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The Genesis and Antecedents of Perceived Body Image Dissatisfaction in Childhood:

An 18-month follow-up investigation

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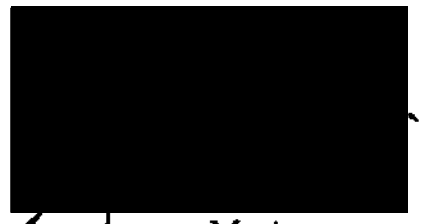
Declaration

I verify that this thesis contains no material which has been accepted for the award of any other degree or diploma, in any institute, college or university, and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due reference is made in the text of the thesis.



Marion Kostanski

Addendum

- Psychometric properties of the Figure Rating Scale

In consideration of the fact that the current thesis explores previously unexamined aspects of body image dissatisfaction within pre-adolescent populations (i.e., stability; linearity and bi-dimensionality), it is important to acknowledge that the initial choice of instruments utilised to measure this construct was premised upon utilising the Figure Rating Scale as designed for Children (Collins, 1991). In support of this decision, Ricciardelli and McCabe (2001) have reported that the psychometric properties of the cognitive component of this measure amongst children have been established. However, to date, discussion of the psychometric properties of the affective component of this scale for use with children has not been addressed.

The reader is directed to a full discussion of the issues regarding the use of the Figure Rating Scale to measure body image dissatisfaction, including current status of the psychometric properties of this instrument with children, in Appendix B.

Evaluation of the validity of both the affective and cognitive versions of this scale within the sample population of the current thesis is provided in Study One: pages 86 – 87 and Study Two: pages 131 – 132. Test-retest reliability of these measures is provided in Study Two: pages 129 – 130.

- Minor Expression Errors.

px para 2: REB should read 'Restrictive Eating Behaviors'
pxi line 23: process = processes
p1 line 12: phenomena = phenomenon
p3 line 22: lead = led
p12 line 10: argue = argues
p53 line 9: read 'his' not 'her'.
p54 reference: Smolak, Levine, & Schermer, (1999) not 1991.
p100 line 11: insert full stop
p116 line 4: construct = constructs
p118 line 8: omit first 'limited'.
p145 line 18: insert evaluation of REB
p172 line 24: dat = data
p177 line 13: Tiggeman = Tiggemann
p180 line 8: omit one full stop
Appendix A Table 4 (p3): Wetheim = Wertheim

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Abstract

Perceived body image dissatisfaction (PBID) has been identified as being of serious psychosocial concern for the health and well-being of adolescent females. More recently this attitude has been found to also be prevalent amongst males and pre-adolescent children. However little is known regarding the structure, stability or psychosocial relevance of PBID amongst these younger populations. The primary objective of this thesis was to address these limitations by conducting a prospective evaluation of PBID in middle childhood. Specifically the thesis examined the potential genesis and relevance of known psychosocial predictors (i.e., those identified as being pertinent in female adolescent populations) to the manifestation of these disparaging body attitudes in childhood. Furthermore, given that PBID, particularly that associated with being "too fat", has been implicated as a predicate of future eating pathology in adolescence, an evaluation of the relationship between these two constructs was also conducted.

The thesis is divided into two studies. Study One is a cross-sectional examination of the biopsychosocial correlates (i.e., BMI, self-esteem, personality, family environment, teasing and perceived evaluation by significant others) of PBID amongst a group of 431 children (199 boys, 232 girls) in middle childhood. Study One also explores the relationship between PBID and REB amongst this group of children. Study Two is a further cross-sectional, as well as prospective analysis of these biopsychosocial factors with PBID and REB amongst pre- and early adolescent children. Three hundred and twenty nine children from the first study (151 boys, 178 girls), also participated in Study Two. There were no significant differences found between the two sets of children on any of the primary constructs measured in Study

One.

The findings of this thesis have indicated that PBID is prevalent amongst young children. The manifestation of PBID does not appear to suddenly occur at a specific age, but is present from as early as seven years. Moreover, the psychosocial predictors identified as being pertinent to explaining variance in PBID amongst adolescent female populations were not found to be as strongly aligned with children's PBID. However the relationships between these factors and PBID were found to increase over an 18-month period. Importantly, the strongest predictor of current PBID for pre-adolescent children was found to be previous reports of such. Controlling for this risk, previous actual body mass (BMI) was found to predict current PBID for girls, whereas other psychosocial factors (i.e., teasing and self-esteem) were more pertinent for boys.

The proposed prevalence of restrictive eating behaviours (REB) amongst children was also confirmed. Moreover, the validity and stability of these behaviours was also supported. Interestingly, the expected relationship between PBID and REB in childhood was not found. However, concurrent research at the second stage of analysis did indicate that these relationships were becoming more pronounced, especially for girls. As with previous research in adolescent populations, the best predictor of current REB was found to be previous reports of such. Moreover controlling for the risk, previous BMI was also found to prospectively predict REB.

The findings of this thesis indicate that although PBID and REB are manifest amongst pre-adolescent children, these attitudes and behaviours are conceptually different for children in comparison to adolescent females. Further, the findings suggest that in pre-adolescent children, cognitive developmental process need to be considered when examining the factors that may be involved in the manifestation of body attitudes and eating behaviours. As such, whereas these attitudes and behaviours may become

more detrimental to adolescent children's psychosocial wellbeing, they are not so entrenched at this earlier age. Whether attempts to intervene in the development of these attitudes and behaviours in childhood would prevent the manifestation of them as more detrimental factors in adolescents is unclear. However, what is clear is that any attempts to intervene at this age would require a more focused investigation of the intrinsic meanings of these attitudes, and other identified predictive factors to the child as distinct from adolescents. Furthermore, whether there are psychosocial implications of the manifestation of PBID in childhood, for children also remains to be investigated.

Chapter 1

Introduction

Body Image Defined

The construct of body image has been used to describe a vast array of psychophysiological phenomena - from anosognosia (neurological impairment of the cortex) (Snaith, 1992), and dysmorphobia (pathological abhorence of a body site: i.e., nose, chin, stomach, thighs, etc.) (Thomas, 1984; Phillips, 1991), to phantom limb experience (Shontz, 1990), and body boundary discrepancies (Fisher, 1986). The construct has also been applied to represent the distortions and disparagement of physical appearance evidenced in persons suffering from psychopathological eating disorders (Bruch, 1962; Garner & Garfinkel, 1981; Rosen, 1990; Slade, 1985). Furthermore, body image has been used to define a similar phenomena of dissatisfaction with one's physical appearance within a high proportion of non-clinical, predominantly female, Western populations (Rodin, Silberstein & Striegel-Moore, 1984; Tiggemann & Pennington, 1990).

