005).

Locus of control and health-related behaviours

Within the area of perceived control, research has been driven by the supposition that a belief in internal control is more desirable than a belief in external control, and this hypothesis has been reinforced by research findings (Marks, 1998). Research defining perceived control from a locus of control perspective indicates that, when faced with stressful situations, people characterised as internal appear more attentive to potential threats and challenges, are more likely to perceive threatening events as challenges than as hopeless situations, are more likely to focus on problem solving than their emotional responses, respond more flexibly to stressful experiences, and utilise coping styles that result in more positive affective states, than people characterised as external (Lefcourt & Davidson-Katz, 1991). Furthermore, across a range of tasks and contexts, people with an internal locus of control are presumed to respond more actively and efficiently - seeking information and learning more effectively - than those with an external control orientation (Lefcourt & Davidson-Katz).

The relationship between control beliefs and behaviour has contributed to theories which attempt to account for health-enhancing, health-protective and health-harming behaviours. Common to many theories of health behaviour is the assumption that individuals who perceive they control their health will be more likely to engage in healthy behaviours and avoid health-harming behaviours. Consistent with this, perceived control has regularly been found to relate to overall health, health-related behaviours, and longevity (Chipperfield, Campbell, & Perry, 2004).A role for locus of control beliefs in influencing health-related behaviours is supported by evidence that ‘internals’, in comparison to ‘externals’, are more inclined to seek out health-related information,

assume more responsibility for their health, and engage in more behaviours designed to protect their health, such as exercising, abstaining from, or quitting smoking, and the use of birth control (Reich, Erdal, & Zautra, 1997). Studies using the Multidimensional Health Locus of Control scale (MHLCS; Wallston, Wallston, & De Vellis, 1978) – a domain-specific measure designed to assess individual's locus of control beliefs specifically in relation to health – have found that stronger internal beliefs increase the likelihood of healthy behaviours whilst stronger chance and powerful locus of control beliefs decrease the likelihood of healthy behaviours and are associated with increased participation in health-risk behaviours (Norman, Bennett, Smith, & Murphy, 1998; Steptoe & Wardle, 2001). The relationships between control beliefs and behaviour appear to be moderated by the value one attaches to one's health, with greater health value strengthening the association (Norman et al., 1998).

The empirical relationship between attributions of control and health-related behaviours, in conjunction with the numerous theoretical accounts of disordered eating emphasising perceived control, has led researchers to employ the locus of control construct as a measure of perceived control in eating disorder research. The following section critiques this research.

Locus of control and disordered eating

Behaviours aimed at achieving weight loss, including those characteristic of disordered eating, may influence health status and can be considered health-relevant behaviours (Waldron, 1997). Women with eating disorders, by definition, make overt attempts to control their eating-related behaviours. Attempts at behavioural control may persist long term (e.g. anorexia), or behavioural control may fluctuate between strict

control and periodic losses of control (e.g. bulimia and binge eating). Thus, both short- and long-term behavioural control is implicated in eating pathology. Numerous theoretical accounts of these attempts at behavioural control have emphasised the role of underlying psychological difficulties related to perceived control, proposing that women with eating disorders experience some deficit in perceived control, over either life in general, particular domains of life (e.g. relationships, developing body), or the self (e.g. Bruch, 1973; Crisp, 1995; Orbach, 1978; Slade, 1982). Although theorists differ in what they propose to be the object of (failed) control, all depict control over eating as a response to some control-related issue.

Empirical support for the hypothesis that women with eating disorders perceive a general lack of control over their lives has been provided by several studies defining perceived control from a locus of control perspective. In the context of disordered eating, researchers have tended to measure locus of control as the expression of a general trait, which influences the individual's perceptions and behaviours across a range of contexts. Overall, studies have generally provided support for the relation between an external locus of control (lower perceived control) and disordered eating behaviours. For example, women with established disordered eating behaviours have been found to have a more external locus of control (Garner, Garfinkel, & O'Shaughnessy, 1985; King, 1989), and anorexic and bulimic patients have been found to show a more external locus of control than obese women, non-obese dieters and normal controls (Williams et al., 1993) and exhibit locus of control scores that are higher (more external locus of control) than scale norms. Furthermore, underweight, overweight and normal weight bulimic women have all been found to exhibit a more

external locus of control than non-bulimic women (Shisslak, Pazda, & Crago, 1990), and externality has been found to be associated with binge eating (Williams, Spencer, & Edelmann, 1987).

Women with sub-clinical eating disorders have also been found to demonstrate greater belief in the influence of powerful others than women classified as normal or at-risk (Lugli-Rivero & Vivas, 2001). Greater eating disorder symptomatology has been found to be associated with a more external locus of control (Rogers & Petrie, 2001). However, the findings of one study suggest that an external locus of control is associated with both dieting and eating disordered behaviours, indicating that low perceived control may be associated with food and dietary control more generally (Williams, Chamove, & Millar, 1990). King (1989) has also questioned whether locus of a control acts as a specific indicator of eating pathology, or is a more general measure of psychopathology. King found that although women with bulimia and partial syndromes did differ from dieters and normals on locus of control, locus of control did not distinguish bulimics from women with psychosocial problems unrelated to weight or dieting. Such findings have lead to the conclusion that a more external locus of control may represent a general indicator of psychopathology, rather than a specific indicator of eating pathology.

In contrast to the predominance of studies supporting an association between clinical and sub-clinical levels of disordered eating and a more external locus of control, one study found that younger anorexics showed elevated levels of internal control, and that externality increased with patient age (Hood, Moore, & Garner, 1982). Others have failed to find any relationship between locus of control – external or otherwise – and disordered eating (e.g. Groth-Marnat & Scumaker, 1988).

Although the evidence cited above suggests an association between disordered eating and external locus of control, there are at least two reasons why one should not assume that an external locus of control is a risk factor for disordered eating. Firstly, the cross-sectional nature of the majority of research fails to establish whether an external locus of control represents a cause or consequence of disordered eating. Secondly, locus of control, as a generalised predisposition or personality trait, cannot account for the apparent contradictions between control beliefs and the behaviours exhibited by women with eating disorders. For example, a general, external locus of control, is inconsistent with the profile of the eating disordered woman as being of upper or middle class background, achievement-oriented and perfectionistic (qualities generally associated with high levels of control) (Watt, Sharp, & Atkins, 2002).

Of greater significance is the observation that although women with eating disorders appear to hold external control beliefs, they also attempt to exert extreme control over their eating behaviours and physical appearance. Such women appear excessively vulnerable to sociocultural pressures on their body image, indicative of high levels of internalisation, social comparison and social conformity. This is consistent with external control beliefs regarding attractiveness, social status and acceptance. Paradoxically, these same women appear to hold internal control beliefs regarding their ability to modify their bodies. They may engage in extreme dietary restriction, compulsive and/or excessive exercise. When they temporarily abandon these behaviours (e.g., engage in binge eating) they may attempt to reassert control by adopting compensatory behaviours (e.g. vomiting, use of diuretics and laxatives). This suggests

that the attribution of control is a state-like, rather than trait-like property that is shaped by context.

A more parsimonious explanation is possible if one considers that locus of control beliefs do not extend to all domains of functioning, and that a lack of perceived control in one (or more) domains may be compensated for by attributing internal control in another domain. Control over the body may be motivated by a need to compensate for a perceived lack of control in other areas of one's life, or one's psychological state. The inclusion of perceived control over psychological states is consistent with current definitions of perceived control which incorporate control, not only of events in the environment, but of internal states and behavioural consequences of exposure to an event (Wallston, Wallston, Smith, & Dobbins, 1987). Consistent with this definition, it has been suggested that binge eating may be adopted as a means of regulating negative affect related to other aspects of life (Stice & Shaw, 2002). Restricted eating or starvation, on the other hand, may be the behavioural manifestation of the individual's belief that she can control her body (internal control orientation), if not any other aspect of her life (external control orientation). This accounts for the apparent paradox between control beliefs and behaviours, and more interestingly, allows for an interaction between different domains of functioning, and suggests that domain-specificity should not be equated with domain independence. Research which considers a range of domain-specific control beliefs may better account for the behaviours women with eating disorders engage in. The following section reviews theoretical developments and empirical evidence consistent with this alternate interpretation.

Locus of control and body weight

It has been suggested that individuals with eating disorders attribute control over most areas of their lives to external forces, but adopt an internal locus of control concerning their own bodies (Watt et al., 2002). This is exacerbated by the notion implicit within Western cultural discourses that through hard work and self-discipline one can defy the physical self and control the body (Ogle & Damhorst, 2004). This is reflected in eating disordered women's own accounts that "the one area where they do have control is in what they put into and take out of their bodies" (Haas & Clopton, 2001, p. 45). Empirical findings also appear to support the contention that, for women, control over eating functions as a metaphor for control in other contexts, such as interpersonal relationships (Roth & Armstrong, 1990). In addition to predisposing women to disordered eating, perceived lack of control may also serve to perpetuate disordered eating behaviours. For example, women with bulimia may temporarily lose control whilst consuming food during a binge, but may purge, use laxatives or other maladaptive behaviours to regain a sense of control. In this sense, eating disordered behaviours may act to compensate for (a) perceived lack of control in other aspects of life, or (b) a temporary, actual loss of control over eating behaviour. The present section provides an overview of research examining eating-disordered women's perceptions of control over weight and shape.

Locus of control measures specific to the domain of weight and shape include the Dieting Beliefs Scale (Stotland & Zuroff, 1990), Body Shapes Belief Scale (Furnham & Greaves, 1993) and the Weight Locus of Control Scale (Saltzer, 1982). The

Multidimensional Health Locus of Control Scale (Wallston et al., 1978) has also been revised to apply to weight and shape.

It might be expected that the greater the belief in body malleability (perceived control over weight and shape) the greater the desire and attempts to change the body. This is supported by findings that suggest that an internal locus in regards to weight and shape is associated with eating pathology, particularly restricted eating. For example, Tylka and Subich (1999) found that internal dieting locus of control scores increased as a function of eating disorder symptomatology, with significant differences found between asymptomatic, symptomatic and eating disorder groups. Furthermore, high perceived control over weight and shape has been found to have a strong positive effect on eating pathology (Twamley & Davis, 1999). Furnham and Atkins (1997), found that anorexic women have a more internal belief of weight control (believe weight is controlled by themselves via food restriction and exercise) than bulimics, compulsive eaters and normal women.

As might be expected, not all research supports the proposed relationship between perceived control over weight and eating disordered behaviour. For example, Furnham and Atkins (1997) found that the control beliefs of bulimic women and compulsive eaters did not differ significantly from normal women. A study by Williams, Spencer and Edelmann (1987) also failed to distinguish between binge eaters and non-binge eaters on the basis of weight locus of control. Such findings suggest that the relationship between perceived control over the body and actual behaviour may vary, depending on the form of eating disordered behaviour being examined.

A further problem with the hypothesised relationship between perceived control and eating disordered behaviour is that it is predicated on the assumption that women will only seek to control their bodies if they perceive having control in this domain. This does not recognise the complexity of women's experience, for despite the fact that Western societies encourage the belief that one can and should aspire to achieve the thin-ideal, and women are made to feel personally responsible for maintaining control over their appearance (Ogle & Damhorst, 2004), women may also perceive a lack of control over their bodies that is generated by their failed experiences, or an acknowledgement of biological limitations (Johnston et al., 2004). Despite this, they may still engage in appearance-change behaviours, as prompted by society. Consequently, women both high and low in perceived control may engage in strategies to reach appearance-related goals (Ogle & Damhorst, 2004). This is supported by research finding that perceptions of body malleability are unrelated to body control behaviours (Ogle, Lee, & Damhorst, 2005).

The research findings reviewed, despite being somewhat inconsistent, do provide some support for the suggestion women with eating disorders believe they control their bodies, which according to Twamley and Davis (1999), is likely to encourage attempts to change one's body in response to body dissatisfaction. Those who have low perceived control over weight and shape may be less likely to engage in such behaviours, believing such attempts to be futile. This provides support for the argument that high levels of control are not universally adaptive (Evans et al., 1993). Successfully taking control of one's weight may increase the desire for more control, or exacerbate the perceived lack of control in other domains (Shapiro, Schwartz, & Astin, 1996). Or, high perceived

control may result in negative affect when individuals have a strong sense of responsibility to use their potential, an urgent need to be successful, or a strong focus on preventing undesirable events (Burger, 1989, cited in Lang & Heckhausen, 2001), such as weight gain. High control expectancies may lead individuals "to persist with instrumentally oriented coping strategies when the situation is immutable" (Evans et al., 1993, p. 9). In the context of eating disorders, 'immutable' may refer to attempting to achieve an unattainable body shape or weight, or engaging in disordered eating in order to restore a sense of control that the individual perceives as missing in other aspects of life.

The pattern of research findings implies that although women with eating disorders may attribute control of their lives, in general, to external rather than internal forces, they perceive the reverse in regards to their bodies. However, given the dearth of research which has considered the co-relationships between general control beliefs and those specific to weight and shape, this remains an empirical question to be answered. In doing so, future research examining psychological control in the context of eating disorders must take into account that control preferences may not apply generally across all domains (Surgenor, Horn, Plumridge, & Hudson, 2002). Focussing on the association between domain-general control beliefs and those related to weight and shape assumes that an external locus of control encompasses all domains *excluding the body,* fails to consider that perceptions of control may vary across domains, and cannot elucidate the aspect(s) of life such women feel they lack control over. Limited empirical support for a domain-specific approach is provided by the finding that in some domains eating disordered groups perceive less control than normal groups, whilst in other domains (e.g.

exercise, spending habits and attention) eating disordered groups feel equally, and sometimes more, 'in control' than the normal groups (Shapiro, Blinder, Hagman, & Pituck, 1993).

Future research should also consider domains which have been identified as contributing to one's subjective well-being or satisfaction with life, such as standard of living, health, relationships, achievements, safety, community-connectedness, future security, and spirituality (International Wellbeing Group, 2006). This approach is consistent with research indicating that patients with eating disorders consider certain domains, including health, sense of belonging, wellbeing, work, and education, as central to their quality of life (de la Rie, Noordenbos, Donker, & van Furth, 2007). In the eating disorder literature, these domains have not yet been addressed. Thus, the present research program is, in large part, motivated by the need for research examining control beliefs as they relate to particular domains, rather than only as (a) fixed, innate personality traits, or (b) control beliefs specific to weight and shape. Such an approach would help elucidate the aspects of life that women with eating disorders feel they need to control, and/or that are out of control.

A significant implication of suggesting there is a need for a more comprehensive, domain-specific approach to control, is that locus of control is inadequate for accounting for the influence of situational factors on perceived control . Evidence that 'domain' influences perceptions of control implies that perceived control is the outcome of a dynamic process of evaluation and interaction between the environment and the self. Unfortunately, even a domain-specific approach to locus of control considers the attribution of control as determined by some internal property. Explicit in the framework

of domain-specific locus of control measures, such as the MHLC (Wallston et al., 1978), is the assumption that individuals have expectancies of control that are uniform *within* domains (across a range of health behaviours, outcomes and settings) although not *across* domains. Clearly, this assumption is problematic, as although the MHLC demonstrates some capacity to predict health behaviour the "role of (M)HLC in predicting health behaviour is a weak one" (Norman & Bennett, 1996, p. 86). Such findings have led to increasing interest in even more proximal, situation specific measures of perceived control, that focus on specific targets, actions, contexts and periods of time (Armitage, 2003). However, locus of control as a theoretical perspective provides little insight into how or why different individuals arrive at their attributions of control.

In the following section, an alternate conceptualisation of control is reviewed – the two-process model of perceived control (Rothbaum, Weisz, & Snyder, 1982). This model recognises the possibility that individuals may differ in their use of psychological and behavioural strategies to restore, maintain and enhance perceived control. Thus, this model represents a shift in focus from *how people attribute* control, to *how they seek* perceived control. This is consistent with the recommendation that locus of control should be viewed as representing only a single facet of the multidimensional construct of control (Shapiro et al., 1993). In light of the limitations of locus of control in understanding the dynamic nature of control, the inter-relationships between primary and secondary control will be explored, with the aim of elucidating the motivations underlying the allocation and exercise of control in diverse contexts.

Primary and Secondary Control

The constructs of primary and secondary control

Wallston et al. (1987) define perceived control as the "belief that one can determine one's own internal states and behaviour, influence one's environment, and/or bring about desired outcomes" (p. 5). This widely-accepted definition of control identifies multiple targets, both internal and external, of control. The idea that an individual may achieve a sense of control not only through perceived control over the environment, but also over one's response to the environment, is incorporated in Rothbaum et al's. (1982) two-process model of control. Explicit in their model is the concept that people are motivated to maintain a sense of control, and may attempt to achieve this in a number of fundamentally different ways. The authors distinguish between two types of control – primary and secondary. Primary control refers to "attempts to change the world to fit the self's needs" (p. 8). Typical targets of primary control include people, objects, events, circumstances, symptoms and problems (Weisz, 1990). This is similar to Rotter's (1966) concept of internal control. In contrast, secondary control is defined as "attempts to fit in with the world and to 'flow with the current'" (Rothbaum et al., 1982, p. 8). Frequently, the object of control is the individual's cognitions, perceptions and the value and meaning they attribute to the situation (Pallant, 2000). However, it should be noted that both primary and secondary control may take the form of cognitive or behavioural processes. The initial paper on secondary control (Rothbaum et al., 1982) outlined four types of secondary control (interpretative control, predictive control, vicarious control and illusory control). However, as each of these subtypes involves acceptance and adjustment to a situation,

most research on secondary control has focused on these underlying processes, rather than the four subtypes (Morling & Evered, 2005). Consequently, it has been suggested that a fit-focused definition of secondary control as "the simultaneous exercise of two actions (adjusting the self and accepting the environment)" (Morling & Evered, 2005, p. 54) is more appropriate.

Behaviours which appear to represent perceived uncontrollability, such as those indicative of an external locus of control, may actually be acts of secondary control. This is compatible with the locus of control perspective, as it relates to the hypothesis that "Externals do not feel powerless, but simply pursue rewards in different avenues" (Cherulnik & Citrin, 1974, p. 404). On locus of control measures, strategies that would be described as evidence of secondary control, such as aligning oneself with chance or powerful others, would appear simply as the relinquishment of control to external forces. The two-process model of control also recognises that individuals may relinquish control – by abandoning the motivation to control - in response to perceived uncontrollability (Rothbaum et al., 1982). However, it considers relinquishment of control to be a last resort, in contrast to the locus of control perspective. Thus, from the primary/secondary perspective, it is essential to consider both the target of control, as well as the individual's motivations, when trying to determine whether a behaviour represents, primary, secondary, or relinquished control (Weisz, 1990).

Secondary control may assist the individual to retain control in situations where direct control is unavailable or inappropriate. Although it has been argued that secondary control is motivated by a need to fit with, rather than control, the environment, the authors concede this may ultimately lead to a sense of control (Morling & Evered,

2005). Rosenberg (1990) has also suggested that the primary aim of secondary control (and primary control) is not to control, but to reduce negative feelings and restore positive feelings. However, it is argued that enhancing or controlling one's affective response towards conditions should engender a sense of control over the psychological impact of those conditions, without alteration of the conditions themselves. This may be simplified as deriving a sense of control from the self.

Researchers in the Western world have tended to focus on control of external targets, either neglecting the importance of control of the self, or suggesting that primary control is the more adaptive strategy, with secondary control's role being to compensate for a lack of primary control (e.g. Heckhausen & Schulz, 1995; Thompson et al., 1998). However, this view neglects that too much control over the environment may be associated with negative physical and psychological health (Shapiro et al., 1996) particularly if perceived control is over-estimated over a period of time (Grob, 2000), and contrasts with cross-cultural research indicating a preference for secondary control in non-Western cultures (Weisz, Rothbaum, & Blackburn, 1984). This perspective also fails to consider that life is full of situations that are not amenable to change, or in which seeking to alter outcomes is not the most adaptive approach. The value of different approaches may be influenced by the particular domain to which they apply. For example, whilst seeking to influence outcomes may be instrumental to achievement in the academic domain, a similarly strong motivation in relation to other domains, such as the body, may be detrimental. In contexts where control is limited, control over the impact of events may be particularly important. Research suggests that when facing a life-threatening illness, perceived control over the consequences of the illness (emotional

reactions and physical symptoms) is more important, and more negatively related to depression, than perceived control over the disease itself (Thompson, Nanni, & Levine, 1994; Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993).

Such findings are consistent with Rothbaum et al.'s (1982) view that primary and secondary control are interrelated processes, and that optimal adaptation to the environment is associated with the ability to use both primary and secondary control, and importantly, the awareness to recognise the contexts in which each is appropriate. For example, secondary control may be more appropriate than primary control for dealing with non-life threatening, everyday stressors, and maintaining relationship harmony (Morling & Evered, 2005). The strategies favoured by an individual will reflect their unconscious evaluation of the relationship between the self and the environment, with the most adaptive levels of control being specific to the person and situation (Evans et al., 1993). Accordingly, research suggests that individuals who maintain high levels of both primary and secondary control, and are flexible in the use of the both modes of control demonstrate more adaptive psychological functioning (Heeps, 2000). This contrasts with the locus of control perspective as it represents a "shift from a concern with the optimal degree of control to a concern with the optimal balance between different processes of control" (Rothbaum et al., 1982, p. 29).

Primary control, secondary control and disordered eating

According to Shapiro et al. (1996), how individuals seek to sustain, restore and enhance their perceptions of control may either augment or diminish their psychological functioning. Disordered eating may, in part, represent maladaptive attempts at control that are detrimental to both psychological and physical health. The application of a two-

process model of control (Rothbaum et al., 1982) may help explain why eating disordered women perceive a lack of control in their lives, the particular domains in which control deficits are, or are not, salient, and the function of eating disordered behaviours. The interpretation of disordered eating from the alternative locus of control perspective would fail to consider the potential *multidimensional* nature of control, the diverse modes of control available to, and utilised by, eating disordered individuals, and the *active*, evaluative processes that individuals might employ to select control-enhancing and control-maintaining strategies across different domains.

Interestingly, very few researchers have considered the relevance of primary and secondary control to disordered eating (e.g. Rezek & Leary, 1991; Watt et al., 2002). Rezek and Leary (1991) suggest that a lack of control over the external world contributes to a heightened desire for control, and in order to *compensate* for this lack of primary control, the individual develops secondary control over their body. Unfortunately, this interpretation misrepresents secondary control as simply a process of switching focus to a domain that appears controllable. To be considered a form of secondary control, restricted eating must also incorporate efforts to change the self, consistent with the aim of 'fitting-in' with the environment (through self acceptance or social acceptance). Given that the researchers did not assess the motivations driving the maladaptive behaviours, it should not be automatically assumed that these behaviours represent secondary control.

An alternate explanation is that restricted eating reflects elevated primary control. Women with eating disorders may be highly motivated to exert control over multiple aspects of their lives. Such women report that they favour negative-assertive

control (aggressive and over-controlling) whilst neglecting positive-assertive (active) and positive-yielding, accepting (letting-go) control (Shapiro et al., 1993). The latter form of control is considered analogous to secondary control. In certain domains, such as relationships, secondary control may be more adaptive than primary control, which may result in relationship disharmony and a perceived lack of control.

This raises the following question, reminiscent of the domain-specificity referred to in the context of locus of control: Do women with eating disorders have a general tendency to exert primary control throughout all aspects of their lives, or only in relation to their bodies? Research indicates that individuals with eating disorders may be more dissatisfied with their lives in general, and the social aspects in particular, than those without an eating disorder (Kitsantas et al., 2003). This may relate to the perception that they have little control over life in general, and particularly relationships with others, despite feeling a positive sense of control in other domains of life (Shapiro et al., 1993). Such findings indicate that the control issues of women with eating disorders may be contained to particular domains, suggesting a role for primary and secondary control processes that vary in adaptiveness depending on the domain. Thus, it highlights the need to consider individual's use of primary and secondary control across various domains of life. Alternatively, women with eating disorders may rely on primary control only in relation to their bodies. Women who have internalised the cultural thin-ideal, and are unable to ameliorate the resultant body dissatisfaction (via secondary control e.g. reducing the relative importance of weight in one's self-evaluation) may use primary control in an attempt to alter their bodies to match the thin-ideal. This may be related to perfectionist personality traits driving the individual to meet higher and higher standards

of appearance, whilst denying them a sense of satisfaction. Complicating matters further, weight loss attempts may also be viewed as a form of secondary control, as they are dependant on acceptance of the cultural ideal and may appear as attempting to fit in with one's environment. However, I would argue that it would only be secondary control if the individual had accepted the ideal, and also adjusted to the fact that this ideal is unrealistic for most women. Struggling to reach an unattainable weight, or desiring to go below this weight, is indicative of an unrealistic need to control, rather than acceptance and adjustment.

Another question that remains to be addressed is whether women's attempts to control their bodies (primary control) are associated with difficulty accepting their bodies as is (secondary control)? For example, individuals who are highly motivated to exert primary control may find the period of adolescence – which frequently coincides with the emergence of eating disorders - particularly difficult. Adolescence involves numerous uncontrollable biological changes which alter one's size and shape, as well as issues related to social, emotional and cognitive development. Individuals who are unable to adapt to these changes through the use of secondary control may experience distress, and subsequently increase their reliance on (maladaptive) primary control to regain some sense of control, such as restricted eating.

Although anorexics may be characterised by an over-reliance on primary control, women with bulimia may be better described as using primary and secondary control in a maladaptive way. For example, a bulimic may restrict her eating (primary control) in response to a perceived deficit of control in other aspects of life. However, her use of primary control may fail to engender a sense of control, resulting in binge eating to

reduce negative affect (secondary control). Her inability to stick to the restrictive diet may exacerbate any perceived lack of control. Thus to regain control she may utilise compensatory behaviours. Such behaviours may also represent a form of secondary control, as they allow her to 'accept' her binge eating, whilst relieving the negative emotions associated with the binge. Alternatively, if they are motivated simply by a desire to counteract the physical events of the binge, they may be considered primary control. This emphasises the need to consider the individual's evaluations, underlying motivations, as well as context, when attempting to explain the fluctuation in behaviours evidenced in some forms of eating disorders.

The utility of a primary and secondary control approach in understanding eating disordered behaviours

In a clinical context it is imperative to understand the motivations and functions of maladaptive behaviours, so as they can be replaced with more adaptive behaviours. This approach is evident in eating disorder treatment programs, such as Fairburn and colleagues' enhanced cognitive therapy for eating disorders (Fairburn, 2008). As part of this treatment program, patients are helped to develop an understanding of the motivations and functions of their restrained eating, binge eating and purging. Often, these behaviours are identified as trying to control a particular target (e.g., weight, social acceptance, affect). Identifying the target of these behaviours is similar to categorising these behaviours as forms of primary and/or secondary control. Therefore, from a control-oriented perspective, this form of therapy for eating disorders can be described as an attempt to rectify the individual's use of control strategies, to become less harmful and more effective.

The present review has emphasised the importance of considering the control processes *represented* by eating disordered behaviours. However, although this has obvious clinical significance for the treatment of eating disorders, and is achievable in the therapeutic context involving protracted one-on-one discussion, from a research perspective this presents a daunting task. In particular, the dual role that some behaviour might serve – representing attempts at both primary and secondary control – makes it difficult to assess whether a given behaviour represents primary or secondary control. Researchers in the area of control (e.g., Kojima, 1984) have pointed out that it is difficult to determine whether a strategy represents primary or secondary control and that unless researchers can accurately determine the goal of a strategy, strategies may be misinterpreted. Furthermore, although individuals may become aware of the motivations and functions of their behaviour via the therapeutic process, without this experience they may struggle to identify these, which is a requirement if behaviour is to be identified as a form of primary and/or secondary control. These factors make it very difficult to develop research procedure and measurement tools for the categorisation of eating disordered behaviours as primary and secondary control.

The clinical significance of identifying the control functions of eating disordered behaviours has already been noted. However, the research limitations outlined raise the question of whether the primary and secondary conceptualisation of control may be used to investigate eating disordered behaviours in a different way, considering how individual preferences for primary and secondary control *within a given domain* may interact with and influence variables (e.g., body dissatisfaction) already known to contribute to eating disordered behaviour. Utilising an empirically supported theory of

eating disordered behaviour, Stice's (1994) dual pathway model of bulimic pathology, the addition of primary and secondary control strategy use may help to elucidate why particular individuals engage in certain behaviours, and others do not.

The Optimization in Primary and Secondary Control Model

Introduction

In order to examine inter-individual differences in primary and secondary control strategy use, and their relevance to eating disordered behaviours, two things are required: (i) a framework of primary and secondary control, and (ii) a theory of eating disordered behaviour that can incorporate these constructs and allow for hypotheses to be developed and tested. In relation to the first requirement, Rothbaum et al.'s (1982) two-process model of control provided a means of introducing the reader to the concepts of primary and secondary control, and is relevant as a precursor to more recent theoretical developments. However, it is argued that a more useful framework for examining these constructs is provided by the Optimization in Primary and Secondary Control model (OPS; Heckhausen, 1999). The rationale for this, and the model itself, are discussed in the following sections of the review.

Rationale for an alternative conceptualization of primary and secondary control

It is intuitive that people do not seek control randomly. That is, if people seek control in their lives by utilising primary and secondary control strategies, there must be factors or outcomes they are seeking to control. Although many of these may not be available to conscious awareness, most people are able to elaborate a variety of goals they aspire to achieve across a variety of life domains. How they manage these goals, using primary and secondary control strategies, may influence their sense of control and

other aspects of psychological well-being, depending on the extent to which primary and secondary control strategies are appropriately utilised. The OPS model (Heckhausen, 1999) represents a theory of primary and secondary control that provides a framework for examining control strategy use, anchoring it to the management of goals.

Like the two-process model of control (Rothbaum et al., 1982), the OPS model (Heckhausen, 1999) emphasises the importance of appropriate control strategy selection. However, the latter model considers *what* must be appropriately managed or controlled (i.e., goals) for positive psychological outcomes. Implicit in this model is the assumption that perceived control is one consequence of appropriately managing significant goals. This contrasts with the two-process model (Rothbaum et al., 1982) which does not consider the outcomes that people need to manage in order to derive or maintain a perceived sense of control. Furthermore, the OPS model (Heckhausen, 1999) provides an over-arching framework for considering control behaviour by focusing on how different contexts (specifically, developmental stages) are represented by different constraints, which determine the utility of primary and secondary control strategies in successful *goal management*. Whilst the two-process model clearly acknowledges that situational constraints determine the utility of primary and secondary control strategies as a means of *achieving or sustaining perceived control*, the constraints themselves receive little discussion. Consequently, it is our contention that the structure of the OPS model (Heckhausen, 1999) is easily adapted to a domain-specific approach to control, where instead of developmental stages the focus is on different life domains, each with different, identifiable constraints on goal pursuit (or control opportunities).

An additional reason for selecting the OPS model (Heckhausen, 1999) is that a model which focuses on how people seek to control their goals is particularly useful for examining the role of primary and secondary control in eating disorders. The evolution of eating disordered behaviour is, on some level, related to the pursuit of the thin-ideal. This sociocultural standard, when internalised, may become a goal. Thus, how an individual seeks to manage her goals, in the domain of appearance, should presumably interact with and influence the development of eating disorder symptoms. The proposed relationships between domain-specific primary and secondary control strategy use and eating disorder symptomatology are the focus of Study Two.

The development of the Optimization in Primary and Secondary Control model

Following from the work of Rothbaum, Weisz, and Snyder (1982) on primary and secondary control, Heckhausen and Schulz (1993; 1995; Schulz & Heckhausen, 1996) devised a life-span theory of control, incorporating and extending upon the idea of primary and secondary control. The theory is concerned with how people adapt to developmental changes in opportunities for control. The authors propose that humans are highly motivated to control their environment, and suggest that this desire to exert primary control remains stable across the lifespan. As opportunities to produce behaviour-event contingencies decline with age due to biological, societal, and age-normative constraints, some counter-force (i.e., secondary control) is required to maintain a degree of control within important domains and buffer the impact of failure experiences on psychological resources and ensure motivation for future primary control action. Thus, within this model it is the capacity to engage in primary control that is

integral to successful development, with secondary control seen as providing motivational support to sustain primary control efforts, both current and future.