As noted by Thompson (1990), the essential feature of this physical appearance component of body image is a subjective evaluation of one's size, weight or shape, or any other aspect of their body that determines physical appearance. The general consensus within the literature is that 'appearance related' body image is a two dimensional construct, comprising both cognitive/perceptual and emotional/affective components (Davis, 1997a; Hsu & Sobkiewicz, 1991). As defined by Pruzinsky and Cash (1990), the cognitive/perceptual aspect of body image comprises our perceptual experiences of our body, and has generally been defined as body image distortion or size estimation. In contrast the emotional/affective aspect of body image comprises the pleasure or displeasure, satisfaction or dissatisfaction, we feel regarding our appearance

and the ability to function, and has generally been defined as body image satisfaction/dissatisfaction or disparagement.

Throughout the literature the term 'body image dissatisfaction' has been adopted as common parlance, although it is the perception of being dissatisfied with being too large or too fat, *'the desire to be thinner'* (Silberstein, Striegel-Moore, Timko & Rodin, 1988), which has held a particular interest for clinicians and social science researchers. This generic use of terminology has been consistently maintained within the literature, with the covert assumption that the terminology itself was defining of the construct being discussed (Thompson, Penner & Altabe, 1990). As noted by Thompson et al. (1990), this lack of clarity in defining the intended component of body image which is under evaluation has meant that a melange of methodologies derived from either neurological, cognitive or affective-based theoretical perspectives, has been employed in examining the construct, with the resulting data being used indiscriminately.

Thompson and colleagues (1990), reason that the perceptual component of body image is related to size perception and accuracy in estimation. As such the research in this area has focused on the individual's level of accuracy in estimating various body sites (i.e., width of hips, stomach protuberance, breasts) utilising light beams or drawing on sheets of paper, or whole image size utilising mirrors, videotape or photographic techniques. Conversely, the emotional component of body image is derived from individual subjective estimates being provided of one's current body shape and size in relation to an idealised norm utilising figural/schematic rating scales, or level of satisfaction with particular body parts and functions in a self-report format that provides a response along a dimension varying in level of satisfaction/ dissatisfaction. Therefore, the two components are distinctly different.

Moreover, as noted by Hsu and Sobkiewicz (1991), the ongoing practice of interspersing the two differing components of body image (perceptual versus emotional) is inappropriate. They argue that perceptual distortion is not synonymous with affective disparagement or attitudes. Importantly, they note that body size estimation is not a robust enough measure on which to build a construct and is highly questionable in terms of validity. Indeed, research has shown that both over- and under-estimation of one's body are strongly correlated with perceptual estimations of inanimate objects (i.e., shop mannequins, filing cabinets) as well (Coovert, Thompson & Kinder, 1988), thus indicating that over- or under-estimation of the body is related to a general perceptual inaccuracy within the individual. Furthermore, recent research has indicated that perceptual body width distortion is not pathognomic to eating disorders (Cash & Brown, 1987; Hsu & Sobkiewicz, 1991; Thompson & Thompson, 1986), with it being apparent within only some members of clinical and non-clinical populations. Importantly, following an extensive review of the literature, Hsu and Sobkiewicz (1991), proposed that it is the emotional component of body image, not perceptual distortion, which is a more appropriate direction for researchers to be exploring, with a corresponding return to employing appropriate terminology.

An historical overview of body image within the paradigm of psychology.

The relevance of body image as a construct within research paradigms associated with the psychology of health and well being was introduced to the literature by Bruch (1962). It was her clinical observation of, and research into clinical eating psychopathology, namely anorexia nervosa, that lead Bruch to consider the perceptions of one's body as a central component in the maintenance of this disease. Bruch noted that her patients held an apparent lack of concern for their emaciated appearance and suggested that it was not this emaciation which was the pathognomonic feature of the

disease but rather the perceptual distortion of body image associated with it "... and the vigour and stubbornness with which the often gruesome appearance is defended as normal and right, not too thin" (pp. 189). Indeed, in 1973, she proposed that a complete recovery from anorexia nervosa was dependent upon the successful correction of perceived body shape disturbance and noted that "thin fat people", that is people who are physically thin yet perceive themselves as being fat, have the same psychic conflicts as obese patients.

Consistently since that period, research into the development, treatment and maintenance of pathological eating behaviours has provided support for the presence of weight overestimation and perceived dissatisfaction with body shape and size as being central to both anorexia and bulimia nervosa (Freeman, Beach, Davis & Solyom, 1985; Keller, Herzog, Lavori, Bradburn & Mahoney, 1992; Slade, 1985; Slade & Russell, 1973). For example, following a four-year prospective study of 25 anorexic and 24 bulimic adolescents, van der Ham, van Strein, and van England (1994), concluded that anorexia and bulimia could be considered to be different manifestations of one basic eating disorder, in which a disturbed body image, and preoccupation with both food and appearance can be considered core symptoms. Moreover, in a review of the literature on early-onset anorexia and related eating disorders, Lask and Bryant-Waugh (1991), documented five aspects of psychological functioning as being potentially central to the understanding of eating pathology (i.e., preoccupation with body weight and shape, PBID, low self-esteem, perfectionism and a tendency towards depression).

Strikingly, the prevalence of PBID has been found to be so common, particularly within female populations, to be considered normative (Rodin et al., 1984). Indeed, research has indicated that between 50% and 80% of the 'normal' female population evidence some form of PBID (Davies & Furnham, 1986; Fabian &

Thompson, 1989; Fallon & Rozin, 1985; Paxton et al., 1991; Rosen & Gross, 1987; Storz & Greene, 1983). Moreover, recent empirical evidence of males also engaging in pathological eating behaviours and reporting dissatisfaction with their body size and shape has also become emergent within the literature (Emmons, 1996; Kostanski & Gullone, 1998; Maloney, McGuire, Daniels & Specker, 1989; Maude, Wertheim, Paxton, Gibbons & Szmukler, 1993; Patton et al., 1997; Paxton et al., 1991; Rolland, Farnhill & Griffiths, 1997; Tiggemann, 1997).

However, whilst it would seem that for females their major concern with body image is with perceiving themselves as being too fat and wishing to be thinner, for men the relationship is curvilinear with some men wishing to be thinner as well as others wishing to be larger. Of concern, as will be discussed further in Chapter Two, to date much of the research in this area is based on an evaluative and linear cross-sectional analysis of correlates of the construct 'body image' or the strength of its relationship with dieting and pathological eating behaviours. Consequently, much of this work has focused predominantly on PBID as it relates to concerns with being too fat and a desire to be thinner, with little consideration being given to the alternate aspects of dissatisfaction, such as perceiving oneself to be too thin and a desire to be larger. As noted by Muth and Cash (1997), whilst this linear association may be relevant for the majority of women, for others and particularly for men the relationship is not so direct. A ·nch, these researchers argued that much of the research to date fails to consider the "gender-differential, societal and personal standards of body attractiveness" (p. 1146).

Therefore it is important that any future research into the aetiology of PBID give due consideration to ensuring the inclusion of both males and females. Furthermore, as indicated by Muth and Cash (1997), such research need also incorporate appropriate collection and analysis of data to ensure that issues of diversity

in perceptions of PBID are not negated. Similarly, whilst the research has highlighted many of the psychosocial factors (i.e., socialisation, role modelling, individual differences, etc.), that are correlated with PBID, little is known of the aetiological development of PBID nor its stability or continuity across time. Indeed, only limited prospective research incorporating the construct of perceived body image has been conducted (e,g., Attie & Brooks-Gunn, 1989; Cattarin & Thompson, 1994; Killen et al., 1996).

Questions of continuity and discontinuity in body image dissatisfaction

Recent longitudinal studies amongst adolescent female populations have found that PBID is a significant predictor of future eating problems, thus supporting the proposed causal link between the two constructs (Attie & Brooks-Gunn, 1989; Cattarin & Thompson, 1994; Killen et al., 1996). For example, Attie and Brooks-Gunn (1989), evaluated the relative effect of several factors (i.e., pubertal status, body image, personality and family environment) on the subsequent development of eating problems amongst a cohort of 193 adolescent girls (mean age 14 years) over a period of two years (refer Appendix A, Table 1). Controlling for the effect of eating problems at time one, hierarchical regression analysis indicated that, longitudinally only body image was a significant predictor of subsequent eating behaviours amongst this group of girls. Although time one body image only accounted for 2% of subsequent eating behaviours, the authors concluded that "those girls who early in adolescence or perhaps pre-adolescence felt most negatively about their bodies were significantly more likely to develop eating problems beyond what could be expected on the basis of their earlier EAT-26 scores" (p. 76).

The validity of using such minimal evidence as the basis for claiming that PBID necessarily leads to future psychopathological eating is questionable (refer Willet,

Singer & Martin, 1998). This is particularly so given that it was time one eating behaviour that accounted for the major portion of variance of time two eating behaviour, explaining 19% of the variance. Consideration of the data reported by Attie and Brooks-Gunn indicates that the construct of body image itself was not stable over the eighteen-month period, rather reported levels of such were found to increase significantly, whereas reported pathological eating behaviours remained constant. Moreover, the relationship between body image attitudes with reported pathological eating behaviours at time one was not explored.

Furthermore, a prospective study by Keel, Fulkerson and Leon (1997), examining similar issues amongst a younger group of children, and including males, found different relationships to be evident between body image and eating pathology at time one and time two, over a twelve month period. Their study evaluated the predictive value of body image, self-esteem, depression, pubertal development and actual body mass in explaining variance in eating attitudes and behaviours amongst 165 upper-primary school-aged children (80 girls, 85 boys) (refer Appendix A, Table 1). Keel et al. (1997), found that at time one, the variables of body mass, pubertal development, body image and depression significantly predictive of eating behaviours for girls only. At time two, the researchers found these relationships to have changed, with only body mass and body image being predictive of eating behaviours for girls, and body image being predictive of eating behaviours for boys. These findings thus indicated that over time, the factors involved in predicting eating behaviours are variant. Furthermore, the researchers found that reported levels of eating behaviours and PBID also varied across time.

As noted by Davis (1997a), although one may "assume that body image cognitions are as capricious and dynamic as many other attitudes and that they are

influenced and altered by the vagaries of personal circumstances and mood" (p. 156), this is not how the construct has been treated within the literature. Indeed, the major assumption within the literature appears to be that perceived body image is in fact a predominantly stable construct. Importantly, Willet et al. (1998), note that what is missing from current longitudinal analysis is a consideration of this potential variance in relationship between contextual factors over time and the importance of interactional effects.

Interestingly, current cross-sectional research has indicated that perceived body image can fluctuate dependent on variance in exposure to high calorie loading of meals (Thompson, Coovert, Pasman & Robb, 1993), verbal feedback (Heinberg & Thompson, 1992), and exposure to media (Hamilton & Waller, 1993; Myers & Biocca, 1992). Furthermore, Roth and Armstrong (1994), found that women also reported their body image to be variable in relation to public exposure, environment, self-consciousness, and current affective state. However, others (i.e., Davis, 1997a; Haimovitz, Lansky & O'Reilly, 1993), have cautioned against being too hasty in drawing definitive conclusions from such research. Indeed, Haimovitz et al. (1993), argued that although fluctuations in body image across situations have been recorded, this is not in itself positive evidence on which to conclude that a global and more stable level of PBID does not also exist. Similarly, as concluded by Davis (1997a), although there is increasing evidence to indicate that there is a component of body image that is fluid and changeable, it would appear "there is good reason to believe that it comprises both relatively fixed and relatively dynamic components" (p.158). Given these findings, it is apparent that until further prospective research is conducted, evaluating the structural components of PBID at varying stages and ages of development, questions regarding its stability and continuity/discontinuity across the lifespan cannot be fully addressed.

Current status of research in the area of body image

Considering the serious and potentially fatal nature of eating psychopathology, and the identified links between this illness and PBID, it is understandable that the construct of PBID has developed such a high profile within the current literature. However, given the reportedly high prevalence rates of PBID amongst non-clinical, in particular female populations and the proposed insidious nature of this phenomenon, it is surprising that to date there remains little information regarding its aetiology. Not surprisingly, a review of the literature indicates that along with the plethora of cross-sectional research that has been conducted, there has also been a confounding of the theoretical frameworks upon which the research has been premised. As will be noted in subsequent chapters, the literature indicates that independently each of these frameworks has in itself provided a useful premise from which to explore the prevalence, psychosocial and developmental correlates of PBID per se. However, to date there is little evidence of any one framework providing a satisfactory platform from which to develop effective prevention programs in order to stave off predicted further psychopathology.

Indeed the literature indicates that to date prevention and intervention programs have not achieved their aims (Carter, Stewart, Dunn & Fairburn, 1997; Killen et al, 1993; Paxton, 1993; Paxton, 1996; Slade, 1995; Smolak & Levine, 1994). Moreover, Carter et al. (1997), indicated concern that their attempts to modify adolescent girls' body attitudes and dieting behaviours, may have done more harm than good. Importantly, they found that although at the end of a six-month program there had been improvements in the girls' body image attitudes and a reduction in dieting behaviours, a six-month post-intervention evaluation indicated that these attitudes and behaviours had risen to even higher levels than prior to intervention. Others (i.e., Killen et al., 1993;

Paxton, 1996; Slade, 1995), have concluded that generalised prevention or intervention programs were of little overall value, unless there were further integrated approaches to modification applied throughout the educational system, and extended into the social milieu of peer group relationships and media influences.

As argued by Smolak and Levine (1994), and others (i.e., Killen et al., 1993), in order for prevention programs to be effective, we need to first identify the risk factors that are pertinent to the development of these attitudes and behaviours. Furthermore, these risk factors need to be relatively specific and sensitive to change. Moreover, the indications of findings arising out of attempted intervention programs to date, would suggest that to attempt modification of behaviours in adolescents is already too late. In fact, in order to achieve any further understanding of the construct and be successful in achieving effective prevention or intervention, Smolak and Levine (1994), suggest researchers need to go beyond their current focus on adolescent females and begin to develop an understanding of children's body image attitudes and how they are derived prior to the onset of adolescence and puberty.