This theory has generated the OPS model (Heckhausen, 1999). According to this model, throughout the life course humans are confronted with an infinite number of behavioural possibilities and developmental pathways, and consequently, individuals need to be *selective* in their pursuit of goals, and invest resources to ensure they are pursued effectively. Furthermore, whilst striving to achieve goals, it is inevitable that individuals will occasionally experience failure. On these occasions they will require strategies to *compensate* for the negative impact of failure in goal pursuit, protect their self-esteem and maintain and/or redirect motivational, emotional and behavioural resources for the pursuit of current or future goals.

The OPS model (Heckhausen, 1999) considers primary and secondary control processes as central to successful development because of their role in goal management. The authors argue that personal goals are an essential part of successful living, structuring peoples' lives, infusing life with purpose, and guiding both short- and long-term behaviour, and that processes related to the management of goals should also contribute to successful development (Wrosch, Heckhausen, & Lachman, 2004; Wrosch, Scheier, Carver, & Schulz, 2003). Wrosch et al. (2003) recognise that goals relate not only to major developmental tasks, but also navigating the realms of everyday life. The importance of personal goals for emotional and cognitive well-being, life satisfaction and subjective well-being has been emphasised within the research literature (Cantor & Sanderson, 1999; Emmons, 1986; Grob, 2000; Higgins, Grant, & Shah, 1999; Scheier & Carver, 1993). Furthermore, prominent researchers in the area of subjective well-being

have suggested that a shift in focus to more abstract concepts, such as goals, may result in stronger relationships between independent variables and subjective well-being (Diener, 1984) and have argued that "successful adaptation is likely to depend on choosing goals that can be accomplished with the resources one possesses" (Diener & Fujita, 1995). This is consistent with the OPS model (Heckhausen, 1999), which emphasizes the importance of selecting control processes relevant to goal management, whilst taking account of external constraints.

The OPS model (Heckhausen, 1999) distinguishes between four types of control strategies: selective primary control, compensatory primary control, selective secondary control, and compensatory secondary control. Selective primary control refers to the investment of effort, time, and skills in goal pursuit. Compensatory primary control is utilized when an individual's behavioural resources are inadequate for effective goal pursuit, and external resources such as technical aids, others' help or advice, or the development of new means or skills is required.

Secondary control influences expectancy of goal attainment (optimism, defensive pessimism, adjustment of aspiration level, strategic selection of social reference group), value of goal attainment (sour grapes effect, disengagement, changes in goal hierarchy), and biased attribution of outcomes. It promotes primary control in two ways – by directing motivational resources, and compensating for the negative effects of failure and loss. It serves "not as a master or slave to primary control, but can be conceptualised as a confederate to primary control" (Heckhausen & Schulz, 1999, p. 608).

Selective secondary control refers to internal processes designed to enhance motivation to commit to and remain engaged in goal pursuit, in the face of obstacles or

distracting alternative goals. This may involve bolstering the value of the goal, and/or enhancing perceptions of control and self-efficacy. Compensatory secondary control is required to manage the impact of failed control, or when a goal is perceived as unattainable or ultimately detrimental. It involves both disengaging from the non-functional goal, as well as the use of self-protective strategies (e.g., minimizing perceptions of control, attributing outcomes to external influences, making downward social comparisons) to lessen the detrimental effects of failure on self-esteem, perceived personal control, and self-efficacy and ultimately, motivation to pursue alternate, attainable, goals.

The OPS model (Heckhausen, 1999) assigns each of the four types of control to the facilitation of either goal engagement or goal disengagement. The two types of primary control and selective secondary control are considered processes relevant to goal engagement, whilst compensatory secondary control reflects strategies relevant to disengaging from unattainable goals and protecting against the negative effects of failure and control loss on self-esteem and optimism (Wrosch et al., 2004).

Adaptive use of primary and secondary control strategies

The central premise of the OPS model (Heckhausen, 1999) is that as part of successful development individuals must adjust their goal-related processes (primary and secondary control strategies) to biological, societal, and age-normative constraints which alter prospects for goal attainment. Biological factors include those related to maturation and ageing that may facilitate the attainment of goals in the early to mid-stages of life, but may constrain goal attainment in later life (Wrosch et al., 2004). Societal constraints are related to the social institutions and structures which control the

timing of life course transitions (e.g., beginning school, educational pathways, career development, retirement, partnership formation) (Wrosch et al., 2004). Age-normative conceptions are similar in that they inform individuals about when certain goals (e.g., marriage, starting a career, forming relationships, having children) should be pursued, and provide opportunities or support for goal pursuit when undertaken within the appropriate time frame (Wrosch et al., 2004). It is suggested that whilst opportunities for goal pursuit are plentiful during young adulthood, with increasing age comes increasing constraints on goal pursuit. The authors argue that "although control strategies that support the attainment of personal goals can be expected to relate to indicators of successful development across the entire life span, they should be particularly closely associated with successful development among young adults. In contrast, the adaptive value of control strategies associated with goal disengagement and self-protection should increase if people advance in age" (Wrosch et al., 2004, p. 406). According to the OPS model (Heckhausen, 1999), successful development involves the pursuit of appropriate goals and protection of motivational and behavioural resources, to optimize primary control across the lifespan.

Whether individuals pursue their goals in an optimal fashion (i.e., utilise primary and secondary control strategies in an appropriate fashion) is likely to be reflected in their self-reported well-being, both across and within domains. One indicator of successful development that has received significant attention in the empirical literature in recent years is subjective well-being (SWB) or "people's cognitive and affective evaluations of their lives" (Diener, 1984, p. 34). However, consistent with a domain-specific approach to control, research should consider not just general well-being, but

also those domains which have been identified as contributing to one's SWB or satisfaction with life, such as standard of living, health, relationships, achievements, safety, community-connectedness, future security, and spirituality (International Wellbeing Group, 2006). These domains may differ in opportunities for, and constraints upon, goal pursuit, just as they vary across developmental contexts. Domain-specific application of the OPS model (Heckhausen, 1999) is also consistent with the observation that goals relate not only to major developmental tasks, but also to navigating the realms of everyday life (Wrosch, Scheier, Miller, Schulz, & Carver, 2003). Thus, goal management provides a useful perspective from which to examine the relationships between primary and secondary control processes and SWB, and is the focus of the first study.

Goal engagement and goal disengagement and eating disordered behaviours

It is the contention of the present review that although within most domains of life young adults may face favourable opportunities for goal pursuit, within the domain of the body and appearance there may be more constraints upon goal pursuit. This may be particularly true for young females, who may have internalised as their 'goal' the thin-ideal that predominates in Western cultures, one that is unattainable for most women. In this context, whether individuals choose to engage, or disengage with this goal, may influence their susceptibility to body dissatisfaction and negative affect, and the likelihood they will engage in dietary restraint and bulimic behaviours.

Stice's (1994) dual-pathway model of bulimic pathology provides a framework for examining the role of goal engagement and goal disengagement in the development of eating disordered behaviours. The model posits that internalisation of the thin-ideal

and social pressures to be thin generate body dissatisfaction, which encourages dieting and/or negative affect. Dietary restraint and negative affect are proposed to elicit bulimic behaviours such as binge eating and purging, due to feelings of deprivation and/or as attempts to regulate negative affect. The theory underlying this model is detailed more fully in the introduction to Study Two. It is briefly outlined here for the sole reason that it provides a means for linking eating disordered behaviour and goal engagement and goal disengagement practices, the focus of Study Two.

Goal engagement may interact with the factors described by the dual-pathway model (Stice, 1994) in a number of ways. Most likely, endorsement of goal engagement will enhance the likelihood an individual will engage in cognitive and behavioural strategies relevant to goal pursuit. For example, individuals who endorse goal engagement may be more likely to internalise the thin-ideal, as it provides them with a goal to approach. This may increase their sense of body dissatisfaction. They may also be more prone to engage in behaviours to achieve their goal, such as dietary restraint and purging (as a means of compensating for over-eating, or minimising kilojoule intake). Their propensity towards goal engagement may also indirectly influence binge eating and compensatory behaviours, due to increased internalisation of the thin-ideal, body dissatisfaction, dietary restraint, and/or negative affect.

In contrast, goal disengagement may influence motivational factors and self-evaluation as a way of avoiding the possible negative effects of engaging with the thin-ideal. It may alter the likelihood an individual will internalize the thin-ideal, reducing the likelihood of body dissatisfaction by stopping individuals from comparing their bodies to an unrealistic ideal. Alternatively, if the thin-ideal is internalized, goal disengagement

strategies may minimise the impact on body dissatisfaction, for example, by promoting favourable comparisons with others, or shifting the importance of the goal itself. In a similar fashion, goal disengagement may also help to reduce negative affect associated with body dissatisfaction, or dietary restraint. In doing so, the propensity towards goal disengagement may influence one's vulnerability to engaging dietary restraint, and bulimic behaviours.

Summary and Conclusions

This thesis is concerned with the relationships between control, or more specifically, control strategy use, and eating disordered behaviour. Previous research has considered the relevance of control to such behaviours, but has focused on only one dimension of control – locus of control. Locus of control refers to beliefs about where, or to whom, control is attributed. An internal locus of control refers to a belief that outcomes are determined by one's own ability to influence events, while an external locus of control refers to a belief that chance, fate or powerful others determine outcomes (Rotter, 1966). This focus on locus of control beliefs has produced inconclusive findings and done little to shed light on the role of control in the development of eating disordered behaviour. This may be attributable to the fact that the general approach has been to measure control as a uni-dimensional and trait-like variable, with an emphasis on the importance of having a high internal locus of control. This approach is simplistic as it does not consider the dynamic nature of control, and its possible interactions with other important variables determining behaviour. Most significantly, the concept of a locus of control, that has dominated previous theoretical

and empirical work in the area of perceived control in disordered eating, has overlooked the role that *context* may play in shaping control attributions.

It is the contention of the present review that an alternative conceptualisation of control – the OPS model (Heckhausen, 1999) – may yield significant insights into the psychology of individuals who engage in disordered eating. The OPS model (Heckhausen, 1999) is a developmental model of control that considers primary and secondary control strategies as either promoting goal pursuit (goal engagement) or for managing the impact of failed goal pursuit and disengaging from inappropriate goals (goal disengagement). The model emphasises taking into account the developmental constraints on control over developmental goals and how these constraints function to determine the types of control most adaptive in any given situation. The OPS model (Heckhausen, 1999) was selected for the present thesis because of its readiness to be adapted to a domain-specific approach to control, whereby instead of developmental contexts the focus is on domains and their relevant constraints. In contrast to the locus of control perspective, this approach: (a) considers that individuals may have multiple targets of control, and that control over situations is not always the most adaptive or effective mode of control, (b) is more compatible with a domain-specific approach, and (c) emphasises the role of interpretation and evaluation, and allows for the possibility of an interplay between different processes of control, rather than focusing on simple attribution. The corollary of this is that individual differences in control strategy use may explain individual differences in psychological vulnerability to weight-related sociocultural pressures, and in the likelihood of developing and maintaining unhealthy body change behaviours and disordered eating in particular.

On the basis of the OPS model (Heckhausen, 1999) a program of research has been developed aimed at elucidating the preferences, in relation to control strategies, of women exhibiting eating disordered symptoms. Participants in the study will be a convenience sample of female university students, which is appropriate given that body dissatisfaction and symptoms of disordered eating are most common in adolescents and young women. Although control may also contribute to the relationship between body dissatisfaction and unhealthy body change in males, it is difficult to extrapolate from the existing research because, in contrast to females (who focus primarily on weight loss), males who engage in unhealthy body change are divided approximately equally between those who are motivated by the desire to reduce weight and those who are motivated by the desire to increase body size, particularly muscle size (Ricciardelli & McCabe, 2002, 2004).

It is argued that how women attempt to manage their goals (or utilise control strategies) within different life domains will contribute to their satisfaction with these domains. An initial study will be conducted to examine the primary and secondary control strategies utilized by the sample of women across various domains of life, to determine how they seek control, and the types of control that are more or less relevant to SWB across and within core domains of life. Three life domains identified as relevant to SWB (Cummins, 1996) and considered especially relevant for the selected sample of young adult females, will be examined – the domains of health, relationships, and achievement. In addition, the domain of the body is included because of the importance of body satisfaction in the development of eating disorders.

Measures of primary and secondary control will be adapted from currently existing domain-general measures (Optimization in Primary and Secondary Control Scales; Heckhausen & Schulz, 1998). Given the anticipated age of the sample (aged between 18 and 40 years old) it is expected that participants would have ample opportunity and minimal constraints upon goal attainment, particularly in the domains of health, achievements, relationships, and their bodies, compared to older adults. Consequently, it was hypothesised that goal engagement strategies (involving forms of primary and secondary control) would be the strongest predictor of both subjective well-being and domain-specific satisfaction. Any diversion from the expected pattern will be taken as evidence of the need for a domain-specific approach to control.

On the basis of the initial results, subsequent research will focus on the relationships between domain-specific control strategies relevant to goal engagement and goal disengagement and risk factors for eating disordered behaviour, as well as the behaviours themselves. A self-report measure of eating disorder psychopathology - the Eating Disorders Examination – Questionnaire (EDE-Q; Fairburn & Beglin, 1994) will be used to evaluate and quantify cognitions, emotions, and behaviours consistent with disordered eating.

Given the absence of similar research, the role of primary and secondary control in relation to disordered eating is an empirical question. It is conceivable that women exhibiting symptoms of disordered eating may endorse control strategies within the domain of the body that are more or less adaptive, with respect to their influence on and interaction with factors identified as central to the evolution of eating disordered behaviours. These factors, developed into the dual-pathway model of bulimic pathology

(Stice, 1994) include internalisation of the thin-ideal, body dissatisfaction, dietary restraint, negative affect, binge eating, and purging behaviour.

Chapter Two

Introduction to Study One

Overview

The following chapter reviews the literature relating to a key indicator of psychological adjustment - subjective well-being (SWB) – and factors believed to influence this variable, including perceived control. On the basis of this review, it is concluded that it may be useful to examine the relationship between SWB and an alternative dimension of control - primary and secondary control strategy use – as described by the OPS model (Heckhausen, 1999). Thus, the aim of Study One was to explore a multitude of proposed relationships between trait control beliefs, control strategy use, SWB and satisfaction with certain core domains of life, with a particular focus on the domain of the body and satisfaction with appearance.

Subjective Well-being

Defining and measuring subjective well-being

Subjective well-being is a construct that encompasses the range of appraisals, both positive and negative, that people make of their lives (Diener, 1984). These include cognitive judgments, such as life satisfaction and satisfaction with major life domains, and affective reactions, such as positive (e.g., joy, affection) and negative (e.g., anger, guilt) feelings and emotions (Diener, 2006). SWB research is "concerned with how and why people experience their lives in positive ways, including both cognitive judgments and affective reactions" (Diener, 1984, p. 542). Research aimed at understanding the processes and indicators which influence SWB is important not only because of it's

inherent worth to individuals, but also because the SWB of individuals in a society may affect the wellbeing and functioning of that society as a whole (Diener, 2006).

The affective component of SWB is typically evaluated using measures of happiness, or using separate measures for positive and negative affect (Cummins et al., 2002). The cognitive aspect of well-being – often referred to as life satisfaction - is most often evaluated on the basis of an individual's self-reported sense of satisfaction or dissatisfaction with their life (Cummins, 2005). It is not a direct, confirmable, phenomenon, but a global, retrospective judgment elicited only through enquiry (Kahneman & Krueger, 2006). Although it is measured as distinct from mood and emotional experience, it is acknowledged that life satisfaction judgments are influenced by affect (Andrews & Withey, 1976). This is consistent with Diener's (1984) suggestion that judgments of life satisfaction are made by considering a range of aspects or domains of life and how well these measure up to personal standards, desires, and goals, in conjunction with an assessment of the balance of positive and negative affect in one's life. For the purposes of the present research, the term SWB is used to refer to these primarily cognitive evaluations people make regarding their lives.

These evaluations can be made by asking participants to rate their global life satisfaction in response to single items (e.g., Andrews & Withey, 1976) that are simple for participants to interpret and which elicit high rates of responding (Kahneman & Krueger, 2006). Alternatively, multi-item measures can be employed wither by (i) combining multiple items, each designed to tap global life satisfaction (e.g., Satisfaction with Life Scale, Diener, Emmons, Larsen, & Griffin, 1985), or (ii) averaging a series of items, each referring to a specific life domain. The latter approach to measuring

subjective well-being was adopted by the International Wellbeing Group when constructing the Personal Wellbeing Index (PWI; International Wellbeing Group, 2006).

The Personal Wellbeing Index

The creation of a comprehensive measure of SWB is complicated by the diversity of life domains which could potentially be evaluated. The general consensus in the literature is that only domains that can be described objectively and subjectively, that are parsimonious and descriptive of generic life areas, should be included (Hagerty et al., 2001; Schalock, Bonham, & Marcharnd, 2000). The PWI was constructed in line with these principles. It contains eight items of satisfaction, corresponding to the core domains of: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion. These domains have been selected because they predict unique variance in the criterion item: "Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?". The eight domain scores can be summed to yield an average score which represents SWB (International Wellbeing Group, 2006). The eight domains in the current version of the PWI together account for about 50% of the variance in satisfaction with "Life as a Whole" in Australia and other countries (International Wellbeing Group, 2006).

For the purposes of the present research, the PWI was identified as the most appropriate measure of SWB available, as it provides the context (i.e., domains) for a domain-specific approach to examining control, and allows for comparison of domain-general and domain-specific control processes. For the present study, three domains of satisfaction were selected from the PWI on the grounds that they are most directly

relevant to body satisfaction, and are known to be particularly relevant to the population sampled in the study (adult Australian females). The PWI domains assumed to be least related to body satisfaction (standard of living, safety, community-connectedness, future security, and spirituality/religion) were omitted. Global SWB was measured using the "Life as a Whole" item.

Included with the PWI items and the "Life as a Whole" item was an additional item created for the purpose of the study, and used to measure satisfaction with one's body. The rationale for including body satisfaction was that, at least in Western societies, females are socialized from a young age to ascribe significant importance to physical appearance, and to evaluate their self-worth in terms of their appearance, and particularly, their weight and shape (Rodin et al., 1984). Consequently, physical appearance in women is likely to represent a highly valued and salient contributor to SWB (Diener, (1984), especially given the strong associations between self-worth, or self-esteem, and both women's body image and SWB (Diener & Diener, 1995). In support of this proposition, body satisfaction has been shown to be positively associated with the SWB of females, across a range of ages (Cash & Fleming, 2002; Diener, Wolsic, & Fujita, 1995; Stokes & Frederick-Recascino, 2003).

Body satisfaction may also indirectly influence SWB via its effects on a range of domains believed to influence SWB. For example, research indicates that people who are perceived as physically attractive are shown a positive bias from others that may have important benefits for relationships and occupational success (e.g., Dion, Berscheid, & Walster, 1972; Feingold, 1992; Hatfield & Sprecher, 1986), domains considered central to SWB. Although other-rated physical attractiveness is not the same

as self-rated attractiveness, the two do show moderate correlations (Diener et al., 1995), suggesting that satisfaction with how one looks is also likely to relate to satisfaction in different life domains. This is supported by research finding that body image has both positive and negative effects across multiple domains of life (e.g., self-esteem, emotional states, relationships, health behaviours) (Cash & Fleming, 2002; Hoffman & Brownell, 1997) and suggests that greater body satisfaction results in more positive effects of body image across domains (Cash & Fleming, 2002).

Based on the research findings reviewed, it is hypothesised that satisfaction with the body will contribute unique variance to SWB, or satisfaction with "Life as a Whole". It is also expected that body satisfaction will correlate significantly with satisfaction in the domains of health, relationships, and achievement.

The subjective well-being of populations and individuals

To enhance comparability of SWB assessments made across populations, and using diverse scales, responses to the Likert scales typically are converted to a statistic called %SM (Cummins, Gullone, & Lau, 2002). This involves first recoding the Likert scale to commence with 0 (e.g., a scale scored 1 to 5 is recoded as 0 to 4) then calculating each score as a percentage of the maximum scale score (e.g., a score of 3 is calculated as 75%SM) (Cummins et al., 2002). This has revealed that the SWB of individuals and populations is consistently negatively skewed and normally held within the positive range (Cummins et al., 2002). For example, a series of population surveys conducted indicates that at a population level, the average level of SWB as indicated by the PWI is 75%SM, with a range (two standard deviations) of 73.6 to 76.5, and when

measured using the single "Life as a Whole" item the mean is 77.5%SM, with a range of 75.9 to 79.2 (Cummins et al., 2008).

The SWB of individuals within samples also averages 75%SM, but shows a broader distribution, ranging from 50.2 to 99.8 (using the PWI) and 42.9 to 112.1 (using the "Life as a Whole" item) (Cummins et al., 2008). These finding indicate that SWB appears to be maintained at a moderately positive level. The research indicates that in addition to being bounded, SWB is only minimally affected by objective circumstances, with only highly challenging circumstances causing SWB to fall substantially. Indeed, early research (e.g., Campbell, Converse, & Rodgers, 1976; Diener, Horwitz, & Emmons, 1985; Diener, Sandvik, Seidlitz, & Diener, 1993; Diener et al., 1995; Myers, 2000; Okun & George, 1984) that focused on external conditions that promote SWB found only a weak relationship between quantifiable objective indicators (e.g., health, wealth) and SWB (Cummins, 2000). There is also evidence to suggest that most individuals show modest long-term stability in SWB (e.g., Andrews, 1991; Costa & McCrae, 1989; e.g., Fujita & Diener, 2005; Headey & Wearing, 1989) and there exists ample research to suggest that people usually adapt to some degree to changed life circumstances, including marriage, bereavement, employment, improved or worsened financial situation, disability, and pain (e.g., Brickman, Coates, & Janoff-Bulman, 1978; Diener, 2000; Easterlin, 1995; Kahneman & Krueger, 2006; Lucas, Clark, Georgellis, & Diener, 2003, 2004; Oswald & Powdthavee, 2005). To account for these results a homeostatic model of SWB (Cummins et al., 2002; Cummins & Nistico, 2002) has been proposed.

Subjective well-being homeostasis

According to Cummins, Gullone and Lau (2002) SWB is maintained within a predictable range by a tripartite system combining personality, affective factors, and positive cognitive biases. The first order determinants are considered to reflect an individual's genetic capacity, or set-point, for SWB. Primary here are the personality traits of extraversion and neuroticism, and the dimensions of affect they are considered synonymous with, positive and negative affect (Cummins et al., 2002). This author argues that it is the balance between the two dimensions of personality which determines the set-point range for SWB. This is consistent with their review of literature examining the relationships between extraversion and neuroticism, and cognitive and affective judgments of SWB (see Cummins et al., 2002) and is supported by research findings linking personality and SWB at both the individual and national level, (e.g., DeNeve & Cooper, 1998; Gonzalez Gutierrez, Jimeenez, Hernandez, & Puente, 2005; Hayes & Joseph, 2003; Libran & Howard, 2006; Lynn & Steel, 2006; Steel & Ones, 2002).

Although individual differences in personality are strongly associated with variation in SWB, differences in personality do not completely predict differences in SWB (Cummins et al., 2002). Thus, the homeostatic model of SWB also proposes that there are three second-order determinants of SWB which are influenced by, but also distinct from the factors of extraversion and neuroticism, namely the cognitive buffers of self-esteem, optimism, and perceived control (Cummins et al., 2002). These factors are proposed to provide a strong positive bias for perceiving the self, others and the world, which minimizes the impact of negative events and maintains SWB within the positive set-point-range moulded by personality. Although the following sections discuss each of

these factors separately, research indicates that they co-vary, suggesting that they are indeed related beliefs sharing the purpose of protecting SWB (for reviews see Cummins et al., 2002; Cummins & Nistico, 2002).

Self-esteem refers to a person's cognitive appraisal of their overall worth, value, or self-approval (Blascovich & Tomaka, 1991). Within the field of psychology, the most frequently cited definition of self-esteem is Rosenberg's (1965). Research consistently links self-esteem and SWB (Boschen, 1996; Coyle, Lesnik-Emas, & Kinney, 1994; Diener, 1984; Diener & Diener, 1995; Hong & Giannakopoulos, 1984; Kwan, Bond, & Singelis, 1997; Leung, Moneta, & McBride-Chang, 2005; Lyubomirsky, Tkach, & DiMatteo, 2006; Marriage & Cummins, 2004; Schimmack & Diener, 2003; Sheldon & Hoon, 2007). Self-esteem has been found to be the strongest single predictor of SWB (Hong & Giannakopoulos, 1984). However, despite the robust association between self-esteem and SWB cross-cultural research suggests that the two variables are discriminable constructs (Diener & Diener, 1995).

Optimism refers to a generalised and relatively stable expectancy that positive, rather than negative things, will occur in one's future (Scheier & Carver, 1993). Optimistic beliefs have been found to be positively related to adjustment and SWB in a range of populations (Ben-Zur, 2003; Carver et al., 2005; Colombo, Balbo, & Baruffi, 2006; Daukantaite & Bergman, 2005; Dember & Brooks, 1989; Fitzgerald, Tennen, Affleck, & Pransky, 1993; Leung et al., 2005; Wrosch & Scheier, 2003). Research indicates that optimism may influence SWB both directly and indirectly, by influencing self-esteem (Leung et al., 2005).

Perceived control and subjective well-being

In the area of SWB, perceived control is most often defined as the extent to which an individual believes that outcomes of importance can be controlled (Rotter, 1966). Within Western cultures, it is assumed that people prefer to perceive the environment as under internal control, and that this acts a buffer, reinforcing SWB. Consistent with this, a stronger internal locus of control has been linked with various indicators of well-being (Diener, 1984; Grob, 2000; Hong & Giannakopoulos, 1984; Klonowicz, 2001; Kopp & Ruzicka, 1993; Krause, Stanwyck, & Maides, 1998; Wen & Richang, 2004; Ye, She, & Wu, 2007). When locus of control is measured as a multidimensional construct, beliefs in the influence of chance and powerful others have been found to be associated with lowered SWB (Bostic & Ptacek, 2001; DeNeve & Cooper, 1998). However, it should be noted that studies have revealed in some circumstances a belief in the influence of powerful others (e.g., God) may actually enhance the SWB of older people ((Krause, 2005). It may be that a strong sense of internal control is problematic and detrimental to well-being in situations where external constraints limit the potential for control, or where it induces an aversive sense of responsibility (Rodin, 1986). Furthermore, when an individual is faced with negative life events not under their control (e.g., illness, natural disaster) the perception of external control may actually help to reduce negative affect and act as a buffer of SWB (Cummins, Gullone, and Lau, (2002).

The inadequacies of the locus of control construct in accounting for eating disordered behaviours (reviewed in previous sections) illustrates the problems with focusing solely on how people attribute control in relation to psychological and

behavioural outcomes. Thus, it is not surprising that locus of control shows such variable relations with SWB. However, if control is instead conceptualized as a complex, multidimensional construct, it becomes apparent that there are many ways in which facets of control (in addition to perceived control) may relate to SWB.

Primary and Secondary Control Strategy Use and Subjective Well-Being

The OPS model (Heckhausen, 1999) considers primary and secondary control processes as central to successful development because of their role in goal pursuit. The authors argue that personal goals are an essential part of successful living, structuring peoples' lives, infusing life with purpose, and guiding both short- and long-term behaviour, and that processes related to the management of goals should also contribute to successful development (Wrosch et al., 2004; Wrosch, Scheier, Carver et al., 2003). Wrosch et al. (2003) recognise that goals relate not only to major developmental tasks, but also navigating the realms of everyday life. The importance of personal goals for emotional and cognitive well-being, life satisfaction and SWB has been emphasised within the research literature (Cantor & Sanderson, 1999; Emmons, 1986; Grob, 2000; Higgins et al., 1999; Scheier & Carver, 1993). Furthermore, prominent researchers in the area of SWB have suggested that a shift in focus to more abstract concepts, such as goals, may result in stronger relationships between independent variables and subjective well-being (Diener, 1984) and have argued that "successful adaptation is likely to depend on choosing goals that can be accomplished with the resources one possesses" (Diener & Fujita, 1995). This is consistent with the OPS model (Heckhausen, 1999), which emphasizes the importance of selecting control processes relevant to goal management, whilst taking account of external constraints. Whether individuals pursue

their goals in an optimal fashion is likely to be reflected in their self-reported well-being, both across and within domains. Thus, goal management provides a useful perspective from which to examine the relationships between primary and secondary control processes and SWB, and is the focus of the first study.

To briefly reiterate, the OPS model (Heckhausen, 1999) specifies four different types of primary and secondary control strategies that are involved in the pursuit of, and disengagement from, personal goals. The appropriateness of these strategies, in any given context, is determined by the constraints on goal pursuit, and the extent to which goal pursuit is conducive to successful development. The OPS model (Heckhausen, 1999) is one of control strategy use as opposed to control attribution. This distinction between perceived control and primary control is very important. Perceived control is defined as the amount of control the individual believes he/she, or other significant influences, have in determining a particular outcome. In contrast, primary control is the strategy(s) the individual uses in attempts to change this outcome (in the environment). Of course, these two constructs are likely to be related, with perceived control playing a role in the appraisal of situation, and the selection of control strategy(s) to be implemented (Wrosch et al., 2004). For example, people with a stronger internal sense of control should be more likely to utilise primary control. Unfortunately, little research has been done to investigate the relationships between perceived control and control strategy use. For the present study it was hypothesised that (i) internal locus of control would be positively correlated with use of selective primary control, compensatory primary control, and selective secondary control, and negatively correlated with compensatory secondary control, and (ii) that external loci of control (chance and

powerful others) would be positively correlated with compensatory secondary control, and negatively correlated with selective primary control, compensatory primary control, and selective secondary control.

The OPS model (Heckhausen, 1999) posits that for successful development individuals must adjust their goal-related processes (primary and secondary control strategies) to biological, societal, and age-normative constraints which alter prospects for goal attainment. Consistent with the proposition that both primary and secondary control are implicated in optimal adaptation, the research generally indicates that high primary control strategy *beliefs* and strategy *use* are positively related to health and psychological adjustment (including SWB), but that secondary control is also important in situations where there is less belief or actual opportunity for primary control (e.g., Affleck, Tennen, Croog, & Levine, 1987; Affleck, Tennen, Pfeiffer, & Fifield, 1987; Bailis, Chipperfield, & Perry, 2005; Band & Weisz, 1988; Chipperfield & Perry, 2006; Chipperfield, Perry, & Menec, 1999; Compas, Langrock, Keller, Merchant, & Copeland, 2002; Heeps, 2000; Lang & Heckhausen, 2001; Thompson et al., 1994; Thompson et al., 1998; Thomsen et al., 2002; Wadsworth & Compas, 2002; Weisz, McCabe, & Dennig, 1994; Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997). In further support of this, the four types of control strategies specified by the OPS model (Heckhausen, 1999) have been found to have significant positive correlations with indicators of psychological wellbeing (Heckhausen, Schulz, & Wrosch, 1999).

Based on this research, in the present thesis it was hypothesised that the four types of control strategies would each independently predict SWB. The reasons for this are two-fold. Firstly, the use these strategies may engender a sense of control, over both

external realities and internal states. Secondly, their use may also contribute to protecting or enhancing self-esteem (note that self-esteem has been identified as an important factor in the homeostatic model of SWB; Cummins et al., 2002). For example, the active pursuit of goals (exemplified by goal engagement strategies) may imbue individuals with a sense of purpose and help to shape their identity, thus promoting positive self-esteem. In addition, being able to disengage from unattainable goals and manage the negative effects of this on self-esteem requires goal disengagement strategies (Wrosch et al., 2004). In support of these suggestions, there is limited research to suggest that the four types of control strategies are associated with autonomy, environmental mastery, purpose in life, and self-acceptance (Heckhausen et al., 1999). Consequently, it was also hypothesised that self-esteem would at least partially mediate the effects of control strategy use on SWB.

Although the OPS model emphasises a role for all types of primary and secondary control in supporting successful development it is argued that "although control strategies [goal engagement strategies] that support the attainment of personal goals can be expected to relate to indicators of successful development across the entire life span, they should be particularly closely associated with successful development among young adults. In contrast, the adaptive value of control strategies associated with goal disengagement and self-protection should increase if people advance in age" (Wrosch et al., 2004, p. 406). Several studies have tested and generally confirmed the propositions that (i) use of goal disengagement strategies increases with age, and (ii) individual differences in control strategy use is associated with indicators of successful development (e.g., positive affect, depressive symptoms, SWB). For example, older

adults tend to utilise compensatory secondary control when managing developmental goals to a greater extent than younger adults (Heckhausen, 1997; Heckhausen, Wrosch, & Fleeson, 2001; Thompson et al., 1994; Wrosch & Heckhausen, 1999). Goal disengagement appears to be adaptive for older adults, and less adaptive for younger adults (Heckhausen, 1997; Wrosch & Heckhausen, 1999), whilst goal engagement demonstrates the reverse pattern (Chipperfield et al., 1999; Heckhausen et al., 2001).

It should be noted that it is not age which determines the most adaptive control processes, but the *controllability of the situation*, which, in relation to developmental goals, is often influenced by age. For example, two studies (Wahl, Becker, Burmedi, & Schilling, 2004; Wrosch, Schulz, & Heckhausen, 2002) looking at health problems (vision impairment, pain and breathing difficulties) have found that goal engagement may be associated with enhanced adjustment (depression, functional ability, positive affect), if there was opportunity to manage the given problem. This is significant because it indicates that the theoretical principles of the life-span theory of control can be applied to individuals of similar chronological age (Wrosch et al., 2004), and suggests that even within age groups the potential for goal engagement differs, due to additional constraints upon goal attainment. This also highlights the need to examine specific domains, as within core life domains, constraints additional to age are likely to be present which alter the relationships between goal engagement and disengagement and satisfaction. Consequently, the focus of Study One is examination of these relationships and how they may alter, depending on the constraints associated with different domains.

Conclusions

The general aim of Study One was to examine the relationship between locus of control, primary and secondary control processes, SWB, and domain satisfaction. The more specific aim was to test the applicability of a domain-specific version of the OPS model (Heckhausen, 1999) to satisfaction (i) with the domains of life that comprise the PWI, and (ii) with the domain of body appearance.

It was expected that in addition to being associated with locus of control beliefs, the primary and secondary control strategies would each independently predict SWB, at least in part due to their influence on self-esteem. However, given the anticipated age of the sample (aged between 18 and 40 years old) it was expected that participants would have ample opportunity and minimal constraints upon goal attainment, particularly in the domains of health, achievements, relationships, and their bodies. In this context, goal engagement (composed of primary and secondary control types) is likely to be the adaptive strategy (to the extent that it promotes long-term control potential), with goal disengagement (compensatory secondary control) being relatively unimportant and therefore having minimal impact on SWB. Consequently, it was hypothesised that goal engagement strategies, together, would significantly predict SWB and that goal disengagement would also contribute unique variance to SWB, albeit to a lesser extent. In order to examine the domain-specific nature of control, the same hypothesis was applied to satisfaction with each of the core domains examined (health, relationships, achievements) as well as the primary domain of interest – the body.

To explore the relevance of the OPS model (Heckhausen, 1999) to domain satisfaction it was first necessary to modify the model to fit a domain-specific approach.

The model is typically conceptualized as domain-general, and is operationalised in the form of the Optimization in Primary and Secondary Control Scales (OPS Scales; Heckhausen & Schulz, 1998). These scales assess endorsement of the four different types of control strategies described above. Previous research has modified the four OPS subscales that correspond to these control strategies for use in domain-specific contexts, such as for assessing control in the context of child-bearing (Heckhausen et al., 2001), health (Wrosch et al., 2002), partnership and work (Wrosch & Heckhausen, 1999).

In Study One the OPS Scales (Heckhausen & Schulz, 1998) were modified to target the domains of life that comprise the PWI and that were identified as relevant to appearance and the body (health, relationships, and achievement), and the dimension of body appearance. To accomplish this, the modified OPS Scale was administered five times. In the first instance, the 'target' for each item was "improving or maintaining your life". In subsequent administrations, the 'target' for each item was changed to "improving or maintaining your health", to "improving or maintaining your personal relationships", to "improving or maintaining your achievements", to "improving or maintaining your body". The modified OPS Scale could then be used to examine the relationships between locus of control beliefs, generalised control strategy use, and SWB, to examine the relationships between generalised control strategy use, self-esteem, and SWB, and, to test the extent to which the relationships between control and SWB are domain-specific.

Chapter Three

Study One Aims and Hypotheses

Aim One and Related Hypotheses

The first aim of Study One was to examine the relationships between locus of control beliefs and (i) generalised control strategy use, and (ii) SWB. Based on the premise that the various aspects of control are likely to be related, with perceived control playing a role in the appraisal of situations and the selection of control strategy(s) to be implemented (Wrosch et al., 2004), it was hypothesised:

Hypothesis One: That internal locus of control would be positively correlated with use of goal engagement strategies (selective primary control, compensatory primary control, and selective secondary control) and negatively correlated with goal disengagement strategies (compensatory secondary control).

Hypothesis Two: That external loci of control (chance and powerful others) would be positively correlated with goal disengagement strategies, and negatively correlated with goal engagement strategies.

In line with previous research linking internal locus of control with various indicators of well-being (Diener, 1984; Grob, 2000; Hong & Giannakopoulos, 1984; Klonowicz, 2001; Kopp & Ruzicka, 1993; Krause et al., 1998; Wen & Richang, 2004; Ye et al., 2007), and beliefs in the influence of chance and powerful others with lowered SWB (Bostic & Ptacek, 2001; DeNeve & Cooper, 1998), the following hypothesis was proposed:

Hypothesis Three: That SWB would be positively correlated with internal locus of control, and negatively correlated with both measures of external locus of control (chance and powerful others).

Aim Two and Related Hypotheses

A second aim of Study One was to examine the relationships between generalised control strategy use, self-esteem, and SWB. Hypotheses regarding these relationships were generated based on existing research and the OPS model (Heckhausen, 1999), suggesting that primary and secondary control endorsement is associated with indicators of psychological wellbeing and that the impact of primary and secondary control strategies alters depending on developmental and situational constraints (refer to Chapter Two – Primary and Secondary Control Strategy Use and Subjective Well-Being). Given the age of the sample (aged between 18 and 40 years old) it was expected that participants would have ample opportunity and minimal constraints upon goal attainment. In this context, goal engagement (composed of selective and compensatory primary control and selective secondary control) is expected to be the more adaptive strategy with goal disengagement (compensatory secondary control) being relatively unimportant and having minimal impact on SWB. This lead to the hypothesis:

Hypothesis Four: That each of the primary and secondary control strategies would function as independent predictors of SWB and that both goal engagement and disengagement would significantly predict variance in SWB. The variance predicted by goal disengagement was expected to be independent of the variance predicted by goal

engagement, however, the magnitude of unique predictive variance was expected to be lower than that predicted by goal engagement.

It was also suggested that one reason why control strategy use might influence SWB is through its effects on self-esteem, which may be enhanced or protected through the pursuit of goals and/or by buffering the negative effects of 'failed' goals on self-esteem. This lead to the following hypothesis:

Hypothesis Five: That self-esteem would mediate the effects of control strategy use on SWB.

Aim Three and Related Hypotheses

A third aim of Study One was to test the extent to which the relationships between control strategy use and SWB are domain-specific. In order to do this, it was deemed necessary to first examine whether the newly proposed domain of the body was relevant to SWB, and the other core domains examined in this thesis. The addition of the body domain is supported by research finding positive associations between body satisfaction and multiple domains of life (e.g., self-esteem, emotional states, relationships, health behaviours) (Cash & Fleming, 2002; Hoffman & Brownell, 1997), and body satisfaction and the SWB of females (Cash & Fleming, 2002; Diener et al., 1995; Stokes & Frederick-Recascino, 2003). This lead to the following hypotheses:

Hypothesis Six: That satisfaction with the domains of health, relationships, achievements, and the body would be significantly correlated and that each domain, including the body, would contribute unique variance to SWB when the domains are collectively regressed against "Life as a Whole".

Once again, it was assumed that for the domains examined individuals would face ample opportunities for goal pursuit, and therefore, it was expected that goal engagement strategy use (indicative of goal pursuit) would be the more important determinant of satisfaction with each of the domains (in contrast to goal disengagement). Any diversion from the expected pattern would be taken as evidence of the need for a domain-specific approach to control.

Hypothesis Seven: That within each domain, both goal engagement and disengagement would predict significant variance in domain satisfaction and that the variance predicted by goal disengagement would be independent of the variance predicted by goal engagement. However, the magnitude of unique predictive variance was expected to be lower than that predicted by goal engagement.

Chapter Four

Method

Participants

A sample of 155 adult women, ranging in age from 18 to 42 years (*M*=26.64, *SD*=5.27), participated in the study. Participants were recruited through the use of posted advertisements, announcements made in lectures, and word-of-mouth. Participants were sourced primarily from businesses in the local Melbourne region, from Deakin University's Melbourne campus, and via a snowball technique though friends and family of participants and the researchers. The information provided to interested participants included the nature of the study (type of questions, approximate duration, anonymity, etc.) and the email contact of the researchers. Interested individuals emailed a request for the questionnaire package and were provided with a $20 gift voucher as an honorarium upon return of the completed questionnaire. To protect the anonymity of participants the completed questionnaire and the gift-request card were returned to the researchers in separate reply-paid envelopes (refer to Procedure for details). Of the 180 questionnaires distributed in this way, 155 were returned, representing a response rate of 86%.

Materials

The questionnaire contained the following measures presented in the following order:

Subjective wellbeing. Participants used an 11-point scale anchored between 'completely dissatisfied' (0) and 'completely satisfied' (10) to respond to the single item used in conjunction with the Personal Wellbeing Index (International Wellbeing Group,

2006) that assesses overall satisfaction with life (SWB): "Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?". This single item is considered an excellent measure of SWB, although less reliable than multi-item scales (International Wellbeing Group, 2006). When responses are converted to a 0 to 100 scale, the normative range of life satisfaction for Australia is 75.9 to 79.2, with a mean of 77.5 (Cummins et al., 2008). For the current sample, mean SWB was 71.95 (*SD*=15.31).

Subjective satisfaction across the life domains of health, personal relationships, and achievements, was also measured using items from the Personal Wellbeing Index (International Wellbeing Group, 2006), with domain-specific satisfaction measured by the item: "How satisfied are you with your [*insert domain*]?". As indicated by normative values calculated from survey mean scores, the means and standard deviations for the three PWI domains are: Health satisfaction (*M* =75, *SD*=0.54); Relationship satisfaction (*M*=79.21, *SD*=1.16); Achievement satisfaction (*M* =73.67, *SD*= .92) (Cummins et al., 2008). An additional item was created for the present study to assess satisfaction with one's body: "How satisfied are you with the appearance of your body?". For the current sample, mean satisfaction with each of the domains was: Health satisfaction (*M* = 67.48, *SD*=21.28); Relationship satisfaction (*M*=74.98, *SD*= 19.42); Achievement satisfaction (*M* =69.22, *SD*= 18.00); and Body satisfaction (*M* = 57.48, *SD*= 21.64).

Primary and Secondary Control Strategies (PSCS). The present study aimed to assess participants' use of control strategies in life in general as well as in a number of specific domains. The basis for this assessment was the 32-item general Optimization of Primary and Secondary Control Scale (OPS Scale; Heckhausen & Schulz, 1998).

Participants used a 5-point scale ranging from ‘almost never true’ (1) to ‘almost always true’ (5) (and were also given the option to respond ‘don’t know’) to respond to items designed to measure the extent to which each of four types of control strategy are used to pursue goals: (i) selective primary control (SPC) refers to the investment of time and effort, developing skills, and increasing effort in response to obstacles (ii) compensatory primary control (CPC) refers to actively searching for help or advice, using unusual means or taking an alternative path to a goal, (iii) selective secondary scale (SSC) refers to enhancing goal value, devaluing alternative goals, enhancing perceived control, and imaging positive consequences of goal attainment, and (iv) compensatory secondary control (CSC) refers to disengaging from selected goals and using external attributions and social comparison processes to protect the self and safeguard motivational resources. The OPS model conceptualizes SPC, CPC and SSC as goal engagement strategies, designed to facilitate pursuit of goals, whereas CSC is conceptualized as a goal disengagement strategy, allowing individuals to relinquish unattainable goals whilst still protecting their self-esteem, optimism, and hope for future success (Wrosch et al., 2004). Responses to items were averaged to yield each of the four subtypes of control relevant life goals in general (LifeSPC, LifeCPC, LifeSSC, LifeCSC). For the present study, the internal consistency of each Life PSCS subscale was adequate; LifeSPC (Cronbach’s α=.66, *M*=3.79, *SD*=.55), LifeCPC (α=.73, *M*=3.86, *SD*=.62), LifeSSC (α=.67, *M*=3.49, *SD*=.60), LifeCSC (α=.61, *M*=3.02, *SD*=.60) (note, throughout this paper internal consistency is reported as Cronbach’s alpha).

Each item from the Life PSCS subscales were then modified to produce four subscales specific to one of four domains: Health PSCS, Relationship PSCS,

Achievement PSCS, and Body PSCS. These modifications, which served to specify a particular domain for each item of the Life PSCS, involved inserting the phrase "to improve or maintain my [*insert domain*]", or "improving or maintaining my [*insert domain*]" at the beginning of the item. In all other respects (item number, item order, etc.) the items were identical to the Life PSCS. For the present study, the domain-specific PSCS subscales possessed adequate internal consistency. The relevant descriptives for the Health PSCS are: HealthSPC (α=.78, *M*=3.39, *SD*=.68), HealthCPC (α=.85, *M*=3.31, *SD*=.87), HealthSSC (α=.79, *M*=3.29, *SD*=.72), HealthCSC (α=.67, *M*=2.85, *SD*=.70). The relevant descriptives for the Relationship PSCS are: RelateSPC (α=.81, *M*=3.77, *SD*=.68), RelateCPC (α=.82, *M*=3.34, *SD*=.81), RelateSSC (α=.79, *M*=3.40, *SD*=.72), RelateCSC (α=.69, *M*=2.73, *SD*=.70). The relevant descriptives for the Achievement PSCS are: AchieveSPC (α=.83, *M*=3.85, *SD*=.63), AchieveCPC (α=.79, *M*=3.62, *SD*=.70), AchieveSSC (α=.73, *M*=3.66, *SD*=.64), AchieveCSC (α=.68, *M*=2.86, *SD*=.64). The relevant descriptives for the Body PSCS are: BodySPC (α=.82, *M*=3.00, *SD*=.82), BodyCPC (α=.85, *M*=2.59, *SD*=.89), BodySSC (α=.79, *M*=3.06, *SD*=.77), BodyCSC (α=.74, *M*=2.81, *SD*=.78).

Locus of Control. Participants used a 7-point scale, ranging from 'strongly disagree' (-3) to 'strongly disagree' (+3) to respond to 24 items comprising Levenson's (1974) Internality, Powerful Others and Chance Scale (IPC Scale). The items ask participants to indicate their level of agreement with statements regarding the influence they themselves, chance, and powerful others have on outcomes. The questionnaire has three subscales: (i) the Internality scale, which measures the extent to which people believe they have control over their own lives, (ii) the Powerful Others scale, which

concerns the belief that other persons control events in one's life, and (iii) the Chance scale, which assesses the belief that chance, fate or luck influences outcomes in one's life. The reliability of the three-factor model of control has been assessed as .68, .73, and .68, for the internal, powerful others and chance scales, respectively (Presson, Clark, & Benassi, 1997). In the present study, internal consistency was shown to be .71 for the Internality scale (M=1.32, SD=.94), .65 for the Chance scale (M=-0.70, SD=.87), and .72 for the Powerful Others scale (M=-0.70, SD=.95).

Self-esteem. Participants used a 5-point Likert scale ranging from 'strongly agree' (1) to 'strongly disagree' (5) to indicate their level of agreement to the 10 items comprising Rosenberg's (1965) Self-Esteem Scale (RSES). The scale is widely used, and has been extensively tested for internal consistency, test-retest reliability and validity (Blascovich & Tomaka, 1991). In the current study, the internal consistency of the scale was .88 (M=2.20, SD=.64).

Procedure

The study was approved by the Deakin University Human Research Ethics Committee (refer to Appendix A). Individuals interested in participating in the study were mailed a questionnaire package containing a cover letter, and a copy of the questionnaire battery containing the scales mentioned previously (see Appendix B). The cover letter introduced the principal investigator, and informed participants of the nature of the questionnaire, its general content (including example items from the scales), the approximate time commitment (one hour), the potential negative effects of the project, as well as the procedure for returning the questionnaire and requesting the $20 gift voucher for participating. This involved the use of two separate reply-paid envelopes to

return the questionnaire and gift request form, in order to ensure the anonymity of participants. The letter informed participants that their consent to participate in the study would be registered by completing the questionnaire and returning it to the investigator in the reply-paid envelope provided. Participants were instructed to complete the questionnaire in their own time.

Chapter Five

Study One Results

Data Screening and Testing Assumptions

Prior to analysis, dependent and independent variables were examined using SPSS FREQUENCIES, SPSS RELIABILITY ANALYSIS and SPSS REGRESSION for accuracy of data entry, missing values, internal consistency, and fit between variable distributions and the assumptions of multivariate analysis. Missing values were distributed randomly across cases and variables, with less than 2.5% missing values in each variable. Cases with missing values were retained, and missing values were replaced with means. Variables were computed from the mean of the internally consistent items (with item-total correlations greater than .20). All variables showed adequate internal consistency, with Cronbach's α greater than .60 (the relevant statistics for each variable is provided in the Measures sub-section of the Method). The internal consistency (Cronbach's α) of the Internality variable was enhanced from .68 to .71 by omitting the two items with the lowest item-total correlations.

Variables were assessed for normality, linearity, univariate and multivariate outliers. Univariate outliers - values further than three standard deviations from the mean - were replaced with values corresponding to three standard deviations above or below the mean. To remedy violations from normality, variables with skewed distributions (SWB, Health satisfaction, Relationship satisfaction and Achievement satisfaction) were transformed to produce distributions with skew values (skewness statistic divided by the standard error of skew) less than 4. Post-transformation, the data met the assumptions of

linearity and homoscedasticity of residuals. Inspection of Mahalanobis distance scores revealed a single multivariate outlier ($\chi(4) = 18.467$, $p < .01$). This particular case was excluded from the relevant analysis.

To ensure that multicollinearity and singularity would not undermine subsequent regression analyses, eigenvalues were inspected. Multicollinearity was assessed using a two-step procedure advocated by Hair, Anderson, Tatham and Black (1998). In the first step, the condition indices of the variables were screened for values approaching 30. As no condition index exceeded the threshold of 30, there was no need to proceed to the second step. Furthermore, tolerance values and VIF statistics also indicated that there was no evidence of multicollinearity in the regression results. Although the sample size was appropriate for multiple regression analyses involving four independent variables (i.e., the four subscales of the PSCS), as described below these subscales were evaluated across four domains (Health, Relationship, Achievement, and Body). This necessitated the use of a more conservative significance level ($p < .01$) in subsequent inferential analyses.

Testing Hypotheses Relevant to Aim One

Hypothesis one

It was hypothesised that internal locus of control would be positively correlated with use of goal engagement strategies (selective primary control, compensatory primary control, and selective secondary control) and negatively correlated with goal disengagement strategies (compensatory secondary control).

The correlations presented in Table 1 indicate although Internality is significantly correlated with LifeSPC, $r = .30$, $p < .01$, and LifeSSC, $r = .28$, $p < .01$,

there are no significant correlations between Internality and LifeCPC and LifeCSC. This suggests that whilst a stronger internal locus of control may translate into greater endorsement of some goal engagement strategies, it does not reduce endorsement of goal disengagement.

Hypothesis two

It was hypothesised that external loci of control (chance and powerful others) would be positively correlated with goal disengagement strategies, and negatively correlated with goal engagement strategies.

The correlations presented in Table 1 indicate that Chance is negatively correlated with LifeSPC, $r = -.22$, $p < .01$. However, there are no significant correlations between Powerful others and any goal engagement strategy, or between Chance and Powerful Others and LifeCSC. These findings suggest that self-reported use of any given control strategy is only minimally related to an individual's beliefs about perceived control.

Hypothesis three

It was hypothesised that SWB would be positively correlated with internal locus of control, and negatively correlated with both measures of external locus of control (chance and powerful others).

In confirmation of the hypothesis that an internal locus of control is an important determinant of satisfaction with life, Table 1 confirms that overall SWB is also positively correlated with Internality, $r = .30$, $p < .01$. However, only non-significant trends are evident between SWB and measures of external locus of control (Powerful Others, $r = -.17$, $p = .03$; Chance, $r = -.18$, $p = .03$).

Table 1

Means, Standard deviations, and Bivariate Correlations (Pearson's r values reported) for SWB, Self-Esteem, and Measures of Control

	1	2	3	4	5	6	7	8	9
(1) SWB		-.47*	.30*	-.17	-.18	.34*	.21	.36*	.29*
(2) Self-esteem			-.22*	.28*	.32*	-.31*	-.30*	-.37*	-.37*
(3) Internal				-.23*	.01	.30*	.09	.28*	-.01
(4) Chance					.47*	-.22*	-.07	-.17	-.06
(5) Powerful others						-.12	-.19	.00	-.08
(6) LifeSPC							.36*	.48*	.20
(7) LifeCPC								.34*	.40*
(8) LifeSSC									.20
(9) LifeCSC									
M	71.95	2.20	1.32	-.70	-.70	3.79	3.86	3.49	3.02
SD	15.31	.64	.94	.87	.95	.55	.62	.60	.60

Note: *p <.01 (2-tailed)
LifeSPC = Life selective primary control; LifeCPC = Life compensatory primary control; LifeSSC = Life selective secondary control; LifeCSC = Life compensatory secondary control

Testing Hypotheses Relevant to Aim Two

Hypothesis four

It was hypothesised that each of the primary and secondary control strategies would function as independent predictors of SWB and that both goal engagement and disengagement would significantly predict variance in SWB. The variance predicted by goal disengagement was expected to be independent of the variance predicted by goal engagement, however, the magnitude of unique predictive variance was expected to be lower than that predicted by goal engagement.

According to the OPS model (Heckhausen, 1999), control strategies involving goal engagement should, at least in young and middle-aged individuals, promote

positive evaluations of self and of life. Control strategies involving goal disengagement may also promote positive evaluations, but only when goal engagement strategies have either failed or have proven to be insufficient. On this basis, it was hypothesised that (i) all four types of control strategies would function as unique predictors of SWB, (ii) the general measures of goal engagement (LifeSPC, LifeCPC, LifeSSC) would predict significant variance in SWB, and (iii) the general measure of goal disengagement (LifeCSC) should predict unique, albeit less, variance in SWB. To test these hypotheses, a two-step hierarchical regression was conducted with goal engagement strategies included in the regression in the first step, and goal disengagement strategies included in the second step. The results of these regressions are summarised in Table 2.

Correlations presented in Table 1 partially confirm the hypothesised positive relationships between SWB and general (i.e., Life) measures of primary and secondary control. Only the correlation between SWB and LifeCPC does not reach statistical significance at the conservative alpha level employed, $r = .21$, $p = .01$. However, inspection of the t values and squared semi-partial correlations (sr^2), which correspond to the proportion of the dependent variable (SWB) uniquely explained by the independent variable, indicate that only two variables make a significant independent contribution to SWB – LifeSSC and LifeCSC – contributing 4% of variance each. LifeSPC and LifeCPC fail to make a unique contribution. This may be accounted for by reference to the correlation matrix (Table 1) which indicates that Life SPC and LifeCPC have medium positive correlations with each other and LifeSSC, and that LifeCSC is correlated only with LifeCPC. This suggests that the variance accounted for by LifeSPC

and LifeCPC is redundant because of their association with secondary control strategies, either other compensatory strategies (LifeCSC) and/or selective strategies (LifeSSC).

Table 2

Hierarchical Regression of SWB Regressed on Goal Engagement Strategies (Step 1) and Goal Disengagement Strategies (Step 2)

SWB	*IV*	R^2	*Adj.* R^2	ΔR^2	*B*	*Se*	β	*t*	*R*	sr^2
Step 1	LifeSPC	.17*	.15*		.51	.22	.21	2.37	.34*	.03
	LifeCPC				.12	.18	.05	.63	.21	.00
	LifeSSC				.57	.20	.24*	2.81*	.36*	.04
Step 2	LifeSPC	.21*	.18*	.04*	.49	.21	.20	2.31	.34*	.03
	LifeCPC				-.00	.19	-.03	-.31	.21	.00
	LifeSSC				.54	.20	.23*	2.72*	.36*	.04
	LifeCSC				.49	.18	.21*	2.67*	.29*	.04

Note: *$p < .01$.
LifeSPC = Life selective primary control; LifeCPC = Life compensatory primary control; LifeSSC = Life selective secondary control; LifeCSC = Life compensatory secondary control

With respect to the second part of the hypothesis, inspection of Table 2 confirms that the measures of goal engagement (LifeSPC, LifeCPC, and LifeSSC) together explain significant variance in SWB, $R^2 = .17$, F (3, 151) = 10.11, $p < .01$; that the addition of the goal disengagement measure of control (LifeCSC) in step 2 of the regression explains significant additional variance, R^2 Change = .04, F (1, 150) = 7.12, $p < .01$; and that, together, the strategies predict a total of 20.5% of the variance in SWB. These results confirm that whilst both goal engagement and goal disengagement strategies contribute to SWB, it is the endorsement of goal engagement strategies which is the more important predictor of SWB.

Hypothesis five

It was hypothesized that self-esteem would mediate the effects of control strategy use on SWB.

According to subjective wellbeing theory and research, self-esteem is a powerful determinant of subjective well-being and overall SWB (Cummins et al., 2002). The findings of the present study are consistent with this, with significant *negative* relationships evident between SWB and *low* Self-esteem (r = -.47, p < .01) (see Table 1). Recent conceptualizations of subjective well-being have also suggested that primary control and secondary control are causally related to SWB (Cummins, 2005). Consistent with this, Table 1 indicates that significant positive correlations are present between SWB and LifeSPC (r = .34, p < .01), LifeSSC (r = .36, p < .01), and LifeCSC (r = .29, p < .01). In the present thesis, it was proposed that these relationships may be accounted for if one considers the self-esteem may mediate the effects of primary and secondary control on SWB. In support of this, Table 1 reveals significant negative correlations between *low* Self-esteem and LifeSPC, r = -.31, p < .01, LifeCPC, r = -.30, p < .01, LifeSSC, r = -.37, p < .01, and LifeCSC, r = -.37, p < .01.

To test explicitly the extent to which self-esteem mediates the relationship between control strategy and SWB, standard multiple regressions were conducted to extract beta weights (and their standard errors) corresponding to (i) the first step of the mediated path: between control and Self-esteem (this involved regressing Self-esteem on each measure of control), and (ii) the second step of the mediated path: between Self-esteem and SWB (this involved regressing SWB on Self-esteem, with each measure of control included as a 'competing' predictor in order to remove its effects from the beta weight). The results of these regressions are summarised in Table 3. This table includes standardized beta weights for each path component, as well as the proportion of the direct path from control strategy to SWB ($B_{IV \rightarrow DV}$) that is accounted for by the indirect

or mediated path ($B_{IV(m)\rightarrow DV}$), expressed as a percentage change in the unstandardised beta weight (i.e., $\Delta B(\%)=((B_{IV\rightarrow DV}-B_{IV(m)\rightarrow DV})/B_{IV\rightarrow DV})*100$). The significance of the mediated path (the indirect effect) was tested using Sobel's product of coefficients test conducted on the unstandardised beta weights and their corresponding standard errors (Sobel's *z* scores are included in the table).

Inspection of Table 3 shows that Self-esteem significantly mediates the relationships between each control strategy and SWB. The analyses reveal that Self-esteem is not only a significant mediator it is also a substantial one, accounting for a significant proportion (ranging from 36% to 65%) of each relationship. Applying Baron and Kenny's (1986) criteria for distinguishing partially-mediated effects from fully-mediated ones, the following interpretation can be made of the results reported in Table 3: (i) Self-esteem accounts for 36% of the relationship between LifeSPC and SWB. This relationship remains significant following the inclusion of Self-esteem in the regression equation. Thus, Self-esteem is only a *partial* mediator; (ii) Self-esteem accounts for 39% of the relationship involving LifeSSC. This relationship remains significant following the inclusion of Self-esteem, suggesting that Self-esteem is only a *partial* mediator; (iii) Self-esteem accounts for 65% of the relationship involving LifeCPC. This relationship is reduced to non-significant following the inclusion of Self-esteem, suggesting that Self-esteem is a *full* mediator; and (iv) Self-esteem accounts for 55% of the relationship involving LifeCSC. This relationship is reduced to non-significant following the inclusion of Self-esteem, suggesting that Self-esteem is a *full* mediator.

Table 3

Path Coefficients and Mediation Effects Reported as a Proportion of the Direct Effects

IV	$\beta path_a$	*m*	$\beta path_b$	*DV*	$B_{IV \rightarrow DV}$	$B_{IV(m) \rightarrow DV}$	$\Delta B(\%)$	*Sobel's z*
LifeSPC	-.31*	Self-esteem	-.40*	SWB	.85*	.54*	36.47	3.25*
LifeCPC	-.30*		-.44		.46*	.16	65.22	3.26*
LifeSSC	-.37*		-.39*		.84*	.51*	39.29	3.56*
LifeCSC	-.37*		-.42*		.66*	.30	54.55	3.65*

Note: *p<.01.
IV=independent variable; m=mediator; DV=dependent variable; *B*=unstandardised regression coefficient; $\beta path_a$=standardized regression coefficient for the path from the independent variable to the mediator; $\beta path_b$=standardized regression coefficient for the path from mediator to the dependent variable, holding constant the effect of the independent variable; $IV \rightarrow DV = B$ for the direct path; $IV(m) \rightarrow DV = B$ for the direct path, holding constant the effect of the mediator; $\Delta B(\%) = ((B_{IV \rightarrow DV} - B_{IV(m) \rightarrow DV}) / B_{IV \rightarrow DV}) * 100$;
Sobel's $z = B_{path(a)} B_{path(b)} / \sqrt{(B_{path(a)}^2 se_{path(b)}^2 + B_{path(b)}^2 se_{path(a)}^2)}$.

Aim Three and Related Hypotheses

The prediction tested in the present study was that the importance of each control strategy (particularly the relative importance of goal engagement versus goal disengagement strategies) would be domain specific. This prediction was tested in a series of two-step hierarchical regressions in which each domain-specific measure of satisfaction was regressed on the domain-specific measures of goal engagement, followed by the corresponding goal disengagement measures. Three of the four domains examined were derived from the PWI (International Wellbeing Group, 2006) on the basis of their known importance to SWB: satisfaction with 'Health', 'Relationships', and 'Achievement'. The fourth domain examined, the 'Body', was included because of the known importance of body image to SWB of females (Cash & Fleming, 2002; Stokes & Frederick-Recascino, 2003).

Hypothesis six

It was hypothesized that satisfaction with the domains of health, relationships, achievements, and the body would be significantly correlated, and that each domain, including the body would contribute unique variance to SWB, when the domains are collectively regressed against "Life as a Whole".

Prior to testing the relevance of each domain-specific control strategy to its corresponding measure of domain satisfaction, it was necessary to confirm that the domains each contribute to SWB. This was verified by conducting a standard multiple regression in which SWB was regressed on the measures of domain satisfaction (Health satisfaction, Relationship satisfaction, Achievement satisfaction, and Body satisfaction). The results are presented in Table 4. This regression demonstrates that the measures of domain satisfaction together explain 52.2% of the variance in SWB, $R^2 = .52$, F (4, 150) = 40.92, $p < .01$. Inspection of the regression coefficients identifies each of the following domains as *unique* predictors of SWB: Relationship satisfaction, $t = 4.75$, $sr^2 = .07$, $p < .01$, Achievement satisfaction, $t = 5.89$, $sr^2 = .11$, $p < .01$, and Body satisfaction, $t = 3.29$, $sr^2 = .04$, $p = .01$. Only Health satisfaction is not a unique predictor of SWB, $t = .81$, $sr^2 = .00$, $p = .42$. Perhaps this reflects the young age of the sample (M=26.64, SD=5.27). Alternatively, this result may simply confirm health as a multidimensional construct involving more than just the absence of ill-health, incorporating physical, mental, social wellbeing allowing people to lead an individually, socially and economically productive life (World Health Organisation, 1986). For the purposes of the present study, the important thing to note is that although Health satisfaction is not a unique predictor, it is nonetheless significantly correlated with SWB, $r = .43$, $p < .01$.