As will be addressed in Chapter Three, current research has indeed identified PBID to be prevalent in pre-adolescent children. However, to date very little is known about the timing of its manifestation or structural composition. Given the current research, some researchers have suggested that the actual onset of PBID is situated somewhere between the ages of eight and nine years (i.e., between grades three and five) (Maloney et al., 1989; Rolland et al., 1997; Thelen et al., 1992). However, others have found no significant differences between older children and those as young as seven years (Collins, 1991, Edlund, Halverson & Sjoden, 1996; Tiggemann & Wilson-Barrett, 1998). Moreover, as with research in adolescent populations, to date the greater portion of this research with pre-adolescent children has been embedded in

examining the manifestation of body image in relation to restrictive and/or dysfunctional eating behaviours. Importantly it would seem that it is the combined presence of PBID with REB found amongst middle childhood populations (Hill et al., 1992; Maloney et al., 1989) that has been the impetus for this current research. Indeed these findings have prompted researchers to express grave concerns over the potential implications of such findings in relation to future health risks, including potential psychopathology (Hsu, 1990; Thelen, Powell, Lawrence & Kunhert, 1992; Wood, Becker & Thompson, 1996).

However, as with the previously noted concerns regarding the possible stability of body image attitudes, concerns regarding the validity of reported dieting behaviours in children have also been raised (Collins, 1991; Maloney et al., 1989; Rolland et al., 1997). For example, Hill (1993), argued that, for children, the act of dieting may be no more than a fad, a short-lived craze or perhaps part of imitating and acting out perceived adult roles. Therefore, further research is required to address the question of children's actual intent in engaging in such behaviours, and whether observed PBID and REB are truly stable phenomena amongst young children.

Summary

Current research has shown that not only is PBID highly prevalent within adolescent females, but that it is also present within males and younger, pre-adolescent children. However, although there has been speculation regarding the potential ontogeny of PBID at around eight to nine years of age, to date this has not been adequately explored. Moreover, to date little is known regarding the actual structure or continuity/discontinuity of this construct within childhood.

To date much of the research related to PBID has focused mainly on cross-sectional and correlational research between this construct, dieting and pathological

eating behaviours in adolescent females. Recent research has highlighted that there is also a parallel presence of PBID, dieting and pathological eating behaviours amongst young children. However, researchers have been cautionary regarding the assumption that children as young as seven years of age are cognitively mature enough to consciously be engaging in such deleterious behaviours (Collins, 1991; Maloney et al., 1989; Rolland et al., 1997). Similarly questions remain regarding whether reported PBID and REB are truly stable phenomena amongst young children. Furthermore, little is known about the actual strength and predictive relationship between PBID and REB amongst children.

As noted previously, Muth and Cash (1997), have argues that there is a bias in methodology, which has led researchers to negate the importance of body image as it relates to those persons who desire to be larger. Indeed, whereas to date perceived body image has been consistently treated as a linear construct, it is now evident that this construct is, in fact, curvilinear. Therefore future research needs to give due consideration to incorporating appropriate methodological procedures to include this variance in measurement and analysis of the construct.

Moreover, although extensive research has been conducted into examining the psychosocial correlates of PBID, to date this research remains fragmented. Whilst it is evident that there are specific biological (i.e., body mass, sex), social (i.e., role modelling, teasing), and individual difference (i.e., neuroticism, self-esteem), factors that have been found to be strongly correlated with PBID amongst adolescent girls, there has been little research conducted into examining the integration of, and interaction between these factors in predicting the emergence of PBID in childhood.

Context of current thesis

The overall intent of the current thesis is to develop an understanding of the construct of PBID within the context of middle childhood development. Importantly the thesis seeks to explore the potential evolution of the construct throughout middle childhood. The thesis has five main objectives. These are to:

- explore the prevalence of PBID and REB as they relate to sex and age within middle childhood.
- explore the biopsychosocial correlates and predictors of PBID in a cohort of pre-adolescent children.
- investigate the continuity of PBID and REB across childhood and into early adolescence.
- explore the strength of and stability of the relationships between identified biopsychosocial predictors and PBID, as well as REB, across childhood.
- explore the strength and stability of the relationship between PBID and REB in childhood.

Contribution to knowledge

The outcomes of this thesis will extend current knowledge regarding the potential genesis of PBID and REB within middle childhood. By developing a biopsychosocial model this thesis will provide an integrated and comprehensive theoretical evaluation of the manifestation of these perceptions and behaviours within children. Moreover, the current study will provide a comprehensive understanding of the manifestation of these perceptions and behaviours amongst young boys as well as girls. Importantly, the outcomes of the current study will provide an understanding of the continuity/discontinuity of these constructs across middle childhood into early adolescence.

Statement of significance of current thesis

This thesis is the first comprehensive prospective study to be undertaken in the area of PBID and restrictive eating behaviours (REB) amongst pre-adolescent children. Improving our current understanding not only of the prevalence and stability of PBID amongst young children, but also the strength of relationship between PBID and REB in pre-and early adolescence, will greatly facilitate our understanding of the import of such for young children. As such it will facilitate educators in developing best practices in their health and nutrition programs. It will also facilitate clinicians' understanding of the amount of emphasis they need to direct towards focusing specifically on PBID and REB when working with individual or groups of children. Most importantly the study will improve our understanding of factors which may be pertinent to include in future preventative and intervention programs aimed at improving the psychosocial and physical well-being of pre-adolescent children.

Chapter 2

Epidemiological factors identified as important to Body Image Dissatisfaction

Epidemiological research into the development of PBID has been extensive, particularly dissatisfaction with being too large. Incorporated in this research are biological factors such as sex/gender (Gralen, Levine, Smolak & Murnen, 1990; Tiggemann, Winefield, Winefield & Goldney, 1994; Paxton et al., 1991; Wertheim et al., 1992), and social factors such as socio-economic status, culture and race (Bowen, Tomoyasu & Cauce, 1991; Cogan, Bhalla, Sefa-Dedeh & Rothblum, 1996). Indeed, in a review of current literature Bowen et al. (1991), defined gender, class and race as 'the triple threat', identifying them as the three major factors contributing to the high prevalence of weight-related problems in America. An additional factor, actual body mass, has also been found to be an important component in determining one's body image. Indeed, much of the research has highlighted that it is more likely to be those persons who are overweight (and more recently underweight) that are likely to express high levels of PBID (Kenny & Adams, 1994; Kolody & Sallis, 1995; Paxton et al., 1991).

The purpose of this chapter is to review the research that has been conducted into examining the contribution of each of these four factors (i.e., sex/gender, culture, socio-economic status and body mass) to the variance in PBID. As will be discussed further in Chapter Three, it is important to note that due to early knowledge regarding PBID, there was a strongly held belief, premised on the theoretical understandings of Erikson (1968), that PBID was predominantly an issue that arose out of pubertal development. Therefore much of the literature cited has arisen from research related to young adults and adolescents, and only more recently children.

Sex and/or Gender

Before discussing the research related to differences between males and females in relation to body image, it is important to note that, within the literature, there has been a tendency for researchers to refer to gender as the construct under consideration, when in fact they are referring to the actual physiological sex of the persons being examined. To speak of gender requires some measure of one's identification with a particular sex (Bjorklund, 2000). However, for the major portion of the research cited, the differentiation is between the physiological sex of the persons. With this in mind, where physiological sex differences are discussed the term *sex* will be utilised, and where the chosen sexuality of the person is being discussed the term *gender* will be applied.

One of the first studies to demonstrate the significance of sex for perceived dissatisfaction with one's body was that by Fallon and Rozin (1985). These researchers examined the differences in perceptions of body shape within a sample of 474 college students (248 male, 227 female) (refer Table 2, Appendix A for details of the research discussed in this chapter). Fallon and Rozin's results indicated that, for females, their mean perceived current figure rating was significantly larger than their mean perceived ideal figure. The mean perceived ideal figure reported by women was also smaller than the figure the women thought would be chosen as most attractive by the opposite sex. In contrast, for males, their mean perceived ideal, current and attractiveness ratings were almost identical. Male-female differences were found to be significant in all cases. The outcomes of this study lead the researchers to conclude that female perceptions of the ideal figure and related expectations operated so as to accentuate PBID, placing pressure on women to diet, whilst male perceptions operated to keep them satisfied with their current figures.

These findings have since been replicated many times over (e.g., Gralen et al., 1990; Kenny & Adams, 1994; Maude,et al., 1993; Tiggemann & Pennington, 1990; Tiggemann & Rothblum, 1988; Wertheim et al., 1992). Indeed as noted in Chapter One, a review of the literature by Rodin et al. (1984), led them to assert that weight concerns and dieting were normative for most women in Western society.

A difficulty incumbent in much of the previous cited research is the predisposition to rely heavily on local populations, such as tertiary or college students. In response to such limitations, others (i.e., Pliner, Chaiken & Flett, 1990; Tiggemann et al., 1994; Stevens & Tiggemann, 1998), have turned to evaluation of this construct within broader based samples. For example, Stevens and Tiggemann (1998), extended their research base to include 180 non-tertiary women (mean age 37.1 years). Their evaluation of perceived body image indicated that reported dissatisfaction was comparable across the age groups. They also found that PBID was not a function of marital status, occupation or the educational level achieved. Similar findings amongst non-student populations have been reported by Pliner et al. (1990), and further support the proposition that the perception of oneself in relation to weight and size is of concern within the general female population.

Interestingly, Siever (1994), extended the issue of male-female differentiation in relation to body image, to incorporate issues of sexuality. He argued that gender differences were a direct result of social values associated with perceptions of physical attractiveness, and were therefore strongly aligned with one's sexual orientation. Siever proposed that as physical attractiveness is an established value of men in seeking a potential partner, this lead heterosexual women and homosexual men to strive to be physically appealing in order to secure a mate. His investigation of PBID, attractiveness and eating behaviours amongst a group of 250 university students

provided ample support for his hypothesis, with significant and substantial differences in degree of PBID, attractiveness and frequency of dysfunctional eating behaviours amongst the four identified gender groups (lesbian women, homosexual men, and heterosexual men and women). Indeed homosexual men were found to report even higher levels of PBID than heterosexual women, who in turn indicated a trend towards higher levels of perceived dissatisfaction than lesbian women. In all cases heterosexual men reported the least concerns with physical attractiveness, PBID and dysfunctional eating behaviours. Siever concluded that the heterosexual male's sexual objectification of partners in American culture operates to emphasise the importance of physical attractiveness in females, leading to an increased PBID, and therefore vulnerability to eating pathology, in women.

However, others (i.e., Kenny & Adams, 1994), counter such argument, proposing that whereas the socio-cultural pressures to conform may act as a risk factor, these pressures alone are not sufficient pre-conditions for the development of any clinical level of psychopathology within an individual. Furthermore, others (i.e., Cash, Winstead & Janda, 1986; Drewnowski & Yee, 1987, Kostanski & Gullone, 1998, Muth & Cash, 1997; Silberstein et al., 1998), have argued that in contrast to the previous research, for males, satisfaction with body image and weight is not an intrinsic characteristic. An important criticism highlighted by these researchers is the conceptual bias that exists in conducting research within this area. As noted in Chapter One, they argue that much of the previous research has emphasised only the component of PBID associated with being too fat, and relied heavily only on an evaluative and cumulative analysis of PBID to examine male-female differences (Cash & Brown, 1989; Muth & Cash, 1997; Thompson, Moody & Eggert, 1994).

Ritenbaugh (1991), noted that bigness in males, not females (sic) is seen as

embodying symbols of power, and acts as an indicator of social and material success. Therefore, for males, being too thin or puny is of more relevance. Similarly, Kenny and Adams (1994), noted that for males, historically being big had a survival value, and that issues for males and females in striving to conform to different sociocultural norms are therefore different. Importantly, as reported by Davis (1997a), social and cultural attitudes towards males over the past decade have also undergone important changes. She notes that more than ever before men are being made publicly aware of their physical stature, with a strong emphasis being placed on the desire for a muscular and hypermesomorphic body shape. Simultaneously, men are being encouraged to, and are engaging more frequently in behaviours such as dysfunctional and restrictive eating. Men are also increasing their intake of steroids and other bulking agents, whilst also attending gymnasiums and weight control clinics in increasing numbers.

Although limited, research incorporating males has provided strong evidence for the presence of PBID amongst this group, albeit in a differing context to females (Cash & Brown, 1989; Drewnowski & Yee, 1987; Kostanski & Gullone, 1998; McCreary & Sasse, 2000; Silberstein et al., 1998). For example, a survey of first year college students, evaluating their relative desire for thinness or weight gain by Drewnowski and Yee (1987), indicated that men did express dissatisfaction with their bodies. However, whereas the majority of females (85%) indicated they wished to lose weight, men were almost evenly split between those who wished to lose weight (40%) and those who wished to gain weight (45%). The proportion of respondents who indicated they had no desire to either lose or gain weight was similar for males and females (i.e., 15% for each sex). Similarly, Muth and Cash (1997), in an evaluation of male-female differences in body image amongst a population of 277 college students, and utilising multiple measures of body image, found that PBID was present for both

sexes, with 22% of males and 40% of females reporting an overall unfavourable body image. These researchers also noted that, as had been found by previous researchers (e.g., Cash et al., 1986; Drewnowski & Yee, 1987; Silberstein et al., 1988), there was a linear relationship between body weight, body image evaluation and body affect for females, whereas for males these relationships were curvilinear. Such findings reinforce the proposal, that whilst body image associated with the "thin ideal" and potentially eating psychopathology is important, it is imperative that this research does not neglect other groups within our society who also exhibit discontent with their perceptions of their bodies.