Table 4

Means, Standard Deviations and Bivariate Correlations (Pearson's r values reported) for SWB and Domain-Specific Measures of Satisfaction

		1	2	3	4	5
(1) SWB			.43*	.55*	.61*	.43*
(2) Health satisfaction				.39*	.43*	.43*
(3) Relationship satisfaction					.43*	.24*
(4) Achievement satisfaction						.31*
(5) Body satisfaction						
	M	71.95	67.48	74.98	69.22	57.48
	SD	15.31	21.28	19.42	18.00	21.64

Note: *p <.01 (2-tailed)

Hypothesis seven

It was hypothesised that within each domain, both goal engagement and disengagement would predict significant variance in domain satisfaction and that the variance predicted by goal disengagement would be independent of the variance predicted by goal engagement. However, the magnitude of unique predictive variance was expected to be lower than that predicted by goal engagement.

The hierarchical regressions of measure of domain satisfaction on the three measures of domain-specific goal engagement (SPC, CPC, SSC), followed by the single measure of domain-specific goal disengagement (CSC), are shown in Table 5. Inspection of Table 5 confirms that the domain-specific control measures relevant to goal engagement significantly account for a moderate proportion of variance in Health satisfaction, $R^2 = .19$, F (3, 151) = 12.02, $p < .01$, Relationship satisfaction, $R^2 = .22$, F (3, 151) = 13.70, $p < .01$, and Achievement satisfaction, $R^2 = .26$, F (3, 151) = 17.52, $p <$ .01. However, addition of the goal disengagement measure of control in step 2 of the

regression does not account for significant additional variance in Health satisfaction, R^2 Change = .02, F (1, 150) = 3.21, p = .08, Relationship satisfaction, R^2 Change = .02, F (1, 150) = 3.09, p = .08, or Achievement satisfaction, R^2 Change = .03, F (1, 150) = 5.58, p = .02. The primacy of goal engagement strategies in each of these domains is confirmed by inspection of the t values and semi-partial correlations (sr^2), which indicate that the variables HealthSPC, RelateSPC, and AchieveSSC each make a significant independent contribution to the prediction of Health satisfaction (5.3%), Relationship satisfaction (5.1%), and Achievement satisfaction (4%), respectively.

The most interesting aspect of the results concerns the Body domain. For this domain the dominance of goal engagement over goal disengagement strategies is reversed. That is, the goal engagement measures of control (BodySPC, BodyCPC, BodySSC) together explain a non-significant proportion of the variance in Body satisfaction, R^2 = .05, F (3, 151) = 2.61, p = .05, whilst the single measure of goal disengagement (BodyCSC) accounts for a significant, and substantially greater, proportion of variance in Body satisfaction, R^2 Change = .22, F (1, 150) = 44.13, $p <$ .01. In contrast to the other domains, it is an individual's use of goal disengagement, rather than goal engagement strategies, which is related to their experience of Body satisfaction. Specifically, greater use of goal disengagement strategies when managing body-related goals is associated with body satisfaction.

Table 5

Hierarchical Regression of Domain Satisfaction Regressed on Domain-Specific Goal Engagement Strategies (Step 1) and Goal Disengagement Strategies (Step 2)

Dependent variable	*IV*	R^2	*Adj.* R^2	ΔR^2	*B*	*se*	β	*t*	*r*	sr^2
Health Satisfaction										
Step 1	HealthSPC	.19*	.18*		.94	.29	.37*	3.24*	.41*	.06
	HealthCPC				-.28	.19	-.14	-1.50	.19	.01
	HealthSSC				.43	.26	.18	1.66	.37*	.01
Step 2	HealthSPC	.21*	.19	.02	.91	.29	.36*	3.18*	.41*	.06
	HealthCPC				-.32	.19	-.16	-1.71	.19	.01
	HealthSSC				.40	.26	.17	1.54	.37*	.01
	HealthCSC				.34	.18	.14	1.79	.22*	.02
Relationship Satisfaction										
Step 1	RelateSPC	.22*	.20*		.99	.30	.33*	3.13*	.43*	.05
	RelateCPC				-.18	.22	-.08	-.82	.24*	.00
	RelateSSC				.61	.27	.23*	2.26*	.40*	.03
Step 2	RelateSPC	.23*	.21	.02	.92	.29	.33*	3.15*	.43*	.06
	RelateCPC				-.25	.22	-.11	-1.14	.24*	.01
	RelateSSC				.62	.27	.23	2.33*	.40*	.03
	RelateCSC				.36	.21	.13	1.76	.16	.02
Achievement Satisfaction										
Step 1	AchieveSPC	.26*	.24*		.61	.26	.24	2.36	.45*	.03
	AchieveCPC				-.00	.20	-.00	-.01	.30*	.00
	AchieveSSC				.78	.24	.32*	3.23*	.48*	.05
Step 2	AchieveSPC	.29*	.27	.03	.62	.26	.24	2.43	.45*	.03
	AchieveCPC				-.12	.21	-.05	-.56	.30*	.00
	AchieveSSC				.71	.24	.29*	2.95*	.48*	.04
	AchieveCSC				.45	.19	.18	2.36	.30*	.03
Body Satisfaction										
Step 1	BodySPC	.05	.03		.63	3.25	.02	.193	.18	.00
	BodyCPC				1.12	2.36	.05	.474	.15	.00
	BodySSC				4.89	3.36	.18	1.46	.22*	.01
Step 2	BodySPC	.27*	.25*	.22*	2.05	2.87	.08	.71	.18	.00
	BodyCPC				-.63	2.10	-.03	-.30	.15	.00
	BodySSC				5.18	2.96	.19	1.75	.22*	.02
	BodyCSC				12.06	1.97	.47*	6.64*	.46*	.22

Note: *p<.01

HealthSPC = Health selective primary control; HealthCPC = Health compensatory primary control; HealthSSC = Health selective secondary control; HealthCSC = Health compensatory secondary control; RelateSPC = Relationship selective primary control; RelateCPC = Relationship compensatory primary control; RelateSSC = Relationship selective secondary control; RelateCSC = Relationship compensatory secondary control; AchieveSPC = Achievement selective primary control; AchieveCPC = Achievement compensatory primary control; AchieveSSC = Achievement selective secondary control; AchieveCSC = Achievement compensatory secondary control; BodySPC = Body selective primary control; BodyCPC = Body compensatory primary control; BodySSC = Body selective secondary control; BodyCSC = Body compensatory secondary control.

Chapter Six

Discussion of Study One Results

Overview

Study One was conducted to examine the relationships between trait control beliefs and control strategies, and to test the extent to which the relationships between control and SWB are domain-specific. Of most interest was the nature of these relationships in the domain of the body and satisfaction with appearance.

Relationships between Control Beliefs, Control Strategies, and Subjective Well-Being

Control beliefs and control strategies

Trait locus of control refers to the extent to which an individual believes that certain outcomes are determined by their own actions and abilities (internal locus of control), or external factors such chance, luck or fate (chance locus of control), or other people (powerful others locus of control) (Levenson, 1974). It was argued that locus of control influences an individual's appraisal of situations, and their subsequent utilization of goal-specific strategies (Lachman & Firth, 2004; Wrosch et al., 2004).

This proposition was tested in the context of the OPS model (Heckhausen, 1999), that posits the existence of four types of control strategy relevant to goal acquisition. These strategies either promote goal engagement, or goal disengagement. It was expected that the amount of control the individual believes he/she has in determining a particular outcome should influence the use of goal engagement and goal disengagement strategies. It was hypothesised that (i) internal locus of control would be positively correlated with use of goal engagement strategies (such as selective primary control,

compensatory primary control, and selective secondary control) and negatively correlated with goal disengagement strategies (such as compensatory secondary control), and (ii) external loci of control (chance and powerful others) would be positively correlated with goal disengagement strategies, and negatively correlated with goal engagement strategies.

The hypotheses received partial support from the results of Study One. Specifically, internal locus of control was significantly positively correlated with LifeSPC, and LifeSSC, and external locus of control (chance) was negatively correlated with LifeSPC. However, contrary to expectations, there were no significant correlations between any measures of locus of control and either LifeCPC or LifeCSC. That is, although it appears that individuals with higher internal locus of control are more likely to use some goal engagement strategies and less likely to use goal disengagement, the pattern of results implies more generally that self-reported use of any given control strategy is only minimally related to an individual's generalised beliefs about perceived control.

There are at least two possible explanations for the pattern of results obtained. First, there are likely to be many personality characteristics other than perceived control (e.g., conscientiousness, neuroticism, perceived mastery, goal management tendencies) that contribute to an individuals choice of control strategies (Wrosch et al., 2004). Second, it may be the case that there is a significant influence of situational circumstances (opportunities and constraints) on the selection of control strategy. Although control beliefs may bias the appraisal of situations and the perceived opportunity for goal attainment, there may be some situational characteristics which

cannot be ignored when deciding which strategies are most appropriate. This is consistent with the view that "general expectations and situational circumstances can operate interactively to influence the use of control strategies" (Wrosch et al., 2004, p. 407), and is also consistent with the notion that, contrary to its conceptualisation as a trait dimension (Lefcourt & Davidson-Katz, 1991), beliefs concerning locus of control may be domain-specific and more closely tied to behaviour than general control beliefs (Fournier & Jeanrie, 2003). Furthermore, although perceived control may influence the strategies an individual relies on, there is unlikely to be a simple association between control beliefs and control strategy use. For example, in the domain of the body, the societal pressure to pursue the thin-ideal may encourage individuals to engage with this goal, despite recognition that weight and shape is largely determined by genetics. Women feel personally responsible for maintaining control over their body size and shape (as promoted by society), although women report difficulty in their attempts to obtain control (women's personal experience) and often imply that the body is uncontrollable (due to nature or disorder) (Johnston et al., 2004). This is confirmed by research finding that body control behaviours unrelated to perceptions of body malleability (Ogle et al., 2005). This may account for the surprisingly weak relationships between the measures of control belief and control strategy use.

Subjective well-being and control beliefs

The average SWB score of 72.1 obtained in the present study is lower that the normative range of SWB for Australia, reported to be between 75.9 to 79.2 (Cummins et al., 2008). Although the sample size of the present study was quite large, it was much smaller than that utilised in SWB research, which may account for some difference. It is

also possible that as participants self-selected for the study, and were aware of the topics they would be questioned about (life satisfaction, body satisfaction, etc.) there may have been some selection bias. For example, it is possible that those who agreed to participate had issues with happiness or body image impacting upon their level of SWB. However, what is important is that the mean of the sample was within the positive range of SWB and is consistent with the proposition that subjective well-being is under the influence of homeostatic system (Cummins et al., 2002).

The idea is that, under normal conditions, a tendency towards an internal locus of control (a general belief that one has control over most events) reinforces subjective well-being. Indeed, previous research has found that high internal locus of control is consistently related to greater life satisfaction, higher SWB, and happiness, and is a significant predictor of general life satisfaction (ranging from 4.6% to 23%) (Hong & Giannakopoulos, 1984).

However, it is also possible that an internal locus of control may be ineffective (and even detrimental) when the individual is faced with a specific and uncontrollable negative life event. Under these circumstances, attributing control to an external source (such as chance, fate, or God), may buffer the individual against experiencing frustration, helplessness, poor self-esteem, and negative worldviews. This is consistent with a recent review of the literature, in which it was noted that across 66 studies internal locus of control correlated with SWB in the range of *negative* .31 to *positive* .65 (weighted mean = .25) (DeNeve & Cooper, 1998). That is, internal locus of control is not only an insufficient predictor of SWB; it is also highly variable in its relationship to SWB. Furthermore, there is a growing realization that an internal and external locus of

control can be sustained simultaneously (Fournier & Jeanrie, 2003). This reinforces the need to evaluate specific control strategies employed in the context of particular domains.

In line with previous research showing that an internal locus of control is an important determinant of satisfaction (see review by DeNeve & Cooper, 1998), it was hypothesised that SWB would be positively correlated with internal locus of control, and negatively correlated with both measures of external locus of control: chance and powerful others locus of control. Although SWB was positively correlated with internal locus of control, the negative trends observed between SWB and the two measures of external locus of control were non-significant.

The absence of significant effects involving external locus of control are inconsistent with a meta-analysis of SWB research in which it was found that of 137 personality traits examined in relation to SWB, chance locus of control was one of the most influential traits (DeNeve & Cooper, 1998). However, it is possible that associations between externality and SWB may be weakened by the virtue of the context-specificity of these associations. For example, while an external locus of control may be detrimental to well-being in most contexts, in other contexts an external sense of control may act as a buffer against negative events. Illustrating the domain-specific nature of control, Grob (2000) found that perceived control constructs (control expectancy – level of perceived control; control appraisal – importance of control in given situation) showed low correlations across three life domains (personal - personal appearance, interpersonal - interpersonal conflict, and societal - problems in the natural

environment). This provides evidence for the domain specificity of psychological control.

Subjective Well-Being, Control Strategy, and the Mediating Role of Self-Esteem

It was hypothesised that in addition to an individual's control beliefs, the way in which they seek to exert control over life events, or manage disappointment with uncontrollable life events, may contribute to their satisfaction with life. According to the OPS model (Heckhausen, 1999), adaptive control strategy use is that which optimizes primary control in the long-term, and allows that "these adaptive control processes may be secondary or primary or they may serve goal disengagement or goal engagement" (Wrosch et al., 2004, p. 405). Thus, individuals need to be able to selectively engage with appropriate goals, and disengage from goals that are difficult to attain, or have negative consequences on long-term control potential. The ability to instigate appropriate control strategies should facilitate the attainment of goals, and protect against the negative consequences of failure and control loss on motivational resources, such as self-esteem, optimism, and hope for success (Wrosch et al., 2004). This fits well with the homeostatic model of SWB, which suggests that (i) having needs met, and (ii) the presence of cognitive buffers (perceived control, self-esteem, and optimism) that absorb the impact of unmet needs, combine to maintain SWB (Cummins et al., 2002). Thus, it was predicted that the four types of control strategies identified by the OPS model (Heckhausen, 1999) would function as independent predictors of SWB.

This hypothesis received partial support by the findings that selective secondary control and compensatory secondary control significantly and *uniquely* predicted variance in SWB. However, the relationships between selective primary control and

compensatory primary control and SWB did not reach significance (note, however, the conservative criterion adopted throughout the study). Selective primary control and compensatory primary control may be less relevant to SWB because of their overlap with each other and the other type of goal engagement (selective secondary control). It may be that investing internal resources (such as time, effort, skill development) and focusing volitional resources on goals is likely to involve engaging external resources. For example, learning a new skill (selective primary control) often requires recruiting the help of a more experienced person (compensatory primary control). However, both these strategies may rely on sustaining goal-related motivation (selective secondary control) – without this there is little to drive the other, predominantly behavioural, strategies.

Compensatory primary control may also have failed to uniquely predict SWB because of its significant associations with compensatory secondary control. Both types of compensatory control are directed at dealing with challenges to goals. It is possible that when people are faced with challenges to goals, they attempt to both seek help for external sources (compensatory primary control), but also prepare themselves for the potential of failure (compensatory secondary control). It may be that as only compensatory secondary control does not correlate with any other control strategy, it becomes a unique predictor of SWB. This is in addition to selective secondary control.

In summary, the findings provide support for the idea that it is the investment of internal resources, resource-seeking, and motivation to pursue goals, in addition to the ability to cope with the impact of failed goal pursuit, which contributes to an individual's sense of satisfaction with their life. Secondary forms of control that involve

efforts to change the self (rather than the environment) appear to be particularly important in this context.

It was also hypothesised that goal engagement strategies would be more potent predictors of SWB than goal disengagement strategies. This is consistent with the proposition that control strategies focused on goal attainment should be particularly closely associated with indicators of successful development (e.g., SWB) among young adults, and the influence of goal disengagement and self-protection strategies increasing with age (Wrosch et al., 2004). That is, goal disengagement strategies may only impact on SWB when the potential for primary control is limited by constraints. For the present study, the primary constraint considered was age. For the young adults sampled in the present study, it was expected that they would have ample opportunities for attaining personal goals, particularly in the domains of health, achievements, relationships, and their bodies, compared to older adults. Thus, it was expected that goal pursuit, in contrast to goal disengagement, would be particularly adaptive and would have greater influence on SWB. This was confirmed by the finding that goal engagement strategy use explained a significant proportion of variance in SWB. As expected, goal disengagement strategy use was also a unique predictor, but to a lesser extent (i.e., accounting for a smaller proportion of variance).

In addition to perceived control, self-esteem is also thought to be a cognitive factor important in maintaining SWB (Cummins et al., 2002). The presence of moderate negative correlations between low self-esteem and SWB obtained in the present study provides support for the proposition that self-esteem, or positive self-evaluation, may contribute to satisfaction with one's life, and is consistent with previous research (Diener

& Diener, 1995; Hong & Giannakopoulos, 1984). Furthermore, the present study also found that low self-esteem was negatively correlated with each of the four types of control strategy. This is consistent with the proposition that one function of control is to regulate self-esteem, and that control strategy use may influence SWB via its effects on self-esteem.

This hypothesis was supported by the results of mediation analyses in which self-esteem partially mediated the relationships between selective primary control and SWB, and between selective secondary control and SWB. Apparently, an individual who engages in selective primary and secondary control is more likely to achieve goals and have their needs met (than someone who engages to a lesser extent), which may directly enhance their SWB. By impacting upon their confidence and self-perception their SWB may also be indirectly impacted.

Self-esteem fully mediated the relationship between compensatory primary control and SWB. Compensatory primary control involves actively searching for help, advice, or alternative means of reaching a goal, and is particularly important in situations where existing internal resources are insufficient to attain a goal. It would be expected that an individual who persists in the face of adversity and tries every means possible of reaching a goal may experience enhanced self-esteem, but it is also possible the causal direction of the relationship is reversed, i.e., that an individual with high self-esteem is more likely to persevere than give up prematurely.

Self-esteem also fully mediated the relationship between compensatory secondary control and SWB. This finding is consistent with the suggestion that the role of goal disengagement (i.e., compensatory secondary control) is to protect against the

negative consequences of failure and control loss on motivational resources such as self-esteem (Wrosch et al., 2004), which may in turn influence SWB.

Subjective Well-Being and Domain Satisfaction

One of the objectives of the present study was to consider the relevance of control strategies across diverse domains, particularly in the context of body maintenance and the experience of body satisfaction. To address this objective, it was necessary to identify core domains of life that might contribute to overall satisfaction with life, or SWB. The PWI (International Wellbeing Group, 2006) comprises a number of domains that represent the first-level deconstruction of "life as a whole". The current domains are satisfaction with: standard of living, health, achieving in life, relationships, safety, community connection, and future security. The present study sought first to establish the extent to which satisfaction with a selection of these domains (health, relationships, achieving in life), and an additional domain (concerning satisfaction with the body), contribute to satisfaction with "life as a whole", and second, to examine the role of control strategy use in determining satisfaction within domains.

The results of Study One provide support for the hypothesis that satisfaction experienced within the domains of health, relationships, achievements and the body would account for substantial and significant variance in SWB, in so far as 55.2% of variance in SWB was predicted by the combination of satisfaction within each domain. These domain measures of satisfaction were individually correlated with SWB, and satisfaction with relationships, achievements, and the body also contributed uniquely.

Although the finding that health is not a unique predictor of SWB is inconsistent with the proposed importance of health in SWB (International Wellbeing Group, 2006),

it is possible that health is not as salient to the young people who comprised the sample. There is also evidence that health satisfaction is a redundant measure of satisfaction, as health satisfaction was significantly correlated with satisfaction in each of the domains evaluated in the study. This is consistent with the conceptualization of health as a multidimensional construct, involving more than just the absence of ill-health, incorporating physical, mental, social wellbeing allowing people to lead an individually, socially and economically productive life (World Health Organisation, 1986).

Notably, the findings suggest that for females aged between 18 and 40 years of age, satisfaction with one's body is also relevant to SWB. The significant and unique contribution of body satisfaction to overall SWB is not surprising given the gender and age range of the sample. In Western societies, females are socialized from a young age to evaluate their self-worth in terms of their appearance, and particularly, their weight and shape (Rodin et al., 1984). The emphasis on appearance is especially relevant to those in young and middle adulthood, when social interactions may be highly influenced by how one looks to others (e.g., Dion et al., 1972; Feingold, 1992; Hatfield & Sprecher, 1986). Concordant with this, body satisfaction was significantly related to relationship satisfaction in the present study. Further research is required to determine whether body satisfaction is also independently associated with SWB in other populations (e.g., males, older women, children, different ethnic groups). It would be particularly interesting to examine this relationship in older female populations. Based on previous research, it might be expected that body satisfaction would make a significant contribution to the SWB of females of any age. For example, recent research has found that body esteem (satisfaction with one's sexual attractiveness, weight, and physical condition) is related

to happiness in college-aged, middle-aged, and older women (Stokes & Frederick-Recascino, 2003). However, it is also possible that although concern with appearance may endure through adulthood, changing priorities may mean that satisfaction with the *appearance* of one's body becomes less central to self-worth, and consequently, SWB. In support of this, research has found that body satisfaction increases with age, and that among middle-aged and older adults, perceived well-being is more strongly associated with body functioning than satisfaction with bodily appearance (Reboussin et al., 2000).

Domain Satisfaction and Control Strategy Use

One of the central aims of the present study was to investigate the extent to which control strategies serve to maintain positive well-being in diverse domains of life. The results obtained support the domain-specificity hypothesis, at least in the sense that differences in the size of relationships were observed between the domain-specific measures of primary and secondary control, and the domain-specific measures of satisfaction. This indicates that individuals need to be targeted in their use of control to maximise levels of satisfaction across domains. The findings also confirm that control is dynamic and contextual, thus necessitating a domain-specific approach to the investigation of control processes.

Within each domain, it was expected that goal engagement strategies would predict variance in satisfaction with that domain, and that goal disengagement strategies would account for a significant, albeit smaller, proportion of variance. The results obtained support this prediction for the domains of health, relationships and achievements in determining domain satisfaction. In fact, for each of these domains, the proportion of additional variance accounted for by goal disengagement was *not*

significant. The exception to this, and a source of further confirmation of the proposition that control-satisfaction relationships are strongly domain-specific, is the finding that for the body domain the apparent dominance of goal engagement over goal disengagement was reversed. In the body domain, the measures of goal engagement together failed to explain significant variance in body satisfaction. However, the single measure of goal disengagement (compensatory secondary control) explained significant and substantial variance in body satisfaction. In contrast to the other domains examined in the study, it appears that it is individuals' use of goal disengagement, rather than goal engagement strategies, which predicts the degree of body satisfaction. More specifically, greater use of goal disengagement strategies when managing body-related goals is associated with body satisfaction.

The pattern of results obtained raises the question of why goal engagement strategies are important in determining satisfaction in some domains of life (i.e., health, relationships, achievements), but not others (i.e., body). A possible answer is that control strategies aimed at personal goals are adaptive when there are favourable opportunities for goal attainment, whereas control strategies involving disengagement and/or focused on self-protection are adaptive when there are limited opportunities for goal attainment (Wrosch et al., 2004). Young adults generally have ample opportunities to obtain personal goals, as they are less limited (in comparison to older adults) by biological and socio-structural constraints, and age-normative conceptions (Heckhausen, 1999). For example, aging is associated with declines in physical and psychological functioning (e.g., increased susceptibility to disease and disability, decrease in fertility, diminishing cognitive capacities, etc.) that may make certain goals harder or impossible to obtain

(Heckhausen, 1999). Furthermore, society and its institutions constrain goal pursuit by placing deadlines on developmental goals (e.g., finishing school, attaining career goals, retirement) and providing normative conceptions about the age at which certain goals should be realized (e.g., studying, marriage, starting a family) that either promote or inhibit goal pursuit depending one's age (Heckhausen, 1999).

Thus, with regards to young adults, it would be expected that in *most* domains of life (including health, relationships, and achievements) primary control would be particularly adaptive, and individuals would be rarely required to compensate for failed goals. However, in Western, industrialized cultures, youth is intimately associated with the body, physical appearance, and an emphasis on being attractive. These cultures promote an increasingly thin-ideal as a standard of beauty, one which is unattainable for most females due to biological constraints (Rodin et al., 1984). Consequently, in the domain of the body, even young adults may have difficulty achieving their valued goals, and goal engagement strategies are most likely to be made in vain. At worst, goal engagement may be detrimental to body satisfaction, especially if it involves making upward comparisons of oneself with the thin-ideal promoted by the media (Cash, Melnyk, & Hrabosky, 2004). It is also well documented that methods used to pursue the thin-ideal (e.g., dieting, excessive exercising, vomiting, laxative abuse, etc.) are damaging to physical and psychological well-being (Thompson et al., 1999). However, the absence of a negative association between goal engagement strategies and body satisfaction indicates that although for some women a goal engagement focus may be detrimental, "attending to, valuing, and managing one's physical appearance may not necessarily entail a maladaptive orientation to one's body" (Cash, Melnyk & Hrabosky,

2004, p. 314). It also reflects the fact that appearance satisfaction is inherently the product of comparison with some external standard. Given the unrealistic, doctored images of beauty promoted by the media, most women are able to make upward social comparisons, no matter how thin or attractive they may be.

As a consequence of these influences, most females will at some point require ways of managing the effects of failing to reach the standards of appearance promoted by society. Thus, for most females, it is the extent to which they utilize goal disengagement strategies which will predict their body satisfaction. This suggestion is supported by the findings of the present study. Compensatory secondary control, such as making downward social comparisons (comparing oneself to heavier females, rather than models and celebrities), recognizing external limitations (such as the fact that weight and shape are biologically determined), focusing on other aspects of life as a measure of self-worth, and de-valuing the thin-ideal, may help to alleviate the influence of pursuit of this unattainable goal on body satisfaction.

Conclusions

In summary, the results of the present study indicate that: (i) trait beliefs concerning locus of control are only weakly related to general use of control strategies, (ii) both goal engagement and goal disengagement strategies are relevant to overall SWB, particularly through their relationships with self-esteem, and (iii) that goal disengagement strategies are less important contributors to SWB once the relationships involving goal engagement strategies are factored out.

Of particular interest in Study One was whether the relationships observed between control strategies and satisfaction would be domain-specific. In three core

domains of life (health, relationships, achievement) goal engagement appeared to be central to domain satisfaction. In these domains, goal pursuit is inherently positive. This contrasted with the body domain (identified as an additional domain of importance to SWB), where goal disengagement strategies appeared to be the critical factor in determining satisfaction. It must be reiterated at this point that a central argument of the present thesis the need to examine control from a domain-specific perspective, in order to capture the subtleties and true nature of the relationships between control and indicators of adjustment and psychological well-being. The findings of Study One provide strong support for this proposition.

The previous discussion raised the possibility that goal engagement is ineffective in enhancing body satisfaction (and, at worst, hazardous to physical and psychological health) due to the unrealistic thin-ideal promoted by Western cultures that makes body dissatisfaction normative within female populations. However, further research is required to examine the question of why goal disengagement is the critical factor within this domain. Study Two considers this question in the context of disordered eating behaviour, and considers the contribution of control strategy use on the relationship between the management of body dissatisfaction, the internalisation of appearance standards as goals, and eating disordered symptomatology.

Chapter Seven

Introduction to Study Two

Overview

The results of Study One are consistent with the proposition that control needs to be considered as a multi-dimensional construct, one that is most informative when measured in a domain-specific manner. Furthermore, the results suggest that the way in which people seek control in relation to their body-related goals has significant implications for their body satisfaction, a key predictor of SWB.

Evidence of a relationship between control strategies and body satisfaction is vital to the present thesis because of the well-established link between body satisfaction and eating disordered behaviours (Stice, 2002). Given that the central objective of the present thesis is to examine the relationships between control and eating disordered behaviours, the findings of Study One provide empirical justification for investigating how control strategies might relate to body satisfaction, and consequently, eating disordered behaviours, in Study Two. This study adopts Stice's (1994) dual-pathway model of bulimic pathology as a framework within which to investigate the influence of body-specific control strategy use on bulimic symptoms.

The Dual-Pathway Model of Bulimic Pathology

Longitudinal and cross-sectional research have identified body dissatisfaction as one of the most consistent and robust risk and maintenance factors for eating pathology, including anorexia nervosa, bulimia nervosa and binge eating disorder (Stice, 2002). One model which emphasizes the role of body dissatisfaction in the development of

eating disordered behaviour, and has received considerable research attention, is the dual-pathway model of bulimic pathology (Stice, 1994). This model draws on sociocultural (e.g., Striegel-Moore et al., 1986), dietary (e.g., Polivy & Herman, 1993) and affect regulation (e.g., Heatherton & Baumeister, 1991) models of eating disorder to construct a inclusive model of bulimic pathology.

Bulimic pathology refers to two of the core symptoms of bulimia nervosa – binge eating and compensatory behaviours (e.g., purging, excessive exercise, laxative abuse. The model (summarized in Figure 1) proposes that bulimic behaviours may result as a consequence of extreme dieting, chronic negative affect, or a combination of the two. Central to the model is the development of body dissatisfaction, thought to be fostered by internalisation of the cultural thin-ideal, which for most women is unattainable, and/or repeated messages from family, peers, and the media that one should be thinner. The resulting body dissatisfaction is identified as a precursor for both dietary restraint and negative affect, which heighten the likelihood of bulimic pathology.

Body dissatisfaction is believed to promote dietary restraint because of the shared belief that dietary restraint is an effective weight control technique. In addition, body dissatisfaction may lead to or exacerbate negative affect because appearance (particularly weight and shape) are central to females' sense of self worth in Western cultures and evaluating one's body as failing to meet the culturally designated standard is likely to have negative emotional consequences. Dietary restraint may lead directly to binge eating (and associated compensatory behaviours) as a consequence of caloric deprivation. Alternatively, in situations where the individual perceives they have broken their strict dietary rules, dichotomous (all-or-nothing) thinking may result in disinhibited

eating (the abstinence-violation effect) and efforts to counteract the effects of the binge. Dietary restraint may be indirectly associated with bulimic pathology via an affective pathway, whereby restraint leads to negative affect as a consequence of the effects of caloric deprivation and/or failed attempts at weight control on mood. The subsequent increases in negative affect may result in bulimic symptoms as a way of seeking comfort and distraction from negative emotions.

Thus, the dual-pathway model of bulimic pathology (Stice, 1994) proposes that individuals may engage in bulimic behaviours as a consequence of strict dietary restraint (and its associated physical deprivation and/or transgressions of dietary rules) or in response to negative affect (resulting from body dissatisfaction or dietary restraint), or due to a combination of these factors. These two factors are considered as the processes by which sociocultural influences resulting in body dissatisfaction encourage the development of bulimic symptoms.

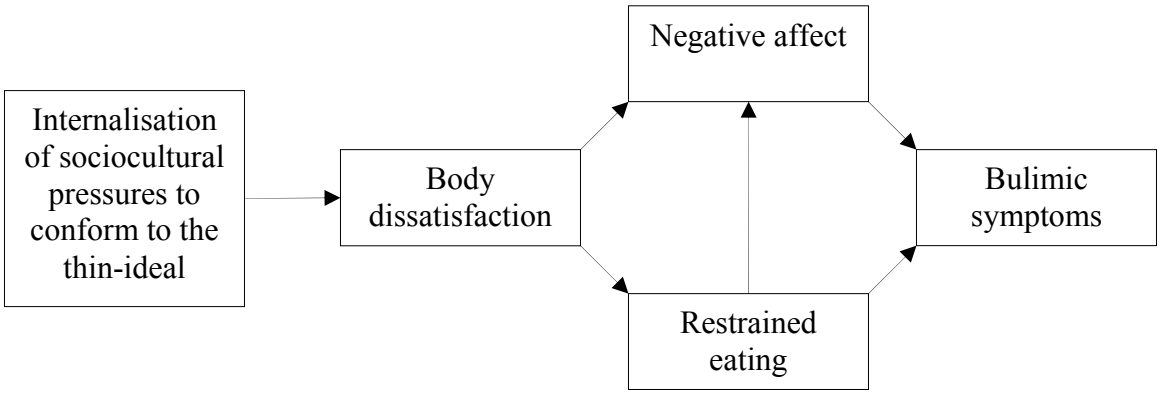


Figure 1. Theoretical components of the dual-pathway model of bulimic pathology relevant to perceived control over eating and appearance (Stice, 2001).

Evidence from longitudinal and cross-sectional research provides evidence that perceived pressure to be thin, thin-ideal internalisation, body dissatisfaction, dietary

restraint and negative affect are associated with and are risk factors for bulimic pathology. Empirical support for each of the components of the dual-pathway model (Stice, 1994) is presented in the following sections.