Interestingly, the current research amongst pre-adolescent children has provided comparative reports to those investigating older populations regarding the male-female disparity in PBID. Researchers have indicated that sex differences in PBID are strongly evident amongst children in the age range between 8 and 12 years (Rolland, et al., 1997; Shapiro, Newcombe & Leob, 1997; Thompson, Corwin & Sargent, 1997; Tiggemann & Wilson-Barrett, 1998; Wood et al., 1996). For example, Shapiro et al., (1997), found that amongst a group of third grade American school children, girls were on the whole significantly more scared about becoming fat, wished to be thinner and were unhappier with their weight, compared to boys. Overall, 77% of girls and 60% of boys indicated that they were scared of being fat, "always" or "sometimes". At the same time, 23% of girls and 18% of boys "always" wished they were thinner.

Likewise, Rolland et al. (1997), reported that amongst a sample of 244 upper primary school aged Australian children, girls were more likely to select a thinner perceived ideal body figure than boys. A significantly higher proportion of girls (n = 14%) also indicated that they had engaged in extreme levels of dieting in order to lose weight than boys (n = 8%). Unfortunately, these researchers did not report the

frequency of 'a desire to be larger', for either boys or girls.

Thus from the literature, it would appear that PBID is variable by both sex and gender. However it is not, as previously assumed, female specific, nor only linearly associated with the desire to be thinner. It is also important to note, that the majority of the research cited is culture-centric, relying heavily on white, middle-class Western populations. Alternative research, examining the manifestation of this construct in other cultures has affirmed that sexual differentiation alone is not a sufficient indication of the prevalence of PBID. Rather, research exploring the cultural specificity of PBID suggests that an interactive effect is at work, with the socio-cultural context within which one resides as well as sex, influencing the incorporation and directionality of discontent.

Indeed from a cultural perspective it has been argued that there is not one of the numerous universal practices and socially appraised values of beauty that is, of itself, inherently more pleasing to the individual than any other. Rather it is the aesthetic value ascribed by a particular culture, which promotes one specific way of being above another (i.e., Balogun, Okonofua & Balogun, 1992). As noted by Fallon (1990), it is the measure of incongruence between perceptions of self and cultural ideals which strongly influences a person's body image and self-concept, with the motivation to reject or alter one's features being a function of the pressure experienced socially to align with perceived ideals. Furthermore, Waller and Shaw (1994), have argued that it is within those societies where female identity is substantially linked to body image and appearance that the increasing manifestation of female discontent and subsequent dysfunctional eating behaviours arises.

Culture and Race

As with the research on sex and gender, research examining the influence of

cultural and racial differences on the development of PBID and weight reducing activities has resulted in a diffuse body of literature. In this instance methodological issues of comparative analysis across cultures and the anomaly of differences between members of the same race depending on country of residence, have proven to be major confounding variables. Importantly, research conducted between countries has indicated that there are conceptual differences in determining body image within each particular country (Ferron, 1997; Smith & Cogswell, 1994). For example, through an intensive interview process amongst 80 French and 60 American middle-upper class adolescents, Ferron (1997), found distinct thematic differences in the conceptualisation of ideal and real body congruence, and also in the process of situating the importance of physical appearance in social relationships. In particular Ferron found that the majority of American adolescents were convinced they had personal power to alter their physical appearance in order to obtain a body which represented an image of perfection. Conversely, the French adolescents were more accepting of body limitations and appearance and did not endorse the notion of the ability to modify this through personal willpower and behaviour. Furthermore, Ferron noted that whilst almost 75% of the American sample indicated body image as a determinant of social relationships and popularity, less than 25% of the French sample believed happiness and popularity were contingent on obtaining a perfect body.

Similarly, Balogun et al. (1992), reported that amongst Nigerian university students, both men and women were found to be more satisfied than dissatisfied with their bodies and body parts. In contrast to American research, these authors found Nigerian women to be more satisfied with their overall body and specific body parts than men. Balogun et al. proposed that the Nigerian culture, which encourages machismo and aggressiveness in males, with masculinity being typified by the

mesomorphic body stature whilst the female is docile, may be a catalyst for men being more dissatisfied with their musculature, overall size and appearance of their sex organs than women. These findings have been replicated by others (eg. Cogan, Bhalla, Sefa-Dedeh & Rothblum, 1996; Smith & Cogwell, 1994) with researchers highlighting how different cultures emphasise varying body types and shapes as desirable.

Although cross-cultural research is limited, the outcomes of research conducted to date indicate significant differences between cultures in determining socially attractive and ideal body types. Unfortunately, limited sample size, variations in data collection methodologies and negligible replication of studies severely restricts conclusions in this context. In contrast, within culture - between racial subgroup research has received much greater attention. Indeed this research has indicated that there are substantial racial differences in body image perceptions within Western communities, in particular between African and Caucasian Americans (Huenemann, Shapiro, Hampton & Mitchell, 1966; Rand & Kaldua, 1990; Simmons & Rosenberg, 1975). Several studies have reported that African-American teenagers are more satisfied with their body than Caucasian teenagers. Also Caucasian women have been found to have more distorted images of their bodies compared to African-American women. Similarly with children, Lawrence and Thelen (1995), found that, in a group of primary aged children, Caucasian girls were more concerned about their weight and were more likely to express a desire to be thinner than African-American girls and both Caucasian and African-American boys.

Moreover, research into the cultural environments and racial backgrounds of populations reporting high levels of PBID, unhealthy weight control behaviours and pathological eating disorders suggests that these behaviours are more strongly related to gender expectations as defined by the predominant cultural environment, than to

differences between racial or ethnic sub-groups (Austin, Champion & Tseng, 1989; Dolan, Lacey & Evans, 1990; Furnham & Alibhai, 1983; Mildred, Paxton & Wertheim, 1995; Wardle, Bondra, Fairclough & Westcombe, 1993). This research indicates that acculturation is a potentially strong force in PBID development. That is, non-indigenous populations who migrate and assimilate into the dominant western culture are more likely to adopt the cultural values of that new country. For example, Wardle et al. (1993), found that although Asian and Caucasian British adolescent females reported significant differences in ideal body sizes, when they controlled for actual body mass, these differences were substantially reduced. That is the Asian-British girls were substantially smaller in size and stature to begin with.

Similarly, a cross-cultural comparison of Latina versus Non-Latina White American women by Lopez, Blix and Blix (1995), provided strong support for the acculturation hypothesis. Lopez et al. found that ideal body image was comparable for both Latina and non-Latina white females born in the U.S. However they also found that those Latina's born outside the U.S. who immigrated as older adolescents or adults (over 17 years of age) held a larger ideal body size image than those females who immigrated at a younger age. For the younger immigrant, their ideal tended to correlate strongly with that nominated by U.S. born white women.

Research within and across culture continues to enforce the notion that 'normative discontent' is a culture-bound syndrome, particular to Western societies. However, caveats such as the age of potential assimilation and identification with such values require further address. Similarly the socio-economic status of the individual within their cultural milieu (Rand & Kuldau, 1990; Sjostedt, Schumaker, & Nathawat, 1998), has been implicated as an important variable which may confound the research findings in this area.

Socio-economic Status

Empirical research that has investigated the association between socio-economic status and the development of PBID has proven complex and inconclusive. For example Wardle and Marsland (1990), found that amongst a sample of 846 adolescent school children (aged 11 – 18 years), those girls from higher social status schools had a tendency to indicate higher levels of body image concern. These girls reported less satisfaction with their current bodies, a greater desire to lose weight and described individual parts of their bodies as too big, compared to girls from less socially advantaged schools. For boys, no socio-economic differences were noted. Similarly, Story, French, Resnik and Blum (1995), found that adolescent female students from higher socio-economic groupings were more likely to report higher dissatisfaction with their weight and more frequent dieting than lower socio-economic females. These authors also found that although higher socio-economic status females were more likely to diet, they were also less likely to engage in unhealthy weight control efforts such as vomiting after eating. However, the limitations of these studies in utilising non-standardised, self-report measures of attitudes and behaviours severely restrict assumptions of validity and reliability in the measurement of constructs (Breakwell, Hammond & Fife-Schaw, 1995). Similarly, the methods of determining socio-economic status have varied widely.

Moreover, as noted by Whitaker et al. (1989), many of the earlier surveys examining the potential epidemiological factors related to eating attitudes and behaviours among adolescents are limited through unrepresentative samples, variation in survey instruments and descriptive analysis. These authors noted that only three previous studies had attempted to incorporate the four factors of sex, age, relative body weight and social class in their research. Whitaker et al's study of anorexic and bulimic

symptomatology in a large non-referred adolescent sample (n = 5,596) was directed towards addressing this apparent limitation in the literature. The findings of their survey indicated unlike in clinical samples, social class was not associated with anorexic and b- symptoms. Indeed, their findings indicated that the combined effects of age, sex and actual body mass were more clearly implicated in the 'struggle to be thin' than social class. Whitaker and colleagues proposed that the prevailing reports of a disproportionate number of upper social class females identified in eating pathology research was possibly more a reflection of the factors influencing access to treatment than any true indication of the prevalence of subclinical or clinical pathology across socio-economic groups.

Importantly current research has begun to place far more emphasis on the interpersonal and intrapsychic factors which may predicate perceived dissatisfaction with one's body and which may potentially lead to future dysfunctional behaviours, such as restrictive and pathological eating within the individual. As noted by Bowen et al. (1991), although associations between socio-economic status, restrained eating and obesity have been identified in past research, the reasons for these associations remain largely unexplained. Of importance, many of these studies have failed to control for actual weight and body mass. Indeed, it is the factor of actual body mass which has consistently been found to be significantly correlated with PBID (Hill & Silver, 1995; Kenny & Adams, 1994; Kostanski & Gullone, 1998; Paxton et al., 1991; Rolland et al., 1997), independently of all other correlates.

Body mass

Obesity is a highly stigmatised condition within modern Western cultures, with obese people being stereotyped as being highly unattractive, lazy and lacking in willpower (Hill & Silver, 1995; Sobal, 1991). It is not surprising therefore to find that

for those persons who are higher in body mass than is the expected norm, body image can be a serious concern. Moreover, research has indicated that body mass index is the strongest predictor of PBID amongst both male and female populations. Specifically, research has indicated that body mass is the strongest predictor of perceived weight and PBID in both adolescent (Kenny & Adams, 1994; Kostanski & Gullone, 1998; Paxton et al., 1991; Pritchard, King & Czajka-Narins, 1997), and child populations (Hill, 1993; Hill & Silver, 1995; Kolody & Sallis, 1995; Rolland et al., 1997). For example, in a study of body image, weight loss beliefs and dieting incorporating a sample of 221 male and 341 female high school students, Paxton et al. (1991), found that PBID increased significantly in relation to increases in body mass for both males and females. Similarly, Kenny and Adams (1994), reported that, in their study of eating attitudes, body mass, age and gender in a sample population of 1,485 undergraduate university students, there was a significant linear relationship between body mass and PBID.

For children, similar trends have been reported. For example, Rolland et al. (1997), noted that amongst a sample of 244 children, actual body mass was significantly correlated with current and ideal figure. Further, Kolody and Sallis (1995), reported significant correlations between body mass and body image amongst a group of 745 children (314 boys, 253 girls, mean age 9 years). These research findings indicate that being overweight is an important correlate of high levels of PBID.

However, as argued earlier, these studies have been limited to measuring evaluative aspects of body image directly associated with perceiving oneself as too fat. It is also important to remember that concerns of being too thin (i.e., underweight) are also an important issue. For example, Hill and Silver (1995), examined children's perceptions of body shape stereotypes amongst a group of 188 children (105 boys and 83 girls) in order to examine the effects of sex and body mass on social perceptions of

idealised body types. Whilst these authors found that being overweight was disparaged by all children, they also found that for boys the issue of being too thin was of comparable concern. Interestingly they found that, for children, sex or actual body mass were only minimally associated with their perceptions of fitness, attractiveness to others, and healthy eating behaviours amongst a series of figure silhouettes. On the basis of their findings, Hill and Silver concluded that children's perceptions of both over- and underweight body types were reflecting social prejudices documented against obesity in adolescence and adults. Unfortunately to date there has been no research documenting the actual impact of being physically underweight on how boys perceive themselves, nor the repercussions of this perception upon their overall psychological well being.

Summary

It is clear from the literature reviewed that PBID is highly prevalent within the broader community of Western society. Moreover the research highlights the impact of the Western cultural environment and social expectations on the determination of ideal body types. Importantly, the research has indicated that whilst being a female is a strong predicate for developing dissatisfaction with being too fat, it has failed to consider the curvilinear nature of PBID, thus not adequately attending to the importance of being too thin, particularly for males. More importantly, recent evidence has shown that Western cultural attitudes towards males have changed, and there is increasing evidence of more males as well as females, are vulnerable to dissatisfaction with being too fat and engaging in restrictive and pathological eating behaviours. Not surprisingly, the available research suggests that it is actually those persons who are in fact under- or overweight who report the higher levels of PBID, thus indicating that there may be a strong portion of physiological reality to this attitude.

Given the limited evidence to support the contention that socio-economic status plays a major role in the adoption of body image attitudes, this does not appear to be an important issue to be pursued. However, as noted in the literature, the importance of age readiness in relation to assimilation into, and ability to adopt the cultural values and norms of one's environment cannot be overlooked. As will be explored further in the following chapter (i.e., Chapter Three), developmental processes, especially in relation to the onset of adolescence and puberty, have played an important role in theoretically defining the body image construct. However, as will also be addressed, current research has called into question the over emphasis of researchers on this developmental period as being the pivotal period for development of PBID.

Whilst cross- cultural studies highlight the epidemiological factors associated with developing PBID, they do not address the obduracy of such. However such research has provided a secure forum from which to justify research into the socialisation processes which may lead to 'normative discontent' in females. Indeed, the assumptions of socialisation into one's dominant culture as being the predominant predictor of PBID have been overwhelmingly adopted as the obvious theoretical rationale for explaining the development and high prevalence of PBID. Unfortunately however, as will be discussed in Chapter Four, the diversity of research that has been produced under this umbrella framework remains less than comprehensive in its explanation of the aetiological composition of PBID as a construct.