Internalisation of sociocultural pressures to conform to the thin-ideal

Several studies have found that pressure to be thin from family, friends, and the media predicts growth in body dissatisfaction and dieting (Cattarin & Thompson, 1994; Stice, Mazotti, Krebs, & Martin, 1998; Stice & Whitenton, 2002), and is correlated with eating problems (Cattarin & Thompson, 1994; Levine, Smolak, & Hayden, 1994; Rukavina & Pokrajac-Bulian, 2006). Furthermore, pressure to be thin has been found to correlate with bulimic symptoms (Irving, 1990; Rukavina & Pokrajac-Bulian, 2006; Stice, Nemeroff, & Shaw, 1996; Striegel-Moore, Schreiber, Pike, Wilfley, & Rodin, 1995) and future bulimic symptoms (Stice & Agras, 1998; Stice, Shaw, & Nemeroff, 1998).

Internalisation of the thin-ideal may increase the risk of bulimic symptoms because it is associated with body dissatisfaction, dieting and negative affect (Stice, 2001; Stice & Agras, 1998). The research clearly suggests that it is not just exposure to sociocultural pressures, but the acceptance of them, that leads to body dissatisfaction (Dittmar & Howard, 2004; Stice & Shaw, 2002; Stice & Whitenton, 2002) and restrained eating (Griffiths et al., 2000; Thompson, Coovert, Johnson, Cattarin, & Richards, 1995). In regards to bulimic symptoms, bulimics show greater endorsement of the thin-ideal in comparison to normal controls (Mintz & Betz, 1988; Williamson, Cubic, & Gleaves, 1993), and internalisation of the thin-ideal is correlated with bulimic symptoms (Heinberg, Thompson, & Stormer, 1995; Rukavina & Pokrajac-Bulian, 2006)

and predicts future bulimic symptoms (Joiner, Heatherton, & Keel, 1997; Killen et al., 1994; Stice, Shaw et al., 1998).

Body dissatisfaction

The body dissatisfaction fostered by thin-ideal internalisation and social pressures to be thin may lead to dieting and negative affect, thus promoting bulimic symptoms. In support of this, body dissatisfaction predicts growth in restrained eating (Stice, Mazotti et al., 1998) and restrained eating in young females (Gleaves, Williamson, & Barker, 1993; Thompson et al., 1995). Several studies also support the proposed relationship between body dissatisfaction and negative affect (Gleaves et al., 1993; Stice, Mazotti et al., 1998; Stice, Shaw et al., 1998; Stice & Shaw, 1994). Most significantly, body dissatisfaction has been identified by longitudinal and cross-sectional research as one of the most consistent and robust risk and maintenance factors for eating pathology, including anorexia nervosa, bulimia nervosa and binge eating disorder (Stice, 2002).

Restrained eating and negative affect

Restrained eating is hypothesised to lead to binge eating, induced by the effects of caloric deprivation and the breaking of dietary rules and perceived loss of self-control. In support of this proposed link, individuals with bulimic symptoms have been found to follow restrictive eating patterns and engage in dieting behaviour (Stice & Agras, 1999). Furthermore, restrained eating has also been found to predict the onset of bulimic symptoms (Killen et al., 1994; Leon et al., 1999; Stice & Agras, 1998; Stice, Killen, Hayward, & Taylor, 1998; Stice, Presnell, & Spangler, 2002; Stice, Shaw et al., 1998). However, the findings of several recent studies (Lowe et al., 1996; Lowe, Gleaves, & Murphy-Eberenz, 1998; Presnell & Stice, 2003; Stice, Presnell, Groesz, &

Shaw, 2005) suggest that the relationship between dietary restraint and binge eating is more complicated than suggested by the dual-pathway model (Stice, 1994) and that dietary restraint may be unrelated to, or even minimise, the likelihood of binge eating.

Within the dual-pathway model, dietary restraint is proposed to play a two-fold role in influencing bulimic pathology, as it is hypothesised to lead to negative affect (due to the failures associated with dieting), and subsequently, bulimic symptoms (as a way of managing negative emotional states). In support of this, restrained eating has been found to be positively associated with negative affect (Duemm, Adams, & Keating, 2003), and longitudinal (Stice & Agras, 1998; Stice, Shaw et al., 1998), and cross-sectional research (Leon, Fulkerson, Perry, & Cudeck, 1993; Stice et al., 1996) supports the association between negative affect and bulimic pathology. Negative affect is also temporally related to binge eating (Engelberg, Steiger, Gauvin, & Wonderlich, 2007), and both binge eating and purging behaviour have been found to be preceded by increased negative affect and followed by decreased negative effect (Smyth et al., 2007). Longitudinal and cross-sectional research also confirms that restrained eating and negative affect at least partially mediate the relationship between body dissatisfaction and bulimic behaviours (Duemm et al., 2003; Ricciardelli & McCabe, 2001; Shepherd & Ricciardelli, 1998; Stice, 2001; Stice et al., 1996; Stice, Shaw et al., 1998). However, it is worthwhile noting that one study has found that although all of their sample (females with bulimic symptoms) fit the restrained eating subtype, not all fit the restrained eating-negative affect subtype, and that the combination of restrained eating and negative affect appears to be related to a more severe form of bulimia (Stice & Agras, 1999).

Goal Engagement and Disengagement and the Dual-Pathway Model of Bulimic Pathology

Modification of the dual-pathway model

At least two studies have attempted to modify Stice's (1994) dual-pathway model of bulimic pathology. Duemm, Adams and Keating (2003) suggested that adding fear of social rejection (sociotropy) to the model improves the model's ability to predict bulimic behaviour. Strien, Engels, Leeuwe, and Snoek (2005) also tested a modified version of the model, postulating that negative affect and overeating are not directly related, but indirectly through lack of interoceptive awareness and emotional eating. Their results provided support for the negative affect pathway (but not the restraint pathway) and indicated that lack of interoceptive awareness and emotional eating partially explain the association between negative affect and overeating. Such findings are relevant to the present research because they provide support for the validity of modifying the dual-pathway model to include control strategies related to goal pursuit.

The results of Study One clearly suggest that control processes, or more specifically, that some of the ways in which people seek to control their body-related goals, are related to their levels of body satisfaction. This relationship, and the central role accorded body dissatisfaction in the dual-pathway model, implies that the addition of goal engagement and goal disengagement strategies to the model may supplement our understanding of how bulimic behaviours develop. Thus the central aim of Study Two is to examine the relationships between goal engagement and goal disengagement strategy use, and the internalisation of sociocultural attitudes regarding weight and shape (internalisation), body related self-evaluations (body dissatisfaction), direct attempts at

weight control (dietary restraint), and bulimic symptomatology (binge eating and purging). The proposed relationships are outlined below and the path models representing these can be found in the Results section.

Goal engagement and the dual-pathway model

The endorsement of goal engagement strategies is expected to influence the likelihood that an individual will engage in behaviours directed at attaining goals. Therefore, in theory, individuals who endorse goal engagement strategies should be more likely to engage in behaviours directed at attaining goals related to weight loss or maintenance, such as restricting their food intake, and possibly, more extreme efforts to avoid caloric consumption through purging. Consequently, it was hypothesised that goal engagement would be *directly* and *positively* related to dietary restraint, and possibly, purging.

Furthermore, it is possible that individuals who endorse goal engagement strategies may be more likely to engage with sociocultural attitudes towards appearance and internalize these standards, as a means of providing a measure against which they can assess their success at goal pursuit. As a consequence they may experience more body dissatisfaction, which, according to the dual-pathway model (Stice, 1994) may lead to dietary restraint, and/or negative affect. Thus, it was hypothesized that goal engagement would also be *indirectly* and *positively* related to dietary restraint, and negative affect, and that the effect of goal engagement would be mediated by elevation in internalisation and/or body dissatisfaction.

Although the results of Study One do not support a direct relationship between goal engagement and body dissatisfaction, research which has considered the effects on

body dissatisfaction of coping strategies for dealing with threats to body image indicates that coping strategies that rely on appearance fixing (altering or masking physical features of concern) are associated with less positive and more fluctuating body image (Cash, Santos, & Fleming Williams, 2005; Melnyk, Cash, & Janda, 2004). These strategies may be considered analogous to the goal engagement strategies measured by the present research, and provide support for the hypothesis that goal engagement would be *directly* and *positively* related to body dissatisfaction.

The dual-pathway model also posits that negative emotional states (related to dieting or other stressors) and periods of caloric restriction are known pre-conditions of overeating. Thus it was expected that individuals who endorse goal engagement would either directly, or through the effects of increased internalisation and body dissatisfaction be more prone to restrict their eating, and possibly, experience greater negative affect, resulting in periods of uncontrolled eating. Purging was also considered more likely, either to compensate for binge eating and reduce the associated negative affect, or, in the absence of binge eating, as a means of regulating negative affect associated with dietary restraint and/or body dissatisfaction. Research by Smyth et al. (2007) provides support for purging as a means of reducing negative affective states). Therefore, it was hypothesised that goal engagement would be *indirectly* and *positively* related to bulimic symptomatology, and that the effect of goal disengagement would be mediated by elevation in internalisation, body dissatisfaction, dietary restraint, and/or negative affect. The presumption of a link between goal engagement and bulimic symptoms is consistent with research finding that appearance fixing coping strategies are associated with more disturbed eating attitudes (Cash et al., 2005).

Goal disengagement and the dual-pathway model

From a theoretical perspective, it appears that in contrast to goal engagement, processes of goal disengagement are more likely to be related to motivational processes and the management of emotion, as opposed to behaviour directly. That is, individuals who endorse goal disengagement strategies are more likely to manage the impact of sociocultural influences (rather than internalise them as a standard against which to measure goal achievement), and minimise their levels of body dissatisfaction, rather than engage in behaviour (e.g., restrained eating, purging) to meet weight-related standards determined by society. The proposed relationship between goal disengagement strategy endorsement and body dissatisfaction is consistent with research finding that women who rely on positive rational acceptance coping strategies (reassuring oneself about one's appearance and emotions) in response to threats to body image experience more positive body image (Cash et al., 2005; Melnyk et al., 2004). Thus, it was hypothesised that goal disengagement would be *directly* and *positively* associated with internalisation and body dissatisfaction.

As the dual-pathway model proposes that the internalisation of these standards and increasing body dissatisfaction predict restrained eating, it was hypothesised that although goal disengagement would not be *directly* associated with dietary restraint, it would be *indirectly* and *negatively* related to: (a) dietary restraint, due to the effects of goal disengagement on reducing internalisation of the thin-ideal and/or body dissatisfaction, and (b) negative affect, as a consequence of reducing body dissatisfaction, and/or reducing dietary restraint. Given the important role of goal disengagement in managing the impact of goal achievement on emotional state, it was

also hypothesized that goal disengagement would be *directly* and *negatively* related to negative affect.

If, as proposed, the role of goal disengagement is to manage motivational influences (i.e., internalisation) and self-evaluations (i.e., body dissatisfaction), thus indirectly influencing dietary behaviour, and directly and indirectly influencing negative affect, then as a consequence of these effects it should also impact upon bulimic pathology (i.e., binge eating and purging). Consequently, it was hypothesised that goal disengagement *would not be directly* associated with bulimic symptomatology, but that it would be *indirectly* and *negatively* associated with bulimic symptomatology, due to its role in reducing internalisation, body dissatisfaction, dietary restraint, and/or negative affect. The suggestion of an indirect link between goal disengagement and bulimic symptoms is consistent with research finding that coping strategies incorporating positive rational acceptance of one's appearance and emotions are associated with more disturbed eating attitudes (Cash et al., 2005).

Chapter Eight

Study Two Aims and Hypotheses

Aim One and Related Hypotheses

The general aim of Study Two was to examine the relevance of control in the context of disordered eating. Stice's (1994) dual-pathway model of bulimic pathology was adopted as the theoretical framework within which this examination would be conducted. In order to confirm the components of the dual-pathway model for the present data set, the following hypothesis, as predicted by the model, will be tested:

Hypothesis One: That significant positive correlation will be obtained among the following components of the dual-pathway model (Stice, 1994): Internalisation of the thin-ideal, body dissatisfaction, negative affect, dietary restraint, and bulimic symptomatology.

Aim Two and Related Hypotheses

The specific aim of Study Two was to examine the relationships between goal engagement and goal disengagement strategy use, and the internalisation of sociocultural attitudes regarding weight and shape (internalisation), body related self-evaluations (body dissatisfaction), direct attempts at weight control (dietary restraint), and bulimic symptomatology (binge eating and purging). If the dual-pathway model (Stice, 1994) is confirmed, the following hypotheses will be tested regarding the differential relevance of goal engagement and goal disengagement to weight control and bulimic symptomatology:

Hypothesis Two: That goal engagement will be *directly* and *positively* related to internalisation, body dissatisfaction, dietary restraint, and possibly, bulimic symptomatology.

Hypothesis Three: That goal engagement will also be *indirectly* and *positively* related to dietary restraint, and the effect of goal engagement will be mediated by elevation in internalisation and/or body dissatisfaction.

Hypothesis Four: That goal engagement will be *indirectly* and *positively* related to bulimic symptomatology, and that the effect of goal disengagement will be mediated by elevation in internalisation, body dissatisfaction, dietary restraint, and/or negative affect.

Hypothesis Five: That goal disengagement will be *directly* and *negatively* associated with internalisation and body dissatisfaction.

Hypothesis Six: That goal disengagement *will not be directly* associated with dietary restraint, but that it will be *indirectly* and *negatively* related to dietary restraint, and that the effects of goal disengagement will be mediated by reduction in internalisation and/or body dissatisfaction.

Hypothesis Seven: That goal disengagement will be *directly* and *negatively* related to negative affect.

Hypothesis Eight: That goal disengagement will also be *indirectly* and *negatively* related to negative affect, and the effect of goal disengagement will be mediated by elevation in internalisation, body dissatisfaction, and/or dietary restraint.

Hypothesis Nine: That goal disengagement *will not be directly* associated with bulimic symptomatology, but that it will be *indirectly* and *negatively* associated with

bulimic symptomatology, and that the effects of goal disengagement will be mediated by reduction in internalisation, body dissatisfaction, dietary restraint, and/or negative affect.

Chapter Nine

Method

Participants

Female participants (*N* = 180) were recruited from Deakin University's Melbourne Campus, via announcements made in lectures, and local businesses, through the use of posted advertisements. A snowball technique was also employed with friends and family of participants and researchers, inviting their associates to participate. Interested individuals were provided with information regarding the nature of the study (type of questions, approximate duration, anonymity, etc.) and the email contact of the researchers. If they wished to participate, they emailed a request for the questionnaire package and were provided with a $20 gift voucher as an honorarium upon return of the completed questionnaire. Completed questionnaires and the gift-request card were returned to the researchers in separate reply-paid envelopes to protect the anonymity of participants (refer to Procedure for details). Of the 220 questionnaires distributed in this way, 180 were returned, representing a response rate of 82%. Among participants the mean age was 26.49 (*SD*=5.03; range=18 to 42 years), and mean BMI was 23.53 (SD=4.12; range=12.27-40.96).

Materials

The following measures were completed by participants:

Body Primary and Secondary Control Strategies (Body PSCS). The 16-item Body PSCS subscale derived from the 32-item general Optimization of Primary and Secondary Control Scale (OPS Scale; Heckhausen & Schulz, 1998) for Study 1 was

utilized to assess participants' use of control strategies in the domain of the body. Participants were asked to think about their bodies (i.e., weight, shape, body parts, muscle tone, body fat) and how they might like to improve or maintain various aspects. Using a 5-point scale ranging from 'almost never true' (1) to 'almost always true' (5) (with the option of responding 'don't know'), they responded to items designed to measure the extent to which they use each of four types of control strategy when seeking to improve or maintain their bodies: (i) selective primary control (BodySPC), (ii) compensatory primary control (BodyCPC), (iii) selective secondary scale (BodySSC), and (iv) compensatory secondary control (BodyCSC). Measures of each control subtype were calculated by averaging responses to the relevant items. For the present study, the internal consistency of each Body PSCS subscale was adequate: BodySPC (α=.83, *M*=2.96, *SD*=.83), BodyCPC (α=.84, *M*=2.58, *SD*=.87), BodySSC (α=.81, *M*=3.01, *SD*=.81), BodyCSC (α=.72, *M*=2.77, *SD*=.78).

Appearance Comparison. The 5-item Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991) was used to assess body and appearance comparison behaviours. Participants used a 5-point scale ranging from 'never' (1) to 'always' (5) to respond to items about comparing their physical appearance with others. The PACS has demonstrated good internal consistency and test-retest reliability (Thompson et al., 1991), and correlates well with measures of body image and disordered eating. In the present study, internal consistency of the scale (PACS) was assessed as adequate (α=.88, *M*=3.24, *SD*=.84).

Internalisation. Participants used 5-point Likert scales ranging from 'never' (1) to 'always' (5) to respond to six items from the Internalisation-General subscale of the

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). This subscale assesses acceptance of standards of physical appearance that are epitomized by TV actors, movie stars, and models in magazines and music videos. It has demonstrated reliability, and content and convergent validity with regard to measures of body image and disordered eating (Calogero, Davis, & Thompson, 2004; Thompson et al., 2004). In the present study the internal consistency of the subscale (INTERN) was adequate (α= .92, *M*=3.02, *SD*=1.05).

Eating Disorder Symptomatology. The EDE-Q (Fairburn & Beglin, 1994) is a self-report questionnaire derived from the Eating Disorder Examination (Fairburn & Cooper, 1993), that uses 7-point (ranging from 'no days'= 1 to 'every day'= 7) and 4-point (ranging from 'not at all' = 1 to 'markedly' = 4) response scales to assess the number of days out of the last 28 that particular cognitive, emotional, and behavioural symptoms of disordered eating were present. The questionnaire has four subscales (statistics refer to the study sample): Restraint (REST; α=.76, *M*=2.51, *SD*=1.31), which indicates the frequency and extent to which food intake is restricted, and Eating Concern (EAT; α=.73, *M*=1.83, *SD*=0.91), Weight Concern (WEIGHT; α=.84, *M*=3.10, *SD*=1.57), and Shape Concern (SHAPE; α=.91, *M*=3.41, *SD*=1.60), which measure the extent to which the individual focuses on food intake, their weight, and their body appearance and form, respectively. A measure of Body dissatisfaction (DISS; α=.94, *M*=3.26, *SD*=1.55) is derived by averaging the highly correlated (r = .93, p < .01) Shape Concern and Weight Concern subscales. This is consistent with research indicating that

Shape Concern and Weight Concern items tend to load on a single factor (Peterson et al., 2007).

The EDE-Q also assesses bingeing and the use of compensatory behaviours, including purging, over the same time period. Positive responses to six items regarding overeating were summed to give a binge summary (BINGE) ranging from 0 to 6 symptoms (*M*=1.37, *SD*=1.82). Positive responses to the presence of vomiting, laxative use, diuretic use, and heavy exercising were summed to give a purging tally (PURGE), ranging from 0 to 4 symptoms (*M*=0.50, *SD*=0.63).

The EDE-Q subscales have shown good concurrent (Black & Wilson, 1996; Fairburn & Beglin, 1994; Wilfley, Schwartz, Spurrell, & Fairburn, 1997) and discriminant (Wilson, Nonas, & Rosenblum, 1993) validity, and internal consistency (Peterson et al., 2007) and test-retest reliability estimates entirely support its use as a clinical diagnostic tool (Luce & Crowther, 1999). Recent research (Mond, Hay, Rodgers, & Owen, 2006) provides normative data for the EDE-Q subscales, based on an Australian community sample of women aged 18 to 42 years of age (*N* = 5255): REST (*M*=1.30, *SD*=1.40), EAT (*M*=0.76, *SD*=1.06), WEIGHT (*M*=1.79, *SD*=1.51), and SHAPE (*M*=2.23, *SD*=1.65).

Positive and Negative Affect. Participants used 5-point scales ranging from ‘not at all’ (0) to ‘extremely’ (4) to respond to the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), to assess their level of emotional experience at the time of responding. The PANAS consists of two 10-item scales: Positive Affect (PA) and Negative Affect (NA). In the context of the present study, PA represents the degree to which the individual is experiencing a range of pleasant arousal

states (e.g., excited, enthusiastic), whilst NA indicates the extent to which they are experiencing unpleasant emotions (e.g., ashamed, afraid). Internal consistency of the scales is excellent (.86 for PA, and .87 for NA), and they are largely uncorrelated (Watson et al., 1988). Recent research confirms the reliability and validity of the scales (Crawford & Henry, 2004). In the current study, internal consistency was found to be .91 for the PA scale (*M*=1.66, *SD*=.80), and .90 for the NA scale (*M*=.47, *SD*=.56).

Procedure

The Deakin University Human Research Ethics Committee provided ethical approval for Study Two (refer to Appendix A). Individuals who registered their interest in participating in the study were posted a questionnaire package. The package included the a cover letter introducing the principle investigator, the aims of the project, sample item content, possible negative effects of the project, measures for protecting confidentiality, and ethical information relating to informed consent (signified by completing the questionnaire and returning it to the investigator in the reply-paid envelope provided). The package also contained a copy of the questionnaire battery containing the scales mentioned previously (see Appendix C), which participants were instructed to complete in their own time. Instructions were provided as to the procedure for returning the questionnaire and requesting the $20 gift voucher for participating. This involved the use of two separate reply-paid envelopes to return the questionnaire and gift request form, in order to ensure the anonymity of participants.

Chapter Ten

Study Two Results

Data Screening and Testing Assumptions

Prior to analysis, SPSS FREQUENCIES, SPSS RELIABILITY ANALYSIS and SPSS REGRESSION were used to examine all variables for accuracy of data entry, missing values, internal consistency, and fit between variable distributions and the assumptions of multivariate analysis. Missing values analysis indicated less than 3% of values were missing from each variable, with missing values distributed randomly across cases and variables. In order for cases with missing values to be retained, missing values were replaced with the means of the relevant variables. Variables computed from the mean of internally consistent items (with item-total correlations greater than .20) demonstrated adequate internal consistency, with Cronbach's α greater than .60 (the relevant statistics are provided in the Measures sub-section of the Method).

Variables were assessed for normality, linearity, univariate and multivariate outliers. Values further than three standard deviations from the mean (univariate outliers) were replaced with values corresponding to three standard deviations above or below the mean (Tabachnick & Fidell, 2007). Four variables (BMI, NA, BINGE, and PURGE) showed violations of normality (skewness statistic divided by the standard error resulting in a skew statistic greater than 4). These variables were transformed to produce distributions with skew values less than 4. Post-transformation, the data met the assumptions of linearity and homoscedasticity of residuals. Inspection of Mahalanobois distance scores revealed no multivariate outliers ($\chi(4) = 18.467$, $p < .01$). To ensure that

multicollinearity and singularity would not undermine subsequent regression analyses, eigenvalues were inspected, and condition indices of each variable were screened for values approaching 30 (Hair et al., 1998). No condition index exceeded the threshold of 30, and tolerance values and VIF statistics also provided no suggestion of multicollinearity in the regression results. The sample size was appropriate for multiple regression analyses involving four independent variables (i.e., the four subscales of the Body PSCS), and a significance level of $p < .05$ was used for subsequent inferential analyses.

Correlations

A series of correlations (refer to Table 6) were conducted to examine the inter-relationships between goal engagement and goal disengagement strategies and between these strategies and sociocultural factors relevant to the thin-ideal (internalisation and appearance comparison), negative affect, and disordered eating symptomatology (body dissatisfaction, dietary restraint, bingeing, and purging).

Table 6 reveals significant correlations between the putative measures of goal engagement, BodySPC, BodyCPC, and BodySSC (in the range of $r = .52$ to $.74$, $p < .01$), and an absence of significant correlations between these measures and the putative measure of goal engagement (BodyCSC). This is consistent with the measures being representative of independent dimensions of control behaviour.

Inspection of the correlations in Table 6 also confirms most of the relationships predicted by the dual-pathway model of bulimic pathology (Stice, 1994): (i) INTERN is positively associated with all measures relevant to disordered eating (DISS, $r = .33$, $p < .01$; REST, $r = .24$, $p < .01$; NA, $r = .30$; BINGE, $r = .19$, $p < .01$; PURGE, $r = .17$, $p <$

.05); (ii) DISS is correlated with NA, $r = .45$, $p < .01$, and REST, $r = .58$, $p < .01$; (iii) REST is significantly correlated with PURGE, $r = .39$, $p < .01$, and (iv) NA is positively correlated with BINGE, $r = .20$, $p < .01$. Contrary to the dual-pathway model (Stice, 1994), REST is not significantly correlated with NA, $r = .12$, $p > .05$, nor BINGE, $r = .14$, $p > .05$, and NA is not correlated with PURGE, $r = .06$, $p > .05$.

Appearance comparison (PACS) is not part of the dual-pathway model, nor is it a component of any of the stated hypotheses for Study Two. However, this variable was included because of its *potential* relevance as a cognitive and behavioural manifestation of goal engagement and/or disengagement. Its contribution to post hoc path analyses is considered later in this chapter. For now, it should be noted point out that PACS also correlates with the measures of negative body image and disordered eating (DISS, $r = .58$, $p < .01$; RESTRAINT, $r = .41$, $p < .01$; NA, $r = .34$; BINGE, $r = .24$, $p < .01$; PURGE, $r = .33$, $p < .01$)

The correlations in Table 6 also support the differential contribution of goal engagement and goal disengagement to these factors. In support of the proposition that goal engagement promotes overt weight-control behaviours, REST is significantly positively correlated with BodySPC, $r = .32$, $p < .01$, and BodySSC, $r = .30$, $p < .01$ (the correlation with BodyCPC only approaches significance, $r = .14$, $p = .07$); and PURGE is significantly correlated with BodySPC, $r = .41$, $p < .01$, BodyCPC, $r = .21$, $p < .01$, and BodySSC, $r = .31$, $p < .01$. Contrary to expectations, goal engagement strategies are not significantly correlated with INTERN, BodySPC, $r = -.00$; BodyCPC, $r = -.02$; BodySSC, $r = -.03$, $p < .01$, nor DISS, BodySPC, $r = -.03$; BodyCPC, $r = -.04$; BodySSC, $r = -.07$, $p < .01$.

In support of the proposition that goal disengagement discourages attempts at weight control, BodyCSC is negatively correlated with REST, $r = -.32$, $p < .01$, and PURGE, $r = -.15$, $p < .05$. The correlations also support direct relationships between BodyCSC and DISS, $r = -.42$, $p < .01$, and BodyCSC and NA, $r = -.19$, $p < .01$, but not between BodyCSC and INTERN, $r = -.12$, $p < .01$.

Although it was expected that goal engagement and goal disengagement would also be associated with binge eating, the correlations between BINGE and BodySPC, $r = -.14$, $p > .05$, BodyCPC, $r = -.08$, $p > .05$, BodySSC, $r = -.11$, $p > .05$, and BodyCSC, $r = -.10$, $p > .05$, are not significant. This indicates that goal engagement and disengagement are not directly relevant to binge eating behaviour, however, they may still function as part of a more complex set of relationships influencing binge eating.

Table 6

Means, Standard Deviations and Bivariate Correlations for Age, BMI, Internalisation, Comparison, Negative Affect, EDE-Q Variables, and Body-Specific Measures of Control

	1	2	3	4	5	6	7	8	9	10	11	12	13
(1) Age		.10	-.10	-.07	-.13	.03	-.02	.00	-.07	-.03	-.08	-.15*	-.19*
(2) BMI			.13	.05	.12	-.21**	-.05	-.25**	-.25**	.36**	.14	.14	.06
(3) INTERN				.57**	.30**	-.00	-.02	-.03	-.12	.33**	.24**	.19**	.17*
(4) PACS					.34**	.03	-.02	.00	-.24**	.58**	.41**	.24**	.33**
(5) NA						.14	-.07	-.17*	-.19*	.45**	.12	.20**	.06
(6) BodySPC							.55**	.74**	-.03	-.03	.32**	-.14	.41**
(7) BodyCPC								.52**	.03	-.04	.14	-.08	.21**
(8) BodySSC									-.03	-.07	.30**	-.11	.31**
(9) BodyCSC										-.42**	-.32**	-.10	-.15*
(10) DISS											.58**	.36**	.31**
(11) REST												.14	.39**
(12) BINGE													.16*
(13) PURGE													
M	26.49	23.53	3.02	3.24	.47	2.96	2.58	3.01	2.77	3.26	2.51	1.37	.50
SD	5.03	4.12	1.05	.84	.56	.83	.87	.81	.78	1.55	1.31	1.82	.63

Note: *p = <.05; **p = <.01 (2-tailed)
BMI = Body Mass Index; INTERN = Internalisation; PACS = Physical Appearance Comparison Scale; NA = Negative affect; BodySPC = Body selective primary control; BodyCPC = Body compensatory primary control; BodySSC = Body selective secondary control; BodyCSC = Body compensatory secondary control; DISS = Body dissatisfaction; REST = Restraint.

Regression Analyses

Before testing hypotheses in a series of path analysis, it is worth considering (i) the extent to which the individual components of goal engagement predict variance in the measures of disordered eating symptomatology, and (ii) the extent to which goal disengagement predicts significant additional variance in these measures. Therefore, a series of two-step hierarchical regressions was conducted in which each measure of disordered eating was regressed on the three goal engagement strategies (BodySPC, BodyCPC, and BodySSC) in the first step of the regression, with the single goal disengagement strategy (BodyCSC) included in the second step. The results are summarised in Table 7.

The results in Table 7 reveal that the measures of goal engagement (BodySPC, BodyCPC, BodySSC) together explain significant variance only in REST, $R^2 = .11$, F (3, 176) = .340, $p < .01$, and PURGE, $R^2 = .19$, F (3, 151) = 12.02, $p < .01$, but that only BodySPC makes a significant unique contribution to each variable: REST, $t = 2.17$, $p < .05$, $sr^2 = 2\%$ and PURGE, $t = 3.77$, $p < .01$, $sr^2 = 7\%$. Furthermore, the goal disengagement measure (BodyCSC) accounts for significant additional variance in DISS, R^2 Change = .18, F (1, 175) = 38.42, $p < .01$, REST, R^2 Change = .09, F (1, 175) = 20.20, $p < .01$, and PURGE, R^2 Change = .02, F (1, 150) = 3.21, $p = .08$, and makes a significant unique contribution in each case: DISS, $t = -6.20$, $p < .01$, $sr^2 = 18\%$, REST, $t = -4.49$, $p < .01$, $sr^2 = 9\%$, PURGE, $t = -1.98$, $p < .05$, $sr^2 = 2\%$. The goal engagement, $R^2 = .02$, F (3, 176) = 1.10, $p = .35$, and goal disengagement measures, R^2 Change = .01, F (1, 175) = 1.94, $p = .17$, fail to explain a significant proportion of variance in BINGE.

Table 7

Hierarchical Regression of EDE-Q Variables Regressed on Body-Specific Goal Engagement Strategies (Step 1) and Goal Disengagement Strategies (Step 2)

Dependent variable	*IV*	R^2	*Adj.* R^2	ΔR^2	*B*	*se*	β	*t*	*r*	sr^2
DISS										
Step 1	BodySPC	.01	-.01		.10	.22	.05	.46	-.30	.00
	BodyCPC				-.00	.16	-.02	-.25	-.04	.00
	BodySSC				-.18	.22	-.10	-.83	-.07	.00
Step 2	BodySPC	.19**	.17**	.18**	.00	.20	.03	.29	-.30	.00
	BodyCPC				.00	.15	.01	.14	-.04	.00
	BodySSC				-.21	.20	-.11	-1.06	-.07	.00
	BodyCSC				-.85	.14	-.42**	-6.20**	-.42**	.18
REST										
Step 1	BodySPC	.11**	.10**		.38	.17	.24*	2.17*	.32**	.02
	BodyCPC				-.12	.13	-.08	-.91	.14	.00
	BodySSC				.26	.18	.16	1.47	.30**	.01
Step 2	BodySPC	.20**	.19**	.09**	.35	.17	.23*	2.13*	.32**	.02
	BodyCPC				-.00	.12	-.05	-.653	.14	.01
	BodySSC				.24	.17	.15	1.45	.30**	.01
	BodyCSC				-.51	.11	-.30**	-4.49**	-.32**	.09
BINGE										
Step 1	BodySPC	.02	.00		-.13	.13	-.12	-1.02	-.14	.01
	BodyCPC				-.00	.09	-.00	-.02	-.08	.00
	BodySSC				-.00	.13	-.02	-.18	-.10	.00
Step 2	BodySPC	.03	.01	.01	-.13	.13	-.13	-1.07	-.14	.01
	BodyCPC				-.00	.09	.01	.08	-.08	.00
	BodySSC				-.00	.13	-.02	-.21	-.10	.00
	BodyCSC				-.12	.09	-.10	-1.39	-.10	.01
PURGE										
Step 1	BodySPC	.17**	.15**		.26	.07	.41**	3.77**	.41**	.07
	BodyCPC				-.00	.05	-.02	-.29	.21**	.00
	BodySSC				-.00	.07	.02	.17	.31**	.00
Step 2	BodySPC	.18**	.16**	.02*	.26	.07	.40**	3.73**	.41**	.07
	BodyCPC				-.00	.05	-.01	-.16	.21**	.00
	BodySSC				-.00	.07	.01	.01	.31**	.00
	BodyCSC				-.00	.05	-.14*	-1.98*	-.15*	.02

Note: *p<.05; **p<.01

DISS = Body dissatisfaction; REST = Restraint; BodySPC = Body selective primary control; BodyCPC = Body compensatory primary control; BodySSC = Body selective secondary control; BodyCSC = Body compensatory secondary control.

Path Analyses on Bulimic Symptomatology

The central hypotheses of the present study required investigating the nature of the relationships identified in the correlations and regressions within the context of Stice's (1994) dual-pathway model of bulimia. According to this model, (i) internalisation of the thin-ideal contributes to body dissatisfaction and dietary restraint, (ii) both of these factors can contribute to negative affect, and (iii) dietary restraint and negative affect can each promote bulimic symptoms (i.e., binge and purge behaviours). The direct relationships proposed in the dual-pathway model (Stice, 1994) were confirmed by the correlations reported in Table 6. Fortunately, only trivial deviations from Stice's (1994) model were observed: the absence of significant correlations between REST and BINGE, and between NA and PURGE.

To test the mediated paths hypothesized in Study Two, path analyses were conducted using the AMOS^{TM} structural equation modelling package. A bias-corrected bootstrap re-sampling method was used to test the significance of the mediated paths, as recommended by Shrout and Bolger (2002). The results of the paths, including standardized beta weights and the corresponding significance values, are summarised in the path diagrams of Figures 2 and 3. Only paths derived from the dual-pathway model (Stice, 1994) with PURGE as the dependent variable were tested, as BINGE failed to correlate with any of the measures of goal engagement or goal disengagement.

The influence of goal engagement on restrained eating and purging

Figure 2 shows the path diagram corresponding to the direct and indirect paths from goal engagement that were tested in the context of the dual-pathway model (Stice, 1994). The numbers alongside the arrows are the standardized beta weights. Prior to

reporting the results of these analyses, it is important to confirm that the combination of direct and indirect paths explain significant and substantial variance in the mediating and dependent variables of interest. Inspection of the R^2 values in Figure 10.1 confirms that for DISS, REST, NA, and PURGE, the model accounts for between 11% and 44% of the variance in these variables (R^2= .11, .44, .24, and .22, respectively, $p < .01$) but does not explain significant variance in INTERN, R^2=.0, $p > .05$.

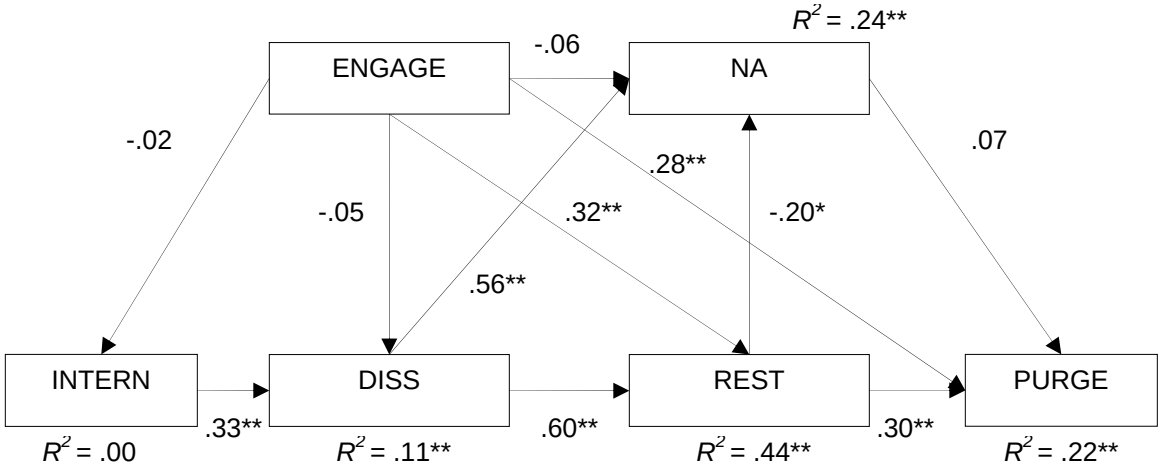
With respect to direct paths, it was hypothesized that goal engagement (ENGAGE) would serve to promote or increase body dissatisfaction, and overt attempts at weight control using whatever means possible (i.e., dietary restraint and perhaps also purging). This is partially confirmed by the significant correlations obtained (detailed in Table 6) and also by the significant standardized beta weights obtained for the direct paths from ENGAGE to REST, $\beta_{ENGAGE \rightarrow REST} = .32$, $p < .01$, and from ENGAGE to PURGE, $\beta_{ENGAGE \rightarrow PURGE} = .28$, $p < .01$. However, goal engagement is not directly associated with INTERN, $\beta_{ENGAGE \rightarrow INTERN} = -.02$, $p > .01$, nor DISS, $\beta_{ENGAGE \rightarrow DISS} = -.05$, $p > .01$.

The more interesting question concerns the possible indirect paths from goal engagement to weight control, and to bulimic symptomatology. These indirect paths were tested in the context of the dual-pathway model (Stice, 1994), and the placement of goal engagement within the model was determined a priori on the basis of the hypothesized relationship between endorsement of goal engagement strategies and one's attitudes, emotions, and behaviours specific to body weight. In the context of the dual-pathway model (Stice, 1994), and as illustrated in the path diagram in Figure 2, goal engagement may indirectly contribute to dietary restraint in two ways: (i) through

engagement with sociocultural messages to be thin (i.e., increased internalisation of the thin-ideal), or (ii) through increased sensitivity to self-evaluations (body dissatisfaction). Furthermore, goal engagement may indirectly influence bulimic symptomatology in two ways: (i) through increased dietary restraint, or (ii) through increased negative affect (where negative affect follows either from unsuccessful attempts at dietary restraint, and/or from increased body dissatisfaction).

The absence of direct paths from ENGAGE to INTERN and/or DISS precludes the possibility of a significant indirect path from ENGAGE to REST. Contrary to expectations, endorsement of goal engagement strategies does not influence dietary restraint via increased internalisation of the thin-ideal or body dissatisfaction. The results do indicate the presence of a significant indirect path from ENGAGE to NA, negatively mediated by REST, $\beta_{ENGAGE \rightarrow REST \rightarrow NA} = -.09$, $p < .05$. This indicates that dietary restraint is negatively related to negative affect once the direct contribution from body dissatisfaction and goal engagement is removed. This is interesting because the correlation table suggests no significant correlation between REST and NA. This pattern of results suggests that body dissatisfaction contributes to negative affect, but when dietary restraint is practised in response to body dissatisfaction or goal engagement, the result is less negative affect. Therefore, goal engagement may indeed influence negative affect via its effects on dietary restraint. In partial support of the hypothesis that individuals who endorse goal engagement would be more likely to engage in purging behaviour as a consequence of either increased dietary restraint, and/or negative affect, a significant indirect path from ENGAGE to PURGE is evident, mediated by REST, $\beta_{ENGAGE \rightarrow REST \rightarrow PURGE} = .08$, $p < .05$. However, the absence of a direct path from NA to

PURGE, $\beta_{NA \rightarrow PURGE} = .07$, $p = .24$, precludes the possibility of an indirect path from ENGAGE to PURGE mediated by both REST and NA, and indicates that individuals did not utilize purging as a means of regulating affect, as suggested by Polivy & Herman (1993).



Note: ** $p < .01$
INTERN = Internalisation; ENGAGE = Goal engagement; DISS = Body dissatisfaction; REST = Restraint; NA = Negative affect.

Figure 2. Path diagram illustrating the influence of goal engagement, internalisation, body dissatisfaction, dietary restraint, and negative affect on purging behaviour.

The influence of goal disengagement on restrained eating and purging

Figure 3 shows the path diagram used to test the direct and indirect paths from goal disengagement in the context of the dual-pathway model (Stice, 1994). As in Figure 2, the numbers alongside the arrows are the standardized beta weights. Inspection of Figure 3 confirms that the combination of direct and indirect paths explains significant and substantial variance in the variables of interest, specifically dietary restraint and purging. The model accounts for between 1% and 35% of the variance in the variables Inspection of the R^2 values in Figure 3 confirms that for INTERN, DISS, REST, NA,

and PURGE, the model accounts for between 1% and 35% of the variance in these variables (R^2= .01, .26, .35, .24 and .22, respectively, $p < .01$).

In terms of direct paths, it was hypothesised that goal disengagement would not be directly associated with dietary restraint nor purging. This is confirmed by the non-significant correlations between DISENGAGE and REST and PURGE (refer to Table 6), and the non-significant standardized beta weights obtained for the direct paths from DISENGAGE to REST, $\beta_{DISENGAGE \rightarrow REST} = -.09$, $p > .05$, and from DISENGAGE to PURGE, $\beta_{DISENGAGE \rightarrow PURGE} = -.03$, $p > .05$.

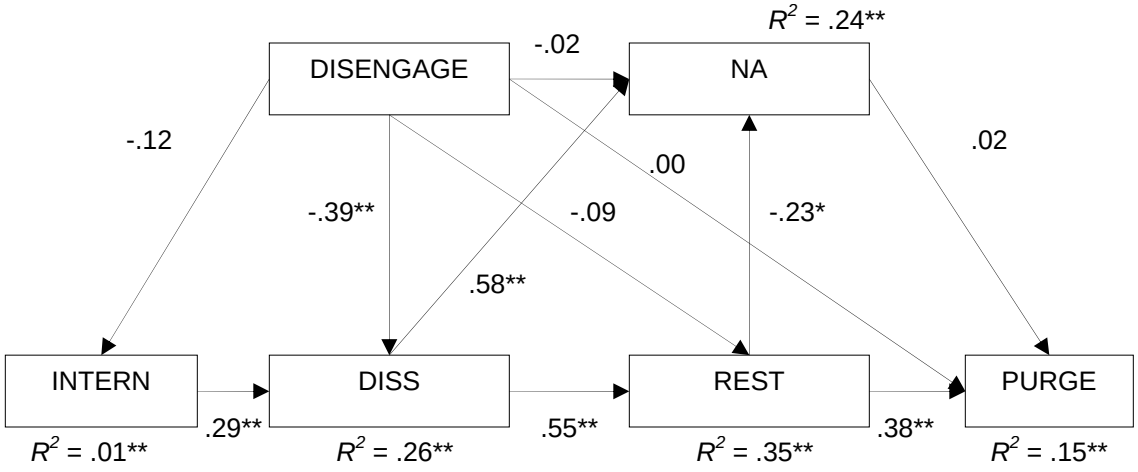
Indirect paths from goal disengagement to weight control and bulimic symptomatology were tested in the context of the dual-pathway model, with the placement of goal disengagement within the model determined by theoretically-driven assumptions regarding the relevance of goal disengagement to attitudes, emotions, and behaviours specific to body weight. In the context of the dual-pathway model, and as illustrated in the path diagram in Figure 3, goal disengagement may indirectly contribute to dietary restraint in two ways: (i) through disengagement with sociocultural messages to be thin (i.e., decreased internalisation of the thin-ideal), or (ii) through decreased sensitivity to self-evaluations (body dissatisfaction). Furthermore, goal disengagement may indirectly influence bulimic symptomatology in two ways: (i) through decreased dietary restraint, or (ii) through decreased negative affect (where negative affect follows either from decreases in goal disengagement, unsuccessful attempts at dietary restraint, and/or increased body dissatisfaction).

The results of the path analyses confirm that there is a significant indirect path from DISENGAGE to REST, $\beta = -.23$, $p > .05$. However, the absence of a significant

direct path from DISENGAGE to INTERN, $\beta_{DISENGAGE \rightarrow INTERN} = -.12$, $p > .05$, indicates that the indirect path from DISENGAGE to REST is mediated only by DISS $\beta_{DISENGAGE \rightarrow DISS \rightarrow REST} = -.23$, $p < .01$. Contrary to expectations, endorsement of goal disengagement strategies does not influence dietary restraint via decreased internalisation of the thin-ideal. However, these results do support the hypothesis that endorsement of goal disengagement strategies would be associated with reductions in body dissatisfaction, and subsequently, weight control behaviours.

In partial support of the hypothesis that endorsement of individuals who endorse goal disengagement strategies would be less likely to engage in purging behaviour, due to decreased body dissatisfaction and dietary restraint, and/or negative affect, a significant indirect path from DISENGAGE to PURGE is evident, mediated by DISS and REST, $\beta_{DISENGAGE \rightarrow DISS \rightarrow REST \rightarrow PURGE} = -.09$, $p < .01$. The absence of a direct path from NA to PURGE, $\beta_{NA \rightarrow PURGE} = .02$, $p > .05$, precludes the possibility of an indirect path from DISENGAGE to PURGE mediated by DISS, REST, *and* NA. This indicates that goal disengagement may reduce purging behaviour by driving reductions in body dissatisfaction and dietary restraint, but not negative affect.

Notably, endorsement of goal disengagement strategies is not directly related to negative affect, $\beta_{DISENGAGE \rightarrow NA} = -.02$, $p > .05$. However, endorsement of goal disengagement strategies is associated with reductions in NA, mediated by DISS, $\beta_{DISENGAGE \rightarrow DISS \rightarrow NA} = -.19$, $p < .01$, but not REST, $\beta_{DISENGAGE \rightarrow DISS \rightarrow REST \rightarrow NA} = -.02$, $p > .05$. This reinforces the importance of goal disengagement in managing affective states, by reducing negative self-evaluation.



Note: ** $p < .01$
INTERN = Internalisation; DISENGAGE = Goal disengagement; DISS = Body dissatisfaction; REST = Restraint; NA = Negative affect.

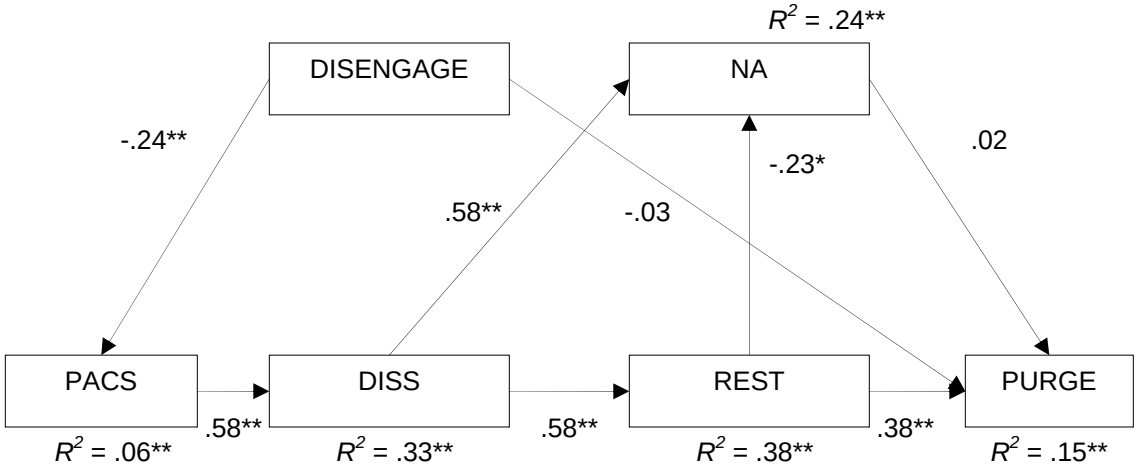
Figure 3. Path diagram illustrating the influence of goal disengagement, internalisation, body dissatisfaction, dietary restraint, and negative affect on purging behaviour.

Post-Hoc Path Analyses

The results of the path analyses conducted to this point indicate that endorsement of goal engagement and goal disengagement strategies is not relevant to internalisation, the first component of the Stice (1994) dual-pathway model. The question remains: How does goal engagement lead to reduced body dissatisfaction, if not by reducing internalisation of the thin-ideal? The correlations presented in Table 6 indicate that goal disengagement (BodyCSC) is significantly negatively associated with comparison behaviours (PACS), $r = -.24$, $p < .01$. This relationship suggests that the relationship between goal disengagement and body dissatisfaction may be mediated by comparison behaviours, specifically, that greater goal engagement may reduce comparisons, and subsequently, body dissatisfaction, restraint, and/or negative affect, and bulimic pathology. As comparison is not specified as a component of Stice's (2001) dual-

pathway model, the aim was to identify whether comparison is relevant in the path from disengagement to body dissatisfaction.

To examine this hypothesis, path analyses we re-run with PACS as the only path from DISENGAGE to PURGE. This involved the removal of the direct paths from DISENGAGE to DISS, REST, and NA. The results of these analyses, including standardized beta weights, are presented in Figure 4. The model accounts for a significant amount of variance in PACS, DISS, REST, NA, and PURGE (6%, 33%, 38%, 24%, and 15% respectively, $p < .01$). The presence of a significant indirect path from DISENGAGE to DISS, $\beta_{DISENGAGE \rightarrow PACS \rightarrow DISS} = -.24$, $p < .00$, indicates that goal disengagement reduces comparison, and that this represents one possible pathway to less body dissatisfaction. Furthermore, the existence of a significant indirect path from DISENGAGE to PURGE ($\beta = -.03$, $p < .01$), in conjunction with a non-significant direct path from DISENGAGE to PURGE, $\beta_{DISENGAGE \rightarrow PURGE} = -.03$, $p = .67$, indicates that comparison represents an important pathway through which the tendency towards goal disengagement may influence bulimic pathology, with increased goal engagement leading to small but consistent reductions in purging behaviour.



Note: ** $p < .01$
PACS = Physical Appearance Comparison Scale; DISENGAGE = Goal disengagement; DISS = Body dissatisfaction; REST = Restraint; NA = Negative affect.

Figure 4. Path diagram illustrating the influence of goal disengagement, comparison, body dissatisfaction, and dietary restraint on purging behaviour.

Chapter Eleven

Discussion of Study Two Results

Overview

Study Two was conducted with the general aim of examining the relevance of body-specific control strategy use in the context of disordered eating. Stice's (1994) dual-pathway model of bulimic pathology provided a theoretical framework for conducting the examination. Path model analyses were used to determine the differential relevance of goal engagement and goal disengagement to weight control behaviour and bulimic symptomatology. The pattern of results obtained suggests that the endorsement of goal engagement strategies is directly related to dietary restraint, and directly and indirectly related to purging, whilst the endorsement of goal disengagement strategies is indirectly related to dietary restraint and purging through its influence on body dissatisfaction. This provides some support for the proposition that the way in which individuals seek to control their body-related goals may be associated with destructive and disordered eating behaviour, in particular dietary restraint and purging.

Confirmation of the Dual-Pathway Model of Bulimic Pathology

The results of correlation analyses conducted in Study Two partially confirmed Stice's (1994) dual-pathway model. As predicted, internalisation of the thin-ideal was positively related to all measures relevant to disordered eating, body dissatisfaction was positively related to dietary restraint and negative affect, and dietary restraint was positively related to purging behaviour. However, although the model also predicts that dietary restraint should be associated with negative affect and binge eating, and that

negative affect should be associated with purging behaviour, the results did not indicate any significant relationships between these variables.

The non-significant relationship between dietary restraint and binge eating is consistent with previous research findings (e.g., Lowe et al., 1996; Lowe et al., 1998; Presnell & Stice, 2003; Stice et al., 2005) suggesting that dietary restraint may be unrelated to, or even minimise, the likelihood of binge eating, and reinforces the idea that the relationship between dietary restraint and binge eating is complex. One plausible reason for this is that for some people dietary restraint may provide a sense of control, whilst for others it may lead to feeling controlled, and the likelihood that dietary restraint will lead to binge eating may depend upon the feelings elicited for the individual. Furthermore, individuals are likely to have their own 'set-points' of tolerable dietary restraint, that is, the degree of dietary restraint which can be managed without triggering binge eating may vary across individuals. For these reasons, the relationship between dietary restraint and binge eating is unlikely to be reducible to a correlation.

The non-significant relationship between dietary restraint and negative affect may also be related to the existence of a more complex relationship between these variables than that proposed by the dual-pathway model (Stice, 1994). For example, it is possible that whilst for some women dietary restraint contributes to negative emotion (due to deprivation, failed attempts at restraint, etc.), for others it may enhance body image, confidence, and sense of control and ameliorate negative affect. Furthermore, this finding is not surprising when considered in light of previous research suggesting that there are subtypes of bulimia involving different pathways between dietary restraint and bulimic symptoms, and that not all bulimic women fit the restrained eating-negative

affect subtype, that is, experience negative affect (leading to bulimic behaviour) as a consequence of dietary restraint (Stice & Agras, 1999). Given that this subtype of bulimia may be related to more severe forms of bulimia (Stice & Agras, 1999), and that the present study utilised a non-clinical sample, it is possible that there were no or few women representing this particular subtype in the study.

The non-significant relationship between negative affect and purging behaviour is also likely to be due to the complexity of the relationship between these variables. It is unlikely that the degree to which an individual engages in purging is determined by their general level of negative affect, as many other more important factors such as personality, coping abilities, etc. will influence this relationship. The findings reviewed here illustrate the importance of not relying solely on simple correlations when attempting to understand the pathways leading to bulimic behaviour.

The Role of Goal Engagement and Goal Disengagement in Bulimic Pathology

Goal engagement and goal disengagement as predictors of bulimic pathology

Preliminary analyses sufficiently confirmed the direct relationships proposed by the dual-pathway model of bulimic pathology (Stice, 1994), permitting examination of the mediated paths involving goal engagement and disengagement predicted in Study Two. The results of preliminary analyses also indicated that both goal engagement and goal disengagement made a significant contribution to core behavioural symptoms of bulimia - dietary restraint and purging - but not to binge eating. This does not rule out the possibility that goal engagement and goal disengagement may influence the severity of binge eating in an indirect manner, but does indicate that these variables are not *directly* relevant to binge eating. In this context, these control strategies may function as

a mediator of other mediators of relationships relevant to disordered eating behaviour. The subtleties of these relationships cannot be captured by simple correlation and/or regression analyses. This illustrates the importance of examining a more complex, theoretically motivated set of relationships in which goal engagement and disengagement serve as mediating factors within a complex interplay of factors that, in conjunction, influence bulimic symptomatology. This approach was used to examine the paths to purging behaviour derived from the dual-pathway model (Stice, 1994).

The influence of goal engagement on purging behaviour

The results of Study Two provided partial support for the hypotheses regarding goal engagement and the various aspects of Stice's (1994) dual-pathway model of bulimic pathology. As predicted, the endorsement of goal engagement strategies was positively associated with dietary restraint and purging. However, contrary to expectation, these relationships were not mediated by the degree to which individuals internalised sociocultural standards (i.e., the thin-ideal) nor their level of body dissatisfaction. In addition to highlighting direct relationships between goal engagement and restraint, and goal engagement and purging, the results provided evidence of an indirect relationship between goal engagement strategy endorsement and purging that is mediated by dietary restraint but not negative affect.

The results confirm that individuals who endorse goal engagement strategies are more likely to engage in behaviours directed at attaining goals related to weight loss or maintenance, such as restricting their food intake, and possibly, more extreme efforts to avoid caloric consumption through purging. However, they also suggest that individuals who endorse goal engagement strategies are no more likely to engage with and

internalize socio-cultural attitudes towards appearance (as a means of providing a measure against which they can assess their success at goal pursuit) nor are they more at risk for body dissatisfaction. This finding contrasts with research suggesting that coping strategies for dealing with threats to body image that rely on appearance fixing (altering or masking physical features of concern) are associated with less positive and more fluctuating body image (Cash et al., 2005; Melnyk et al., 2004). However, the discrepancy in findings may be due to measurement differences: whilst the present study enquired about *how* people manage, or attempt to control, their *body-related goals*, the previous research focused on *what* specifically people do in response to *dissatisfaction* with their *appearance in general*.

The results indicate that goal engagement and internalisation/body dissatisfaction represent two distinct pathways in the development of restrained eating, and subsequently negative affect and purging behaviour. Contrary to expectations, although dietary restraint mediated the relationships between goal engagement and negative affect, and goal engagement and purging, in conjunction dietary restraint and negative affect did not produce a pathway to purging behaviour. Negative affect was not associated with increased purging, suggesting that purging may not have been utilised (or was ineffectively utilised) to regulate the negative affect associated with dietary restraint and/or body dissatisfaction (note that body dissatisfaction was associated with increased negative affect, although it did not mediate the pathway from goal engagement to negative affect). The non-use or ineffectiveness of purging as a means of reducing negative affect contradicts research indicating that purging is an effective means of reducing negative affective states (Smyth et al., 2007). However, these results originated

from a study using an experience sampling method designed to capture momentary alterations in thoughts, feelings, and behaviours, and may reflect short-term changes in affect following purging that dissipate over the longer-term or do not influence the individual's perception of their average level of negative affect. Alternatively, the results of the present study may be explained by those of a previous research study which found that whilst all the bulimic women (in their sample) reported restrained eating, only a small proportion of women report restrained eating *and* negative affect (i.e., the restrained eating-negative affect subtype) (Stice & Agras, 1999). This subtype may have been inadequately represented in the present sample.

The influence of goal disengagement on purging behaviour

In partial support of the hypotheses, (a) goal disengagement was directly and negatively associated with body dissatisfaction, but not internalisation, (b) goal disengagement was not directly, but was indirectly associated with restrained eating and the effects of goal disengagement on restrained eating were mediated by reduction in body dissatisfaction, (c) goal disengagement was not directly, but was indirectly associated with negative effect, and this relationship was mediated by reduction in body dissatisfaction but not dietary restraint, and (d) the effects of goal disengagement on purging were mediated by reductions in body dissatisfaction and dietary restraint, but not negative affect.

The finding that goal disengagement did not have a significant relationship with internalisation suggests that the degree to which individuals internalize sociocultural standards of appearance is minimally affected by their tendency to utilise goal disengagement strategies. It is possible that because the thin-ideal is so pervasive in

Western societies, it is impossible for individuals to avoid dissociate from or avoid internalizing this standard. Rather than influencing the likelihood of internalizing the sociocultural standard, it may be that goal disengagement influences how these standards are dealt with, *once they are internalised*. In this context, goal disengagement may mediate the effects of internalisation on body dissatisfaction.

Consistent with the study hypotheses, a direct relationship was found between goal disengagement and body dissatisfaction, and the relationships between goal disengagement and (i) dietary restraint, (ii) negative affect, and (iii) purging were mediated by body dissatisfaction. The results emphasise that the key role of goal disengagement is to reduce maladaptive behaviours and negative affective states by reducing negative self-evaluations. The absence of a direct relationship between goal disengagement and negative affect highlights that goal disengagement can only be helpful when it has a specific target – in this context, body image. Furthermore, the finding that the relationship between goal disengagement and negative affect is mediated by body dissatisfaction, *but not* restraint reinforces that the central role of goal engagement is to reduce negative self-evaluation. In doing so, it inadvertently reduces the likelihood an individual will engage in restraint, and consequently, purging behaviour.

The finding that goal disengagement is associated with reductions in body dissatisfaction raises the question of how does this happen? It was anticipated that the relationship between the endorsement of goal disengagement strategies and body dissatisfaction would be mediated by internalisation, that is, that goal disengagement would make individuals less likely to adopt the thin-ideal, and as a consequence have

lower levels of body dissatisfaction. However, as the results of Study Two indicated that this was not the case, an alternate mechanism that could account for the effects of goal disengagement was sought. Given that goal disengagement, but not goal engagement, was found to correlate negatively with appearance comparison, a reduction in comparison behaviours was hypothesised as a mechanism via which goal disengagement might convey its influence on body dissatisfaction. This was tested as a post-hoc analysis. The results indicated that goal disengagement reduced body dissatisfaction (and subsequently dietary restraint and purging), at least in part, by reducing appearance comparison behaviour. This is consistent with research associating the frequency of appearance-related comparison behaviours with body dissatisfaction (Durkin & Paxton, 2002; Stormer & Thompson, 1996).

One reason why goal disengagement may reduce body dissatisfaction by reducing appearance comparison behaviour is that it may be reducing a particular type of comparison behaviour – upward comparisons. Comparisons with females who fit the cultural thin-ideal epitomised by models and celebrities constitute an upward comparison for the average female. Objectification theory (Fredrickson & Roberts, 1997) attempts to account for why females are likely to make upward comparisons when evaluating their appearance. Objectification theory posits that Western cultures socialise females to internalise an objectifying observer's impression of their bodies. Consequently, females learn to measure their self-worth by comparing their own bodies to the unrealistic cultural standards of beauty. Empirical evidence confirms that when evaluating their appearance, many females make upward comparisons with models presented by the media (Higgins, 1987; Wertheim, Paxton, Schutz, & Muir, 1997).

Furthermore, the pervasiveness of female body dissatisfaction and anxiety regarding appearance, indicates that many women may be making upward comparisons, or comparing themselves to images that typify 'thinness' or 'beauty' to evaluate their own appearance. Thus, it is likely that in the present study, when females were asked about their appearance comparison behaviours, they were reporting on the frequency of their upward comparisons.

The process of making upward comparisons is, according to the OPS model (Heckhausen, 1997), associated with primary control and goal engagement. According to the model, upward social comparisons assist with self-assessment and motivation for self-improvement, thus promoting primary control. These are ideally enacted in situations where there is opportunity for personal control and change. In contrast, goal disengagement involves an alternative type of social comparison - downward social comparisons – which involve comparing oneself with inferior others. These facilitate self-enhancement in contexts where situational constraints limit personal control, and emotional and motivational resources need protection from the negative impacts of unattainable goals. This process may be particularly relevant to physical appearance goals, which if consistent with sociocultural standards are unattainable for the average female. Within the domain of physical appearance, females who endorse goal disengagement strategies may be more likely to make downward social comparisons, comparing their own appearance with that of females considered heavier than the thin-ideal, or less beautiful. As a consequence, they may be less likely to make upward comparisons in which they perceive themselves as worse off in terms of physical appearance, and thus experience less body dissatisfaction.

This finding confirms that appearance comparison may be an important meditational variable in relation to body image issues. Given that social comparisons are regularly made in everyday life (Heckhausen, 1997) and central to individuals' self-evaluations, promoting downward comparison or at least comparison with more realistic standards of appearance (as well as other compensatory secondary control strategies) may help to lessen the impact of sociocultural standards on body satisfaction.

Conclusions

Subsequent to confirming Stice's (1994) dual-pathway model of bulimic pathology, the primary aim of Study Two was to examine the proposed relationships between goal engagement and goal disengagement strategy use, and the internalisation of sociocultural attitudes regarding weight and shape, body related self-evaluations, direct attempts at weight control, and bulimic symptomatology. Preliminary results provided support for using path analysis to test the hypotheses in the context of purging, but not binge eating.

The results of Study Two indicate that goal engagement can increase potentially hazardous weight-related behaviours directly by influencing dietary restraint and purging. It may also influence purging behaviour indirectly by increasing dietary restraint, but not as a consequence of heightening negative affect. In contrast to goal engagement, goal disengagement can decrease hazardous behaviours only indirectly, by reducing body dissatisfaction. It appears to reduce body dissatisfaction, and consequently, negative affect, dietary restraint, and purging, not by influencing the adoption of sociocultural standards of appearance (i.e., the thin-ideal), but by reducing one's tendency to make appearance comparisons between the self and others.

In summary, the results provide clear support for examining control strategy use (in the context of the body) and how individual tendencies may influence weight control behaviour and eating disorder symptomatology.

Chapter Twelve

General Discussion

Overview

This thesis reported on the results of two studies investigating the use of control strategies in the context of subjective physical appearance in Australian women. The approach adopted was novel in that control was modelled and measured as a dynamic, domain-specific, *strategic* process, rather than as a passive process of attribution. To facilitate this approach, a model of primary and secondary control (OPS model; Heckhausen, 1999) was adopted as the theoretical framework for exploring the role of control in influencing SWB, domain satisfaction, and most importantly, body image and eating disordered behaviours. The OPS model (Heckhausen, 1999) outlines four types of primary and secondary control, and associates each type with the general function of either engaging with or disengaging from a particular goal (where the goal in question can include changing or maintaining body weight). The model contends that how people attempt to manage their goals in the face of situational, biological, and socio-cultural constraints is central to their continued primary control striving (i.e., goal pursuit). In the present thesis, it was argued that as a consequence of goal management, individuals' successful control strategy use will ultimately affect their well-being and behaviour.

In Study One, the nature of the relationship between control strategy use and SWB was investigated, with a focus on the domain-specific relationships between control and satisfaction, especially in the realm of physical appearance. In Study Two, the differential contribution of goal engagement and goal disengagement to disordered

eating symptomatology was examined in the context of Stice's (1994) dual-pathway model of bulimic pathology, focusing on the development of body dissatisfaction, restrained eating, and purging behaviours.

The following sub-sections consider in detail the implications and limitations of results of these two studies. Implications are considered with respect to SWB theory, our understanding of body dissatisfaction and eating disordered behaviours and the development of programs to ameliorate these. Furthermore, the implications for future clinical research are discussed, which point to the need for research using clinical samples, including male participants, and consideration of the full spectrum of eating disordered behaviours.

Subjective Well-Being

Body satisfaction and subjective well-being

SWB research has considered if and how quality of life within core domains contributes to individuals' overall satisfaction with life. In an earlier section of the thesis (see Chapter Two - The Personal Wellbeing Index), empirical evidence was reviewed suggesting that life domains relevant to SWB include one's standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion (International Wellbeing Group, 2006). However, within the field of SWB research, there exists a general consensus that numerous domains may in fact be relevant to SWB, and that the requirements for a domain to be investigated are simply that the domain must be able to be described objectively and subjectively, and is parsimonious and descriptive of a generic life area (Hagerty et al., 2001; Schalock et al., 2000).

The present thesis argued that a domain which meets these criteria – describable, discrete, and non-specific – is the domain of physical appearance. Subjective physical appearance, particularly in terms of weight and shape, is considered to be central to the psychological well-being of women (Rodin et al., 1984). This is supported by the wealth of clinical psychology research examining the impact of body dissatisfaction on psychological adjustment and behaviour. However, despite the fact that prominent theorists in the area of SWB argue that physical appearance is likely to represent an important determinant of SWB (Diener, 1984; Diener & Diener, 1995), little attention has been paid to this relationship. The limited empirical evidence available indicates significant associations between the body satisfaction and SWB of females (Cash & Fleming, 2002; Diener et al., 1995; Stokes & Frederick-Recascino, 2003). Thus, the primary aim of Study One was to determine if and how body satisfaction is relevant to individuals SWB.

Using the criterion that a domain may be included as a core domain if it contributes unique variance to overall SWB (International Wellbeing Group, 2006), it was established that for adult Australian females, body satisfaction is an important contributor to SWB. Significant associations between body satisfaction and satisfaction with the domains of health, relationships, and achievements suggest that satisfaction with each domain is to some degree inter-connected, and provide some clue as to why body satisfaction is relevant to SWB. For example, it is possible that how an individual feels about their body may affect their perceptions of their health, and that being a non-ideal weight may make the person more likely to perceive themselves as less healthy than they would like to be. In relation to achievements, being a non-ideal weight (if

weight control is an important goal) may make the individual feel they are less successful than they would like to be. In relation to relationships, being a non-ideal weight may lead the individual to feel self-conscious in their social interactions and restrict their social activity. Furthermore, much comment has been made on the effects that explicit and implicit messages regarding appearance from peer, romantic partners, and strangers may have on body image (Tantleff-Dunn & Gokee, 2002). These relationships, which are likely to be bi-directional, may ultimately contribute to SWB.

It should be noted that although the results of Study One indicate that body satisfaction was associated with satisfaction in other domains, it was nonetheless a significant and unique predictor of SWB. Consequently, future research should consider including body satisfaction as a core domain in the study of SWB. Although this consideration may be particularly relevant to research sampling from Western countries, research indicates that eating disorders are increasing in prevalence among non-Western countries (Makino, Tsuboi, & Dennerstein, 2004). This is proposed to be the result of increasing globalisation and exposure to Western media, which increases social pressure to conform to the thin-ideal of Western cultures, and subsequently, body dissatisfaction (Littlewood, 1995). If this is the case, body satisfaction may become increasingly important as a determinant of the SWB of individuals across both Western and non-Western countries, and should be included in SWB research conducted in countries where there is significant Western influence on culture.

Body dissatisfaction is recognised as having affective, cognitive and behavioural consequences (Thompson et al., 1999). The findings of the present thesis confirm that, in addition to being central to self-esteem (Harter, 1999, 2000; Henriques & Calhoun,

1999), and emotional adjustment (Thompson et al., 1999), body image may also be a key determinant of individuals' subjective assessments of their overall satisfaction with life, or SWB. The implications of this are clear: those who are not happy with their body, are less likely to be happy with their lives. This is particularly concerning given the pervasive nature of body dissatisfaction in Western societies (Rodin et al., 1984), and suggests that measures need to be taken to enhance the body satisfaction of women, at a population level. Although within Australia and other Western nations prevention and intervention programs targeting poor body image have been implemented, these are generally aimed at reducing eating disordered behaviour in school-aged females (for reviews refer to O'Dea, 2005; Paxton, 2002), and use eating disorder symptomatology as an outcome measure. The present research suggests that an alternative, but equally important, outcome measure may be improvement in SWB. Furthermore, the findings of the present thesis suggest that whilst the contribution of body image to the development of eating disorder symptoms in young females should not be ignored, poor body image may affect adult females in significant ways (i.e., impacting upon SWB) and that interventions are required which also target the broader female population.

Control and Subjective Well-Being

Confirmation of the OPS model

The findings of the present thesis provides further support for the OPS model of control outlined by Heckhausen (1999). The model outlines four types of control strategies and ascribes these to an over-arching framework of goal management, comprised of goal engagement and goal disengagement. In the context of SWB, the findings confirm that the strategies associated with goal engagement – selective primary

control, selective secondary control, and compensatory primary control – are interrelated and, for the most part, independent of goal disengagement, namely, compensatory secondary control.

The finding that all four control strategies (including both goal engagement and goal disengagement types) are relevant to SWB suggests that people may utilise the full range of control strategies across their lives. The use of the full repertoire of control strategies is consistent with the premise that "the four types of control strategies are not adaptive in and of themselves" (Wrosch et al., 2004, p. 405) and that it is the appropriate, and hence, flexible application of control strategies that is most important. However, the findings also indicate that the two types of secondary control are uniquely relevant to SWB, emphasising the importance of strategies targeting internal factors (motivation for goal pursuit, self-esteem) in determining SWB.

Also of central importance is the finding that generalised control strategy use was only weakly associated with locus of control beliefs. A number of factors may account for this. Firstly, the relationship between control beliefs and control strategy use appears to be very complex, and is likely to be mediated by other personality factors (e.g., neuroticism, conscientiousness, personal mastery, goal management tendencies) and situational constraints (Wrosch et al., 2004). Secondly, it was highlighted in the introduction to this thesis (see Chapter One – Locus of control) that locus of control beliefs are likely to vary across domains, and that the more specific a construct is to a particular domain, the more effectively it will predict behaviour within that domain (Skinner, 1996). The weak relationships between locus of control beliefs and control strategy use found by the present thesis may be in part due to the generalized nature of

the measures used. However, given that the relationship between these variables was not the primary target of the thesis, and that although a domain-specific approach may result in greater predictive power in research, control beliefs may vary even *within* domains, it was considered superfluous to investigate domain-specific relationships between control beliefs and control strategy use. Future research might like to consider these relationships more closely, as it is likely that adjustment and adaptation will alter as a function of the match between control beliefs and control strategy use (Wrosch et al., 2004). For the purposes of the present thesis, what is considered important is that the results highlight that the construct of control is a multidimensional one that cannot be encapsulated by a single factor (e.g., perceived control, control strategy use), and that the relationships between these factors are also highly complex.

Control strategy use and subjective well-being

Although the emphasis of the present thesis was on determining the domain-specific impact of control, the findings also have significant implications for our understanding of the processes that maintain SWB. Determining the factors that influence SWB is important not only because greater SWB is intuitively desirable, but also because "responses to subjective well-being questions are related to individuals' health outcomes, neurological functioning and characteristics—and predict some future behaviour" (Kahneman & Krueger, 2006, p. 22.).

It was argued that whether individuals pursue their goals in an optimal fashion (i.e., utilise primary and secondary control strategies where appropriate, as determined by the constraints) is likely to be reflected in their self-reported well-being, both across and within domains. In line with the life-span theory of control (Heckhausen & Schulz,

1995; Schulz & Heckhausen, 1996) it was assumed that the sample of young to middle-aged adult females who participated in Study One would be experiencing biological, societal, and age-normative constraints generally conducive to goal attainment. Therefore, it was expected that goal engagement strategies supporting the attainment of personal goals would be more strongly associated with SWB than goal disengagement strategies. The results of Study One confirm this, indicating that for this age cohort approaching goals through the use of selective primary, compensatory primary, and selective secondary control strategies is an important determinant of SWB. Goal disengagement also appears to be an important factor, albeit to a lesser extent (as predicted).

The homeostatic model of SWB (Cummins et al., 2002; Cummins & Nistico, 2002) outlined in Chapter 2 (see sections: Subjective well-being homeostasis, Perceived control and subjective well-being) suggests that control strategy use may enhance, or at least help to maintain, SWB because of its impact on two factors – perceived control and self-esteem. With respect to perceived control, it may be that the *successful* application of goal engagement strategies contributes to a sense of perceived control (i.e., internal locus of control over events in the external environment), which has been found to be associated with SWB. The findings of Study One provide some support for this, as internality was positively correlated with two types of goal engagement strategies, namely, selective primary and selective secondary control, in addition to SWB. It also is possible that the use of goal disengagement also enhances perceived control – in this case control over one's ability to cope with failed goal pursuit (the internal environment), thus contributing to SWB.

The use of goal engagement and goal disengagement may also impact upon SWB by contributing to self-esteem, considered one of the strongest determinants of SWB (Hong & Giannakopoulos, 1984) and a key aspect of the homeostatic model of SWB (Cummins et al., 2002; Cummins & Nistico, 2002). With regards to goal disengagement, the OPS model (Heckhausen, 1999) provides an account of how goal disengagement protects self-esteem, buffering it against the impact of failed goal pursuit. A role for goal disengagement in protecting self-esteem (and thus enhancing SWB) is supported by the results of Study One, which found that self-esteem fully mediated the relationship between compensatory secondary control and SWB.

The results of Study One also indicate that self-esteem partially mediated the relationships between selective primary and selective secondary control and SWB, and fully mediated the relationship between selective compensatory primary control and SWB. This suggests that the application of goal engagement strategies may also enhance self-esteem and consequently, SWB. It makes intuitive sense that goal pursuit is important to individuals' sense of self-worth however, the results of Study One cannot indicate whether goal pursuit must also be successful in order for self-esteem to be maintained. It was assumed that participants would have limited constraints upon goal pursuit (given their ages) and that use of goal engagement strategies would therefore be adaptive. However, it may have been the case that even when goal achievement was not possible, and goal engagement strategies were less appropriate, their use still had a positive impact on self-esteem, and subsequently, SWB. This may in part contradict Heckhausen (1999), who suggests it is the *appropriate* application of control strategies in response to external constraints on goal pursuit that is important, and that goal

disengagement is required to protect individuals from the negative impact of failure and control loss, on among other things, self-esteem. Although not explicitly stated, this suggests that the inappropriate use of goal engagement may be detrimental to self-esteem. However, the OPS model defines the suitability of control strategies as follows: "The critical question regarding adaptiveness of goal engagement, goal disengagement, primary, and secondary control is whether it serves primary control potential [goal pursuit] on the long run and across domains of functioning" (Wrosch et al., 2004, p. 405). It is possible that even goal pursuit which is less successful may still be adaptive, if it does indeed enhance self-esteem, encouraging future goal pursuit (and presumably SWB). Although these questions are not the focus of the present thesis, the results do raise some interesting questions about the relative importance, appropriateness, and function of control strategies in relation to SWB.

The Domain-Specific Nature of Control

Domain satisfaction and control strategy use

A central tenet of the present thesis is that the domain-specific nature of control has been, to some extent, neglected in research. It was argued that in order to develop a better understanding of how control – its attribution (e.g., locus of control) or its application (e.g., primary and secondary control) – relates to key indicators of well-being. The inadequacies of a domain-general approach to control were highlighted in Chapter One (Locus of control and body weight). Therefore, the present thesis considered how control strategy use may impact differentially on satisfaction across different core domains of life suggested as being central to SWB – health, relationships, achievement, and as established by Study One, the body.

The OPS model (Heckhausen, 1999), which emphasises the influence of external constraints in determining whether certain control strategies are adaptive in a developmental context, provided a model for exploring the domain-specific implications of control strategy use. It was argued that domains, like developmental contexts, have different situational constraints, and that satisfaction within domains may depend on the appropriate use of goal engagement and/or goal disengagement depending on the constraints within that domain. The pattern of results obtained in Study One provided clear support for a domain-specific approach to control – goal engagement strategy use was found to be the strongest predictor of satisfaction in the domains of health, relationships and achievement, whilst goal disengagement strategy use was the strongest predictor of satisfaction within the body domain. That is, in different domains, different aspects of control strategy use function to maintain positive well-being. If a domain-specific approach had not been taken, the reader would have been left with the impression that it is goal engagement that is most important predictor of satisfaction for all domains. A domain-specific approach highlights that, like different developmental contexts, different domains present different opportunities for and constraints upon goal management that must be adapted to.

Body satisfaction and control strategy use

Given the focus of the present thesis on eating disordered behaviours, the role of control processes in the body domain was contrasted with their role in the selected, established core domains of health, relationships, and achievement. In contrast to the other domains, it was found that it is goal disengagement (rather than goal disengagement) that becomes more relevant to satisfaction within the domain of the

body. In line with Wrosch et al. (2004), it was argued that the reason for this is that there are fewer external constraints, for this cohort of young adult females, on achieving goals within the domains of health, relationships and achievement, in contrast to body-related goals which are likely to take the form of the internalised thin-ideal. For example, a young woman may be more likely to have good health and energy, freedom to make choices and act unburdened by marital commitments and/or children, low levels of financial debt, and not locked into a particular career trajectory. For these reasons, she may experience few constraints on both her choice and pursuit of goals. She may quite easily (if motivated) improve or maintain her health, her relationships, and what she is achieving in her educational and/or work life.

In contrast to this, within the domain of the body goals tend to be highly constrained, largely by biological factors. The reason for this, as outlined in Chapter Six (Domain Satisfaction and Control Strategy Use), is that the goal promoted by Western cultures and to which most women aspire – the thin-ideal – is unattainable for most women due to biological constraints (Rodin et al., 1984). Put simply, they cannot diet or exercise their way to that level of thinness. Therefore, women who are unable to disengage from this goal, and utilise strategies to manage the negative impact of failing to achieve the thin-ideal such as making downward comparisons with women who are heavier, recognising the role of biological limitations (e.g., metabolism, weight set-point), downgrading the goal and prioritising goals in other life domains, are more likely to suffer body dissatisfaction (and possibly lower SWB). Given the well-recognised association between body dissatisfaction and eating disordered behaviour (Stice, 2002), Study Two was designed to investigate the extent to which body-specific control

processes both produce and interact with body image to determine clinically significant behaviour.

Control Processes and Eating Disordered Behaviours

The research reviewed in Chapter One (Locus of control and disordered eating) linking locus of control to eating disordered behaviours has tended to examine correlations between control and symptomatology for the purpose of establishing whether particular types of control beliefs are 'healthy' or 'unhealthy'. It was argued that this approach does not take into account the dynamic nature of control, and that the domain-specificity of control has been inadequately addressed. On the basis of this the present thesis differed from previous research by considering the role of control processes (in this case, control strategy use), and their interactions with other variables known to be relevant to disordered eating, as suggested by Stice's (1994) dual-pathway model of bulimic pathology.

The results relating to the roles of goal engagement and goal disengagement in bulimic pathology are discussed in full in Chapter Eleven (The Role of Goal Engagement and Goal Disengagement in Bulimic Pathology). This following discussion highlights what are considered to be the key findings of the present thesis, those suggestive of clinical implications for the etiology and treatment of eating disordered behaviour.

Although goal engagement and disengagement were not directly related to binge eating, they were associated with dietary restraint and purging – two of the core behavioural symptoms of bulimia. The results (see Chapter Ten – The influence of goal engagement on restrained eating and purging) confirmed that individuals who endorse

goal engagement strategies are more likely to engage in behaviour related to weight control, such as dietary restraint and purging. Contrary to expectations, this did not appear to be a consequence of internalisation of the thin-ideal, nor increased body dissatisfaction. Put simply, women who endorse goal engagement strategies are more at risk of engaging in potentially unhealthy behaviours such as dietary restraint and purging because of their propensity towards goal pursuit.

The results reported in Chapter Ten (The influence of goal disengagement on restrained eating and purging) indicated that goal disengagement tendencies were also related to dietary restraint and purging. However, in contrast to goal engagement, these relationships *were* mediated by body dissatisfaction. Once again, control strategy did not influence internalisation of the thin-ideal. To account for this it was suggested that the pervasive nature of the thin-ideal in Western cultures (Rodin et al., 1984) precludes its internalisation, and that goal disengagement tendencies may influence how this standard is dealt with once it is internalised, and determine the degree of body dissatisfaction. The pattern of results confirms that the key role of goal disengagement is to reduce negative self-evaluation and, consequently, maladaptive behaviours and negative affective states.

This raised the question of how, if not by influencing internalisation of the thin-ideal, does the tendency towards goal disengagement minimise body dissatisfaction? Appearance comparison was postulated as a possible mediator of this relationship, and the results (presented in Chapter Ten – Post-Hoc Path Analyses) confirmed that goal disengagement was associated with reduced appearance comparison behaviour, and consequently, lower levels of body dissatisfaction. It was suggested that goal disengagement – including the use of downward comparisons – reduces appearance

comparison behaviour, which according to objectification theory (Fredrickson & Roberts, 1997), is likely to involve making upward comparisons with females epitomising the thin-ideal. By encouraging downward comparisons with average weight or heavier women, a tendency towards goal disengagement may minimise the likelihood of upward comparisons being made – consequently reducing the likelihood of negative comparisons and body dissatisfaction.

In summary, the findings of the present thesis highlight the problems associated with simplified, inflexible, trait-like, and uni-directional conceptualisations of control. They also go some way to confirming that control is a complex, dynamic process, and that how people seek control in relation to their body-related goals has important implications for well-being (e.g., body image) and health-related behaviour (e.g., eating disordered behaviours). Specifically, it appears that a propensity to pursue body-related goals may have serious behavioural consequences, and that being able to disengage from body-related goals is particularly important for minimising potentially damaging comparisons of appearance, negative self-evaluation and the associated consequences.

Clinical Implications

The findings of the present thesis indicate that females who endorse goal engagement strategies and/or cannot use goal disengagement to some extent when attempting to control their appearance-related goals may be at risk of developing eating disorder symptoms. In other words, the mindless pursuit of the thin-ideal, especially in combination with an inability to shift focus from this goal, may prove to be a very poisonous endeavour. Although this appears intuitive, this relationship has until now been neglected in the empirical literature.

The findings, although preliminary, may have a number of clinical implications, for both the individual-level treatment of eating disorders, and the development of prevention and intervention programs targeting poor body image or body dissatisfaction.

With respect to eating disorder treatment programs, the findings of the present thesis suggest that treatment should target how individuals manage their body-related goals and, in particular, their pursuit of the thin-ideal. In an ideal world, the thin-ideal would be revised to reflect a more moderate ideal weight and shape, so that a tendency towards goal engagement would not be detrimental (less severe forms of weight control behaviours would be required to achieve the thin-ideal). However, given the pervasive nature of the thin-ideal in Westernised cultures (which is likely to increase with technological developments and the ever-increasing popularity of the Internet), the observation that this ideal has become progressively thinner over time (Rodin et al., 1984), and the multiple industries with a vested interest in perpetuating body dissatisfaction in women, suggests that the thin-ideal will persist into the future. It also does nothing to assist those females who already have significant problems with body dissatisfaction and/or eating disordered behaviour.

Despite this, the findings of the present thesis indicate there may be things which can be done to counter the negative effects of the thin-ideal. For example, individuals who endorse goal engagement strategies (and may be more likely to engage in strict dieting and/or purging behaviour) may be helped to develop healthier behaviours by directly targeting their goal engagement tendencies. To refresh, goal engagement includes things such as help-seeking, skill development, finding alternate means to achieve a goal, prioritising, and focusing on the benefits of achieving a goal. In order to

put individuals' goal engagement tendencies to positive use treatment programs could encourage individuals to: (i) seek weight management advice from professionals such dieticians and personal trainers (rather than their peers or websites encouraging eating disorder practices), (ii) develop effective dietary and exercise practices and provide education about the ineffectiveness of strict dieting and compensatory behaviours, (iii) consider the costs to health, relationships, and functioning of eating disordered behaviour and the consequences of prioritising weight over other areas of life. These strategies may help to counter the potentially damaging behavioural effects of a tendency towards goal engagement.

In addition to counteracting goal engagement tendencies, treatment programs should seek to encourage greater reliance on goal disengagement strategies. Although this may involve encouraging the development of appropriate and achievable weight goals (a form of compensatory secondary control), the findings suggest that it may not be necessary to change the goal (the thin-ideal) if individuals can learn to manage this goal via other compensatory secondary control strategies, such as downgrading the importance of the goal and shifting attention to other domains, making downward instead of upward comparisons (e.g., comparing oneself with average people and not those in the media), and managing negative feelings associated with failure to achieve the thin-ideal (e.g., focusing on and highlighting aspects of appearance that are liked).

Interestingly, it appears that goal engagement and goal disengagement tendencies are already being addressed in cognitive-behavioural therapy (CBT) for bulimia nervosa. CBT, and more specifically, CBT-BN devised by Fairburn, Marcus and Wilson (1993) and supplemented in 1997 (Wilson, 1997), has been widely researched and is

recommended as the treatment of choice for bulimia nervosa by the National Institute for Clinical Excellence (National Collaborating Centre for Mental Health, 2004). A central aim of CBT-BN is to help patients to reduce the importance of shape and weight in self-evaluation, in part by considering the consequences associated with a fixation on weight and shifting patient focus to developing other domains of life and their self-esteem. It also provides psycho-education about the ineffectiveness of maladaptive weight control behaviours such as fasting and purging, and about successful strategies for long-term weight control. Furthermore, it emphasises reducing body dissatisfaction by attempting to recognise and disrupt maladaptive cognitive processes, such as making frequent upward comparisons. These kinds of strategies represent ways of redirecting goal engagement tendencies, whilst encouraging reliance on goal disengagement strategies. Thus, the findings of the present thesis may help to account for the relative success of CBT in the treatment of bulimia nervosa (i.e., by promoting goal disengagement and consequently reducing body dissatisfaction and/or eating disordered behaviours), and provide empirical support for the theoretical underpinnings of such treatment programs.

The idea that by harnessing potentially maladaptive goal engagement tendencies and encouraging goal disengagement, body dissatisfaction and bulimic pathology may be reduced is reassuring. It implies that it may not be necessary to change the goal – the thin-ideal – in order for positive change to occur. The findings of the present thesis suggest that females need to be encouraged to disengage from goals that are inappropriate for them, and engage with those that are appropriate, i.e., they need to learn to seek control in this way is adaptive. This premise might be used to form the

basis of community-based prevention and intervention programs for body dissatisfaction and/or eating disordered behaviours.

The importance of developing such programs is clear if one considers the serious consequences that body dissatisfaction may have for individual's physical and mental health and it is recognised that "identifying effective prevention interventions [for body dissatisfaction] is an important step in improving the health [of Australians]" (Paxton, 2002, p. 4). As with any public health initiative, the success of programs is dependent on identifying the key determinants of the variable of interest – in this case body dissatisfaction. The findings of the present thesis indicate that (in addition to the individual attribute risk factors identified in Chapter One – Trait differences and vulnerability to sociocultural pressures) goal engagement and goal disengagement tendencies, within the domain of appearance, may influence the development of body dissatisfaction and eating disordered behaviours. Therefore, programs which focus on enhancing women's body image by highlighting the constraints on pursuit of the thin-ideal and encouraging disengagement from this goal (and engagement with individualised goals) have the chance to be effective even if the thin-ideal remains prevalent in media discourse.

These programs may take the form of selective prevention – targeting non-symptomatic individuals believed to be at risk of body dissatisfaction, or targeted prevention – which aims to prevent the further development of early symptoms of body dissatisfaction (Paxton, 2002). Of particular relevance to the present thesis are targeted intervention programs, as by adulthood most women are likely to have developed some symptoms of body dissatisfaction. Although research indicates that targeted intervention

programs appear to have some success in reducing body image concerns in adult female samples, greater attention has been paid to programs for children and young adults rather than adult females, who clearly are also suffering significant levels of body dissatisfaction (for a review see Paxton, 2002). Targeting adult women may be more difficult as they are not a 'captured audience' (as are schoolchildren) and their pursuit of the thin-ideal may be ingrained after years of indoctrination by the media, peers, and family. However, although internalisation of the thin-ideal contributes to body dissatisfaction, the findings of the present thesis indicate that goal engagement and disengagement do not operate through internalisation. This suggests that the internalisation process needn't be reversed in order for goal engagement and goal disengagement to have an impact on body image and behaviour, and even women who have internalised the thin-ideal may be able to disengage from this goal.

Future Research

Several directions for future research are suggested by the findings of the present thesis. Many of these relate to the preliminary nature of the research, and the focus on investigating relationships between constructs which have previously been neglected in the empirical research (e.g., SWB and body satisfaction).

Additional core domains of SWB and cross-cultural differences

The findings of the present thesis suggest that satisfaction within the body domain may have significant impact on individual's levels of SWB. However, it should be noted that in investigating the contribution of body satisfaction to SWB, not all core domains specified by the PWI (International Wellbeing Group, 2006) were included. Therefore, it can only be concluded that body satisfaction contributes unique variance to

the abbreviated form of the scale. However, the domains which were included (health, relationships, achievement) were those considered most likely to have some overlap, or shared variance, with the domain of the body. It is unlikely that including the omitted domains (standard of living, safety, community-connectedness, future security, and spirituality/religion) would have prevented the body domain from contributing unique variance to SWB, because these domains are conceptually quite distinct from the body. However, future research should address whether satisfaction with the body can be considered a core domain (i.e., contributing unique variance) when the eight core domains identified by the PWI (International Wellbeing Group, 2006) are included. Once this is established, research could also examine the influence of body satisfaction on SWB in non-Western cultures, to determine whether body satisfaction is universally relevant, or if it is only important in cultures where body shape and weight is scrutinised and idealised.

Control strategy use and other eating disorder symptomatology

The findings of the present thesis relate specifically to a model of bulimia nervosa, and as such, the results cannot be assumed to apply similarly to the dietary restraint characteristic of anorexia nervosa. Further research may also focus on the role of control strategies in the development of the full range of eating disordered behaviours, such as binge eating, and forms of compensatory behaviour other than purging. In the present thesis, it was found that goal engagement and goal disengagement were directly related to purging, but not to binge eating. Consequently, the relationships between goal engagement and goal disengagement and binge eating were not investigated any further. Future research might consider the more complex and

subtle (e.g., indirect) relationships between these variables. Furthermore, it is possible that the relationships between purging and goal engagement/disengagement may differ in nature from the relationships between other compensatory behaviours (e.g., excessive exercise, laxative use) and goal engagement/disengagement. Although different types of compensatory behaviours tend to be treated as analogous by clinical measures of eating disordered behaviour such as the EDE-Q (Fairburn & Beglin, 1994), it appears that the different forms appear to be differentially associated with personality traits including self-directedness, organisation, personal standards and novelty seeking, and that although "Ultimately, all purging behaviours may serve a similar function…the specific action of each behaviour differs substantially…Different personality or psychological features could render one method more attractive to particular individuals" (Reba et al., 2005, p. 288). Future research should seek to determine the nature of the relationships between other forms of compensatory behaviours and goal engagement/disengagement.

Factors influencing goal engagement and goal disengagement tendencies

In addition to developing a more comprehensive account of how goal engagement and goal disengagement relates to eating disordered behaviours, research should consider the factors that may predispose individuals to favour certain types of control strategies. Particularly important, given the protective effect of goal disengagement, is identifying the factors which might enhance or diminish individuals' ability to disengage. Of course, cultural influences promoting tenacious goal pursuit in relation to appearance may make goal engagement appear virtuous and necessary, with goal disengagement required only as a last resort. Implicit within Western cultural discourses about the dual self is the assumption that through hard work and self-

discipline one can defy the physical self and control the body (Ogle & Damhorst, 2004). However, the pervasive nature of such influences cannot account for individual differences in the use of goal disengagement. Nevertheless, one sociocultural influence which may differ between individuals is parental attitudes and behaviour towards appearance. Parents who emphasise fitness and good health over thinness and don't compare their bodies to media images promoting the thin-ideal, are in essence modelling goal disengagement for their children, and may encourage the individual's use of goal disengagement. Given that the role of parental influence in the development of body image and eating disturbance is recognised by theories such as the Tripartite Influence Model (Thompson et al., 1999) and has been empirically investigated (e.g., van den Berg et al., 2002), examining the relationship between parental influences and control strategy use may represent a viable pathway for future research.

In addition to sociocultural influences, Chapter One (Trait differences and vulnerability to sociocultural pressures) of the present thesis, which reviews the evidence linking personality factors such as perfectionism, self-esteem, neuroticism and impulsivity to eating disordered behaviour, provides some clue as to the individual difference factors that may influence the use of goal engagement and disengagement. As an example, high levels of perfectionism may make it very difficult for individuals to utilise goal disengagement strategies such as making downward comparisons, and downgrading the importance of the goal, as this is by definition counter to the nature of perfectionism. This presents one possible direction for future research – examining how these factors may influence (and possibly interact with) the use of goal engagement, and particularly, goal disengagement strategies.

Relationships between control strategy use and eating disordered behaviours in other populations

A final suggestion for future research relates to the generalisability of the findings of the present thesis. Given that the research utilised a community sample of adult, Australian, females, it cannot be determined whether these findings and conclusions apply to individuals (a) with a clinically diagnosed eating disorder, (b) from non-Western cultures, or (c) who are male. Investigating whether these findings are relevant to clinical populations is important because it may have implications for the treatment of eating disorders, in addition to preventions and interventions targeting body image, as reviewed above. It also cannot be presumed that the roles of goal engagement and goal disengagement within the dual-pathway model of bulimic pathology will be the same across cultures, as little is known about how these constructs of control, and etiological models of eating disorder, apply in non-Western cultures. Soh, Touyz, and Surgenor (2006) specifically point out that psychological control has not been examined in relation to eating disturbances in non-Western groups, and argues that "In the same way that constructs of psychological control differ across cultures, the traditional associations between such constructs and eating disorders may function differently in these [non-Western] cultures" (Soh et al., 2006, p. 62). Future research may help elucidate the nature of these associations by devising and evaluating culture-specific models of eating disorder, including where appropriate control-related constructs.

In addition to non-Western cultural groups, future research may target both female *and* males, to compare how goal engagement and goal disengagement tendencies may contribute to body dissatisfaction and eating disordered behaviour. Although the

strongest risk factor for body dissatisfaction is being female (Paxton, 2000), recent research indicates that body dissatisfaction is a concern among males across the lifespan and is associated with poor psychological adjustment, eating disorders, steroid use and exercise dependence (McCabe & Ricciardelli, 2004). For these reasons, it appears equally important to investigate the factors (including goal engagement and goal disengagement tendencies) which might contribute to the development of body dissatisfaction and maladaptive behaviours in males. However, it should be recognised that the motivations underlying the maladaptive behaviours of males range from weight loss through to weight gain (Ricciardelli & McCabe, 2002, 2004) and therefore, the roles of goal engagement and goal disengagement may also vary from the findings of the present thesis.

Limitations

Interpretation of the results is inherently limited by the design and methodologies employed in the two studies. Firstly, the research relied on self-report questionnaires, which may have biased the accuracy of the data. This may be particularly true in the case of bulimic symptoms, as respondents may have minimised the extent to which they engage in socially unacceptable behaviours such as binge eating and purging. Although participants were assured of anonymity, with the aim of reducing bias in self-report, some participants may have been reluctant to acknowledge symptoms or under-reported any symptoms. Furthermore, as participants were asked to rate their feelings, attitudes, and behaviours related to eating, weight and shape over the previous twenty-eight day period, their recall is unlikely to be completely accurate. For these reasons, it would have been preferable to assess bulimic symptoms using either a diary method, or

alternatively, with psychiatric interviews. This would have the added benefit of ensuring that participants had a proper understanding of the symptoms being assessed, and reduced subjectivity (for example, in relation to items asking about eating unusually large amounts of food).

A second limitation of the present thesis relates to the correlational, cross-sectional design of the studies. Although inferences about causality were made based on theoretical frameworks of SWB and bulimic pathology, direction and even the presence of causality cannot be determined and should be inferred with caution. For example, with regards to the relationship between goal engagement and dietary restraint, significant associations were interpreted as indicating that endorsement of goal engagement will make individuals more likely to pursue their weight-related goals directly by restricting their food intake. However, it is possible that there exists a reciprocal relationship, where dietary restraint (leading to weight control) encourages the further use of goal engagement strategies within the domain of the body and appearance, by reinforcing perceived control. In other words, their experience reinforces to the individual the idea (promoted by the dominant culture) that the body is changeable (Ogle & Damhorst, 2004), and encourages further attempts at goal engagement in this domain. In addition, there may be a third variable which accounts for the observed relationships between the examined factors. This example illustrates why the causal inferences of the present thesis should be viewed with caution. Furthermore, given that "it is not possible to differentiate a precursor of body dissatisfaction [or any other variable of interest] from a consequence with cross-sectional data" (Stice & Whitenton, 2002, p. 669),

experimental and longitudinal research may assist in the development of a more complex account of the processes that contribute to and maintain bulimic pathology.

A third limitation of the present thesis is that despite emphasising the multidimensional, complex nature of the construct of control, only one dimension of control – control strategy use – was considered. The results indicate that this dimension of control may be useful in developing our understanding of SWB, and eating disordered behaviours, and, in relation to SWB may be more useful than the locus of control construct. However, it is important that researchers do no simply shift focus from one dimension of control to another, and that effort is made to develop an understanding of the empirical relationships between the dimensions. Research which considers each facet in isolation may lead to difficulty interpreting results, because it is likely that adjustment and adaptation may alter as a function of the match between control beliefs and control strategy use (Wrosch et al., 2004).

The final limitation of the present thesis is that it cannot be known whether these findings can be applied to women whose eating disorder symptoms have led to a clinical diagnosis. Given that a sample of convenience was utilised, a clinical sample is required to determine the relevance of the results to control strategies in women diagnosed with an eating disorder. However, epidemiological research indicates that problematic eating disorder behaviours (binge eating, purging, and strict dieting or fasting) are more common than expected (Hay, 1998), and that partial syndrome eating disorders are almost twice as prevalent in nonclinical populations as full syndrome eating disorders (Shisslak, Crago, & Estes, 1995). These sub-clinical levels of symptomatology may cause emotional distress and physical damage, and according to longitudinal research,

may evolve into more severe psychopathology if untreated (Shisslak et al., 1995). It is therefore imperative that researchers try to understand the pathways by which these types of behaviours develop.

Consideration of sub-clinical levels of eating disorder is also consistent with the continuum hypothesis of eating disorders, which suggests that eating behaviour is distributed along a continuum ranging from normal eating to clinical eating disorder (Tylka & Subich, 1999) and that "many characteristics and correlates of eating disordered behaviour do seem to manifest in varying degrees of severity" (Tylka & Subich, 2002, p. 102). The findings of the present thesis are promising because they suggest a new variable which may be examined in samples with clinically diagnosed eating disorders.

Conclusions

The present thesis described and discussed the results of two studies that were conducted to investigate the relationship between control strategy use and SWB, body satisfaction, and most importantly, eating disorder symptomatology, in a non-clinical sample of Australian women. The first study confirmed the relevance of body satisfaction to SWB, and the domain-specific influences on control strategy use. The second study extended this to eating disordered behaviours, confirming that how individuals seek control within the domain of the body has significant implications for their degree of body dissatisfaction and the likelihood of engaging in dietary restraint and purging. As discussed above, these findings have implications for our understanding of bulimic pathology. Most importantly, the results suggest that bulimia evolves out of a complex set of processes, and that how women *respond* to the internalised thin-ideal

may be dependent on their preferences for goal engagement and/or goal disengagement in the domain of the body. Whilst a preference for goal engagement may lead to reliance on dietary restraint and purging as a means of weight control, preference for goal disengagement may help to minimise the impact of the thin-ideal by reducing body dissatisfaction, and subsequently, hazardous weight control behaviour. A significant implication of these findings is that it may not be necessary to reduce an individual's internalisation of the thin-ideal to their ameliorate bulimic symptoms. Instead, body dissatisfaction and eating disordered behaviours may be reduced by modifying control strategy use - reducing reliance on maladaptive goal engagement strategies and promoting the use of goal disengagement strategies. This notion is inspiring, due to the pervasive nature of the thin-ideal in Western societies and the tendency of women to internalise this standard.

The preliminary nature of the research requires that the present research be extended to clinical samples. If the relationships established by the present thesis are replicated and confirmed, then the results can be applied to the clinical treatment of eating disorders. In this context, they may help to reveal *why* and *how* CBT ameliorates bulimic symptoms and confirm the underlying psychological processes that need to be targeted in order for treatment to be successful. It appears that it is not the unrealistic goal (i.e. the thin-ideal) which should be targeted but how individuals pursue and manage this goal. Clinicians should promote the *adaptive* application of goal engagement tendencies, for example, seeking information and help from health professionals, and the development of healthy weight control practices. Perhaps more importantly, they should focus on increasing reliance on goal disengagement strategies

(e.g., downgrading the importance of the thin-ideal, shifting attention to goals in other important domains of life, directing conscious awareness to parts of the body that are liked), in order to reduce, or manage the impact of, body dissatisfaction. The findings of the present thesis suggest it is these processes which may contribute to the success of CBT in treating bulimic symptoms.

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Appendix A: Letter Confirming Ethics Approval for Studies One and Two

Research Services

Office of the Deputy Vice-Chancellor (Research) (Melbourne Campus)

MEMORANDUM

TO: Ms Megan de Souza
Psychology Burwood

cc: Dr Alex Mussap

FROM: Secretary, Deakin University Human Research Ethics Committee (DU-HREC)

DATE: 14 June 2006

SUBJECT: **PROJECT: EC 56-2006** *(Please quote this project number in future communication.)*
THE ROLE OF PRIMARY AND SECONDARY CONTROL IN DISORDERED EATING

This application was considered by the Deakin University HREC on 3 April 2006.

APPROVAL HAS BEEN GIVEN FOR MEGAN DE SOUZA, UNDER THE SUPERVISION OF DR ALEX MUSSAP, SCHOOL OF PSYCHOLOGY, TO UNDERTAKE THIS PROJECT FOR A THREE YEAR PERIOD FROM 13 JUNE 2006.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Secretary immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

Vicki Xafis
Secretary, DU-HREC
(03) 9251 7123

Appendix B: Questionnaire Battery Used in Study One

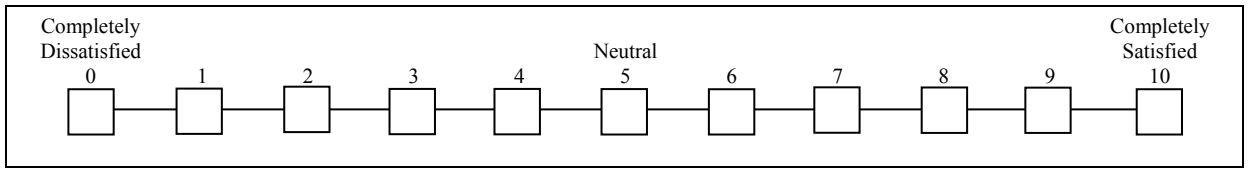
Please provide the following information:

Age (in years) _____ Sex (F) _____ (only females should complete this survey)

Weight _____kg *or* _____lbs Height _____m *or* _____ft

The following question asks how satisfied you feel, on a scale from zero to 10. Zero means you feel completely dissatisfied. 10 means you feel completely satisfied. And the middle of the scale is 5, which means you feel neutral, neither satisfied nor dissatisfied.

1. Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?

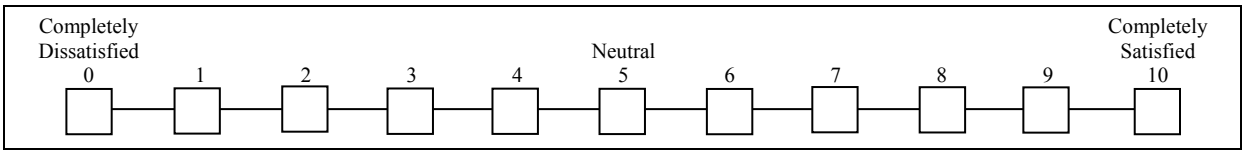


We are very interested in learning about how you go about accomplishing what you want in your life. Please think about your life overall – including the things that you want to IMPROVE and things that you are satisfied with and want to MAINTAIN.

Listed below are ways in which people think and behave when trying to IMPROVE or MAINTAIN their lives. To what extent do each of the following statements represent how – in general - you think or behave? Please read each statement carefully and put a line through the circle which corresponds to your response.

How well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. When I really want something, I am able to work hard to achieve it.	○	○	○	○	○	○
2. When I have set my mind on something, I put it before everything else.	○	○	○	○	○	○
3. When I have set a task for myself, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When a goal is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not solve a problem by myself I ask others for help.	○	○	○	○	○	○
6. When I get stuck on a task, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in my way, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in my way, I find another way to get what I want.	○	○	○	○	○	○
9. For goals that are difficult to achieve, I keep in mind how proud I will feel when I have reached them.	○	○	○	○	○	○
10. When I have decided on something, I know that I will achieve it.	○	○	○	○	○	○
11. When I have decided on something, I avoid anything that could distract me.	○	○	○	○	○	○
12. When I have decided on a goal, I always keep in mind its benefits.	○	○	○	○	○	○
13. When something becomes too difficult, I can put it out of my thoughts.	○	○	○	○	○	○
14. When I do not reach a goal, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15. When I get into a difficult situation, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16. When I have not accomplished something important, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

How satisfied are you with the appearance of your body?

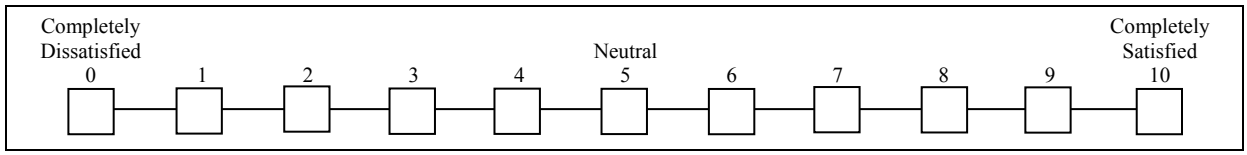


Please think about your body - both things you want to IMPROVE and things that you are satisfied with and want to MAINTAIN. This might include your *weight*, your *body shape*, the shape or size of *particular body parts*, your *muscle tone*, or your *body fat composition*. There may also be other things you want to improve or maintain in relation to your body, so just think about what is most important to you.

Listed below are ways in which people think and behave, when trying to IMPROVE or MAINTAIN their bodies. To what extent do each of the following statements represent how you think and behave, when trying to IMPROVE or MAINTAIN your body? Please read each statement carefully and put a line through the circle which corresponds to your response.

In the context of improving or maintaining your body, how well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. I am able to work hard to improve or maintain my body.	○	○	○	○	○	○
2. When I have set my mind on improving or maintaining my body, I put it before everything else.	○	○	○	○	○	○
3. When I have decided to improve or maintain my body, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When improving or maintaining my body is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not improve or maintain my body by myself I ask others for help.	○	○	○	○	○	○
6. When I get have difficulty trying to improve or maintain my body, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in the way of me improving or maintaining my body, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in the way of me improving or maintaining my body, I find another way to get what I want.	○	○	○	○	○	○
9. When it is difficult for me to improve or maintain my body, I keep in mind how proud I will feel when I am able to do so.	○	○	○	○	○	○
10 When I have decided on improving or maintaining my body, I know that I will achieve it.	○	○	○	○	○	○
11 When I have decided to improve or maintain my body, I avoid anything that could distract me.	○	○	○	○	○	○
12 When I have decided I want to improve or maintain my body, I always keep in mind the benefits.	○	○	○	○	○	○
13 When it becomes too difficult to improve or maintain my body, I can put it out of my thoughts.	○	○	○	○	○	○
14 When I am unable to improve or maintain my body, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15 When I struggle with trying to improve or maintain my body, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16 When I fail to improve or maintain my body, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

How satisfied are you with your health?

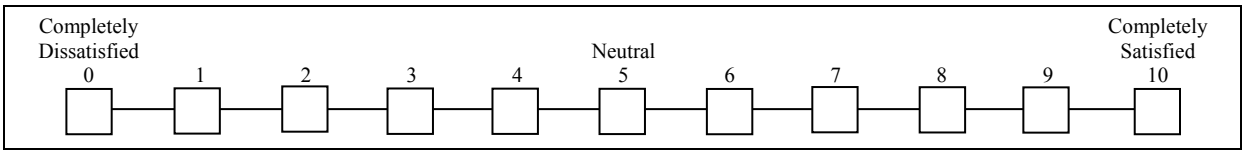


Please think about your health - both things you want to IMPROVE and things that you are satisfied with and want to MAINTAIN. This might include your *physical health,* your *physical fitness*, your *energy levels*, your *mental health*, or your *intellectual functioning*. There may also be other things you want to improve or maintain in relation to your health, so just think about what is most important to you.

Listed below are ways in which people think and behave, when trying to IMPROVE or MAINTAIN their health. To what extent do each of the following statements represent how you think and behave, when trying to IMPROVE or MAINTAIN your health? Please read each statement carefully and put a line through the circle which corresponds to your response.

In the context of improving or maintaining your health, how well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. I am able to work hard to improve or maintain my health.	○	○	○	○	○	○
2. When I have set my mind on improving or maintaining my health, I put it before everything else.	○	○	○	○	○	○
3. When I have decided to improve or maintain my health, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When improving or maintaining my health is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not improve or maintain my health by myself I ask others for help.	○	○	○	○	○	○
6. When I get have difficulty trying to improve or maintain my health, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in the way of me improving or maintaining my health, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in the way of me improving or maintaining my health, I find another way to get what I want.	○	○	○	○	○	○
9. When it is difficult for me to improve or maintain my health, I keep in mind how proud I will feel when I am able to do so.	○	○	○	○	○	○
10. When I have decided on improving or maintaining my health, I know that I will achieve it.	○	○	○	○	○	○
11. When I have decided to improve or maintain my health, I avoid anything that could distract me.	○	○	○	○	○	○
12. When I have decided I want to improve or maintain my health, I always keep in mind the benefits.	○	○	○	○	○	○
13. When it becomes too difficult to improve or maintain my health, I can put it out of my thoughts.	○	○	○	○	○	○
14. When I am unable to improve or maintain my health, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15. When I struggle with trying to improve or maintain my health, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16. When I fail to improve or maintain my health, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

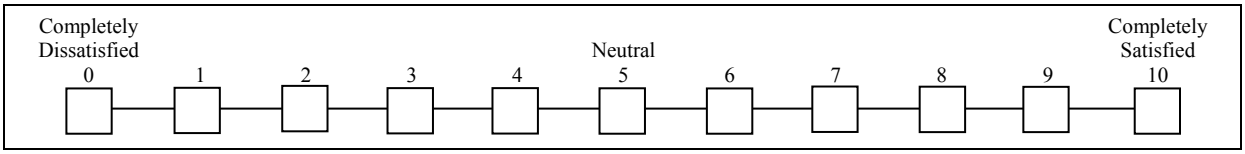
How satisfied are you with your personal relationships?



Please think about your personal relationships - both things you want to IMPROVE and things that you are satisfied with and want to MAINTAIN. This might include how much *time* you spend with a person(s), how much you *keep in touch*, the level of *conflict* there is in a relationship, the level of *intimacy* in a relationship, or the *balance of power* in the relationship. There may also be other things you want to improve or maintain in relation to your personal relationships, so just think about what is most important to you. Listed below are ways in which people think and behave, when trying to IMPROVE or MAINTAIN their personal relationships. To what extent do each of the following statements represent how you think and behave, when trying to IMPROVE or MAINTAIN your personal relationships? Please read each statement carefully and put a line through the circle which corresponds to your response.

In the context of improving or maintaining your personal relationships, how well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. I am able to work hard to improve or maintain my personal relationships.	○	○	○	○	○	○
2. When I have set my mind on improving or maintaining my personal relationships, I put it before everything else.	○	○	○	○	○	○
3. When I have decided to improve or maintain my personal relationships, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When improving or maintaining my personal relationships is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not improve or maintain my personal relationships by myself I ask others for help.	○	○	○	○	○	○
6. When I get have difficulty trying to improve or maintain my personal relationships, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in the way of me improving or maintaining my personal relationships, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in the way of me improving or maintaining my personal relationships, I find another way to get what I want.	○	○	○	○	○	○
9. When it is difficult for me to improve or maintain my personal relationships, I keep in mind how proud I will feel when I am able to do so.	○	○	○	○	○	○
10. When I have decided on improving or maintaining my personal relationships, I know that I will achieve it.	○	○	○	○	○	○
11. When I have decided to improve or maintain my personal relationships, I avoid anything that could distract me.	○	○	○	○	○	○
12. When I have decided I want to improve or maintain my personal relationships, I always keep in mind the benefits.	○	○	○	○	○	○
13. When it becomes too difficult to improve or maintain my personal relationships, I can put it out of my thoughts.	○	○	○	○	○	○
14. When I am unable to improve or maintain my personal relationships, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15. When I struggle with trying to improve or maintain my personal relationships, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16. When I fail to improve or maintain my personal relationships, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

How satisfied are you with what you are achieving in life?



Please think about the things you have, or would like to, achieve in your life - both things you want to IMPROVE and things that you are satisfied with and want to MAINTAIN. This might include obtaining *employment*, achieving the *grades* or *performance standards* you want or need, meeting *deadlines, balancing* study, work, family and/or social, *commitments.* There may also be other things you want to improve or maintain in relation to your achievements, so just think about what is most important to you.

Listed below are ways in which people think and behave, when trying to IMPROVE or MAINTAIN the things they are achieving in life. To what extent do each of the following statements represent how you think and behave, when trying to IMPROVE or MAINTAIN your achievements? Please read each statement carefully and put a line through the circle which corresponds to your response.

In the context of improving or maintaining your achievements, how well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. I am able to work hard to improve or maintain my achievements in life.	○	○	○	○	○	○
2. When I have set my mind on improving or maintaining my achievements in life, I put it before everything else.	○	○	○	○	○	○
3. When I have decided to improve or maintain my achievements in life, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When improving or maintaining my achievements in life is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not improve or maintain my achievements in life by myself I ask others for help.	○	○	○	○	○	○
6. When I get have difficulty trying to improve or maintain my achievements in life, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in the way of me improving or maintaining my achievements in life, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in the way of me improving or maintaining my achievements in life, I find another way to get what I want.	○	○	○	○	○	○
9. When it is difficult for me to improve or maintain my achievements in life, I keep in mind how proud I will feel when I am able to do so.	○	○	○	○	○	○
10. When I have decided on improving or maintaining my achievements in life, I know that I will achieve it.	○	○	○	○	○	○
11. When I have decided to improve or maintain my achievements in life, I avoid anything that could distract me	○	○	○	○	○	○
12. When I have decided I want to improve or maintain my achievements in life, I always keep in mind the benefits.	○	○	○	○	○	○
13. When it becomes too difficult to improve or maintain my achievements in life, I can put it out of my thoughts.	○	○	○	○	○	○
14. When I am unable to improve or maintain my achievements in life, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15. When I struggle with trying to improve or maintain my achievements in life, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16. When I fail to improve or maintain my achievements in life, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

For each of the following statements, indicate the extent to which you agree or disagree by putting a line through the circle corresponding to your response.

-3	-2	-1	1	2	3
Strongly disagree	Disagree somewhat	Slightly disagree	Slightly agree	Agree somewhat	Strongly agree

		-3	-2	-1	1	2	3
1.	Whether or not I get to be a leader depends mostly on my ability	○	○	○	○	○	○
2.	To a great extent my life is controlled by accidental happenings	○	○	○	○	○	○
3.	I feel that what happens in my life is mostly determined by powerful people	○	○	○	○	○	○
4.	Whether or not I get into a car accident depends mostly on how good a driver I am	○	○	○	○	○	○
5.	When I make plans, I am almost certain to make them work	○	○	○	○	○	○
6.	Often there is no chance of protecting my personal interests from bad luck	○	○	○	○	○	○
7.	When I get what I want, it's usually because I'm lucky	○	○	○	○	○	○
8.	Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power	○	○	○	○	○	○
9.	How many friends I have depends on how nice a person I am	○	○	○	○	○	○
10.	I have often found that what is going to happen will happen	○	○	○	○	○	○
11.	My life is chiefly controlled by powerful others	○	○	○	○	○	○
12.	Whether or not I get into a car accident is mostly a matter of luck	○	○	○	○	○	○
13.	People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups	○	○	○	○	○	○
14.	It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune	○	○	○	○	○	○
15.	Getting what I want requires pleasing those people above me	○	○	○	○	○	○
16.	Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time	○	○	○	○	○	○
17.	If important people were to decide they didn't like me, I probably wouldn't make many friends	○	○	○	○	○	○
18.	I can pretty much determine what will happen in my life	○	○	○	○	○	○
19.	I am usually able to protect my personal interests	○	○	○	○	○	○
20.	Whether or not I get into a car accident depends mostly on the other driver	○	○	○	○	○	○
21.	When I get what I want, it's usually because I worked hard for it	○	○	○	○	○	○
22.	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me	○	○	○	○	○	○
23.	My life is determined by my own actions	○	○	○	○	○	○
24.	It's chiefly a matter of fate whether or not I have a few friends or many friends	○	○	○	○	○	○

Please put a line through the appropriate circle for each statement depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly Agree
1. On the whole, I am satisfied with myself.	○	○	○	○	○
2. At times I think I am no good at all.	○	○	○	○	○
3. I feel that I have a number of good qualities.	○	○	○	○	○
4. I am able to do things as well as most other people.	○	○	○	○	○
5. I feel I do not have much to be proud of.	○	○	○	○	○
6. I certainly feel useless at times.	○	○	○	○	○
7. I feel that I'm a person of worth, at least on an equal plane with others.	○	○	○	○	○
8. I wish I could have more respect for myself.	○	○	○	○	○
9. All in all, I am inclined to feel that I'm a failure.	○	○	○	○	○
10 I take a positive attitude towards myself.	○	○	○	○	○

Appendix C: Questionnaire Battery Used in Study Two

Please think about your body - both things you want to IMPROVE and things that you are satisfied with and want to MAINTAIN. This might include your *weight*, your *body shape*, the shape or size of *particular body parts*, your *muscle tone*, or your *body fat composition*. There may also be other things you want to improve or maintain in relation to your body, so just think about what is most important to you.

Listed below are ways in which people think and behave, when trying to IMPROVE or MAINTAIN their bodies. To what extent do each of the following statements represent how you think and behave, when trying to IMPROVE or MAINTAIN your body? Please read each statement carefully and put a line through the circle which corresponds to your response.

In the context of improving or maintaining your body, how well does each statement apply to you?	Almost never true	Seldom true	Sometimes true	Often true	Almost always true	Don't know
1. I am able to work hard to improve or maintain my body.	○	○	○	○	○	○
2. When I have set my mind on improving or maintaining my body, I put it before everything else.	○	○	○	○	○	○
3. When I have decided to improve or maintain my body, I try to learn the skills necessary to do it well.	○	○	○	○	○	○
4. When improving or maintaining my body is more difficult than expected I try harder to achieve it.	○	○	○	○	○	○
5. When I can not improve or maintain my body by myself I ask others for help.	○	○	○	○	○	○
6. When I get have difficulty trying to improve or maintain my body, I don't hesitate asking others for advice.	○	○	○	○	○	○
7. When obstacles get in the way of me improving or maintaining my body, I try to think of other ways of reaching my goal, even if they are unusual.	○	○	○	○	○	○
8. When obstacles get in the way of me improving or maintaining my body, I find another way to get what I want.	○	○	○	○	○	○
9. When it is difficult for me to improve or maintain my body, I keep in mind how proud I will feel when I am able to do so.	○	○	○	○	○	○
10. When I have decided on improving or maintaining my body, I know that I will achieve it.	○	○	○	○	○	○
11. When I have decided to improve or maintain my body, I avoid anything that could distract me.	○	○	○	○	○	○
12. When I have decided I want to improve or maintain my body, I always keep in mind the benefits.	○	○	○	○	○	○
13. When it becomes too difficult to improve or maintain my body, I can put it out of my thoughts.	○	○	○	○	○	○
14. When I am unable to improve or maintain my body, I often tell myself that it wasn't my fault.	○	○	○	○	○	○
15. When I struggle with trying to improve or maintain my body, I remind myself that in many ways I am better off than other people.	○	○	○	○	○	○
16. When I fail to improve or maintain my body, I console myself by thinking about other areas where I had more success.	○	○	○	○	○	○

For the items below, please put a line through the circle that comes closest to how you feel.

	Never	Rarely	Sometimes	Often	Always
1. At parties or other social events, I compare my physical appearance to the physical appearance of others.	○	○	○	○	○
2. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others.	○	○	○	○	○
3. At parties or other social events, I compare how I am dressed to how other people are dressed.	○	○	○	○	○
4. Comparing your "looks" to the "looks" of others is a good way to determine if you are attractive or unattractive.	○	○	○	○	○
5. In social situations, I sometimes compare my figure to the figures of other people.	○	○	○	○	○

Please read each of the following statements carefully, and put a line through the circle which corresponds to your agreement with each statement

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
1. I would like my body to look like the people who are on TV.	○	○	○	○	○
2. I would like my body to look like the models who appear in magazines.	○	○	○	○	○
3. I would like my body to look like the people who are in movies.	○	○	○	○	○
4. I wish I looked like the models in music videos.	○	○	○	○	○
5. I try to look like the people on TV.	○	○	○	○	○
6. I try to look like the people in music videos.	○	○	○	○	○

The following questions are concerned with the PAST FOUR WEEKS ONLY (28 days). Please read each question carefully and put a line through the circle which corresponds to the appropriate number on the right.

ON HOW MANY DAYS OUT OF THE PAST 28 DAYS…	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1. …Have you been deliberately trying to limit the amount of food you eat to influence your shape and weight?	○	○	○	○	○	○	○
2. …Have you gone for long periods of time (8 hours or more) without eating anything in order to influence your shape and weight?	○	○	○	○	○	○	○
3. …Have you tried to avoid eating any foods which you like in order to influence your shape and weight?	○	○	○	○	○	○	○
4. …Have you tried to follow definite rules regarding your eating in order to influence your shape or weight; for example, a calorie limit, a set amount of food, or rules about what or when you should eat?	○	○	○	○	○	○	○
5. …Have you wanted your stomach to be empty?	○	○	○	○	○	○	○
6. …Has thinking about food or its calorie content made it much more difficult to concentrate on things you are interested in; for example, read, watch TV, or follow a conversation?	○	○	○	○	○	○	○
7. …Have you been afraid of losing control over eating?	○	○	○	○	○	○	○
8. …Have you had episodes of binge-eating?	○	○	○	○	○	○	○
9. …Have you eaten in secret? (Do not count binges)	○	○	○	○	○	○	○
10. …Have you definitely wanted your stomach to be flat?	○	○	○	○	○	○	○
11. …Has thinking about your weight made it more difficult to concentrate on things you are interested in; for example, read, watch TV, or follow a conversation?	○	○	○	○	○	○	○
12. …Have you had a definite fear that you might gain weight or become fat?	○	○	○	○	○	○	○
13. …Have you felt fat?	○	○	○	○	○	○	○
14. …Have you had a strong desire to lose weight?	○	○	○	○	○	○	○
15. …Has thinking about your shape made it more difficult to concentrate on things you are interested in; for example, read, watch TV, or follow a conversation?	○	○	○	○	○	○	○

OVER THE PAST FOUR WEEKS (28 DAYS)

16. On what proportion of times that you have eaten have you felt guilty because of the effect on your shape or weight? (Do not count binges)

- ○ None of the times
- ○ A few of the times
- ○ Less than half the times
- ○ Half the times
- ○ More than half the times
- ○ Most of the time
- ○ Every time

17. Over the past four weeks (28 days) have there been times when you have felt that you have eaten what other people would regard as an unusually large amount of food given the circumstances?

No ○ Yes ○

18. How many such episodes have you had over the past four weeks?

19. During how many of these episodes of overeating did you have a sense of having lost control over your eating?

20. During these episodes of overeating, did you usually have any of the following experiences?

	No	Yes
(a) Eating much more rapidly than usual	○	○
(b) Eating until you felt uncomfortably full	○	○
(c) Eating large amounts of food when you didn't feel hungry	○	○
(d) Eating large amounts of food throughout the day	○	○
(e) Eating alone because you were embarrassed by how much you were eating	○	○
(f) Feeling disgusted with yourself, depressed, or feeling very guilty after overeating	○	○

21. Have you had other episodes of eating in which you have had a sense of having lost control and eaten too much, but have NOT eaten an unusually large amount of food given the circumstances?

No ○ Yes ○

22. How many such episodes have you had over the past four weeks?

23. Over the past four weeks have you made yourself sick (vomit) as a means of controlling your shape or weight?

No ○ Yes ○

24. How many times have you done this over the past four weeks?

25. Have you taken laxatives as a means of controlling your shape or weight?

No ○ Yes ○

26. How many times have you done this over the past four weeks?

27. Have you taken diuretics (water tablets) as a means of controlling your shape or weight?

No ○ Yes ○

28. How many times have you done this over the past four weeks?

OVER THE PAST FOUR WEEKS (28 DAYS)

29. Have you exercised hard as a means of controlling your shape or weight?	30. How many times have you done this over the past four weeks?
No ○ Yes ○	☐☐☐

OVER THE PAST FOUR WEEKS (28 DAYS)

	Not at all		Slightly		Moderately		Markedly
31. …Has your weight influenced how you think about (judge) yourself as a person?	○	○	○	○	○	○	○
32. …Has your shape influenced how you think about (judge) yourself as a person?	○	○	○	○	○	○	○
33. …How much would it upset you if you had to weigh yourself once a week for the next four weeks?	○	○	○	○	○	○	○
34. …How dissatisfied have you felt about your weight?	○	○	○	○	○	○	○
35. …How dissatisfied have you felt about your shape?	○	○	○	○	○	○	○
36. …How concerned have you been about other people seeing you eat?	○	○	○	○	○	○	○
37. …How uncomfortable have you felt seeing your body; for example, in the mirror, in show window reflections, while undressing or taking a bath or shower?	○	○	○	○	○	○	○
38. …How uncomfortable have you felt about others seeing your body; for example, in communal changing rooms, when swimming or wearing tight clothes?	○	○	○	○	○	○	○

The following items ask you about different emotions and feelings. For each item, please put a line through the circle which best describes how you are feeling RIGHT NOW.

Right now…	Not at all	Slightly	Moderately	Quite a bit	Extremely
1. How interested do you feel?	O	O	O	O	O
2. How distressed do you feel?	O	O	O	O	O
3. How excited do you feel?	O	O	O	O	O
4. How upset do you feel?	O	O	O	O	O
5. How strong do you feel?	O	O	O	O	O
6. How guilty do you feel?	O	O	O	O	O
7. How scared do you feel?	O	O	O	O	O
8. How hostile do you feel?	O	O	O	O	O
9. How enthusiastic do you feel?	O	O	O	O	O
10. How proud do you feel?	O	O	O	O	O
11. How irritable do you feel?	O	O	O	O	O
12. How alert do you feel?	O	O	O	O	O
13. How ashamed do you feel?	O	O	O	O	O
14. How inspired do you feel?	O	O	O	O	O
15. How nervous do you feel?	O	O	O	O	O
16. How determined do you feel?	O	O	O	O	O
17. How attentive do you feel?	O	O	O	O	O
18. How jittery do you feel?	O	O	O	O	O
19. How active do you feel?	O	O	O	O	O
20. How afraid do you feel?	O	O	O	O	O