It is evident from the research cited, that it is important for future studies to address th anomalies inherent defining within the construct of PBID. In particular, attention needs to be given to considering the presence and importance of this attitude amongst males. Future research also needs to consider the importance of actual body mass in determining PBID, and whether this factor is the trigger to being vulnerable to

other social environmental pressures in developing disparaging attitudes towards one's body.

Chapter 3

Developmental Issues

As noted in Chapter 2, for many researchers, the onset of puberty and the 'process' of adolescence have long been considered to be integral to the development of PBID and the subsequent development of unhealthy eating behaviours. Theoretically, for the adolescent, congruence between their perceived self and idealised cultural norms is considered pivotal to their sense of identity (Burns, 1979; Erikson, 1968; McCandless, 1970). As noted by Lerner, Orlos and Knapp (1976), it is during adolescence that the individual's body and physical attributes are considered to be of particular importance, with physical appearance being of paramount concern for girls whilst for boys the concern is more focused on physical effectiveness. Furthermore, Laufer (1991), proposed that puberty could be a traumatic experience for the adolescent, whose inner experiences of physical changes represented "a loss of that idealised body image that allowed the child to feel safe and loved until puberty"(p.3).

Especially for the adolescent girl, the conflict experienced between Western cultural preferences for a slim body shape and her developing curvaceous frame have been identified as pivotal to the onset of PBID by an increasing number of researchers (e.g., Davies & Furnham, 1986; Koff & Rierdan, 1993; Lerner et al., 1976). As such, social scientists first proposed that it is with the onset of adolescence and puberty, when as a young girl's body blossoms into fullness, that she inevitably becomes predisposed to being less enamoured of her own body in relation to that promoted as ideal in the mass media and perceived as desirable by the opposite sex.

The origin of this developmental theoretical perspective is embedded in the conceptual work of Freud and psychoanalysis. However, it has been the extension of this theory by Erikson that has contributed the most to research into the aetiology of

PBID.

Psychosocial Theory of Development as it relates to Body Image Dissatisfaction

The construct of 'adolescence' was introduced into the literature by Erikson, (1902 - 1994). As noted by Scarff (1994), Erikson extended the work of Freud to incorporate the development of the ego within the context of social relatedness. A contemporary psychoanalyst and post-Freudian, Erikson (1975), perceived the individual as not only a biological organism predetermined by instinctual drives, but as an organism that matured physically and psychologically in an interactive process with their social environment.

Erikson's theory is premised on the construct of life stages, such that there are defined chronological stages through which the individual passes, learning new behaviours in response to maturational and social influences as they mature. He defined eight stages of development, commencing in infancy and progressing through childhood, adolescence, adulthood and culminating in old age. It was the fifth stage of his theory, adolescence (i.e., the transition from childhood to adulthood), that was considered to be an area of particular importance. It was this period that Erikson considered to be the time of synthesis and integration of previous stages of development, as well as an extension or projection of the self into the future (Hergenhahn & Olsen, 1999).

Fundamentally, Erikson defined adolescence as a period of confusion, with concomitant inconsistent and unpredictable behaviour. He proposed that for many adolescents the experience is one of an identity crisis as they struggle to develop a sense of fidelity and stability in their identity. He claimed it was this sense of fidelity, the affirmation of belonging from one's peers and confirmation of one's ideologies and truth, that lay the foundation for a continuous and stable identity into adulthood.

Conversely, the development of a negative identity resulted from a sense of being intrinsically bad or unworthy and an internalisation of negative characteristics into the self (Erikson, 1968).

Although Erickson's psychosocial theory itself has been heavily criticised for its lack of empirical substantiation, his theoretical foundations have provided a solid basis for the generation of an extensive array of developmental hypotheses that have themselves been rigorously empirically tested. It is the empirical strength of this subsequent research that has provided the framework for a large body of literature examining and defining PBID within a developmental perspective.

Adolescence and Pubertal Development

Initial research into the phenomenon of puberty and maturational processes as correlates of PBID provided confirmation for the proposal that these are critical factors in the subsequent development of PBID (Castro & Goldstein, 1995, Davies & Furnham, 1986; Duncan, Ritter, Dornbusch, Gross & Carlsmith, 1985; Koff & Rierdan, 1993). For example, in their evaluation of the effects of pubertal timing on behavioural differences (such as body image perceptions, school behaviour and deviance), Duncan et al. (1985), found that amongst a group of 5,753 adolescents drawn from a national sample of children and youth across the United States, the majority of girls became dissatisfied with their weight as they matured. Although 69% of early maturing girls indicated that they wished to be thinner compared to only 27% of late maturing girls, these researchers suggested it was possible this was not an indication of the impact of early maturation per se. Rather it was the concomitant process of maturation itself (i.e., the unexpected and rapid increases in weight experienced by girls as they matured early in comparison to their peers who remained slim) which was the important factor. Similar effects were not noted for the boys. Duncan et al. (1985), concluded that it was

the adolescent's perception of normal developmental process, such that it is viewed as negative by girls and positive by boys, which was a crucial factor in determining adolescents' satisfaction with size and weight and reflected the pervasive societal view that, at least for females, thinner is better. (For more details about this and other studies cited in this chapter, refer Table 3, Appendix A).

Following a survey of body satisfaction in adolescent girls, Davies and Furnham (1986), reported that adolescent girls showed increasing levels of concern for those aspects of their bodies that signified perceived sexual attractiveness as they developed. Amongst a cohort of 183 adolescent females, Davies and Furnham found indications that dissatisfaction with one's hips and stomach increased with age, whilst breast size became a focal point for 16 year olds. As with Duncan et al. (1985), these researchers noted that the emphasis on a desire for slimness of hips was in line with current social ideals of beauty and attractiveness as reported in the literature, and was in direct contrast to the physical changes experienced through hormonal changes associated with the maturational process. Similarly, Koff and Rierdan (1993), reported that amongst their sample of 209 sixth grade girls, advanced pubertal development was strongly associated with disturbed eating behaviours and attitudes in early adolescent girls, with the effects of pubertal development on fatty weight deposits being a more important determination of body image and eating concerns than the actual onset of menarche.

Notwithstanding their findings, one of the difficulties of this cited research is the heavy reliance on cross-sectional data, which severely limits the potential of researchers to infer causality between the constructs. As discussed in Chapter One, a longitudinal evaluation of the development of dysfunctional eating problems amongst 193 adolescent girls by Attie and Brooks-Gunn (1989), was argued to offer empirical support for the theoretical proposal that PBID is the outcome of increasing

dissatisfaction with one's body in relation to pubertal development.

However, as further discussed, it is interesting to note that the assumption made by these authors that PBID is a concomitant factor of pubertal development was not adequately addressed. Indeed, although pubertal development was included as a possible predictor of future eating pathology, it was not found to be significant. Also the researchers did not provide any empirical information regarding the proposed association of pubertal development with PBID. However, they did acknowledge that it was possible that this attitude was evident even prior to pubertal onset, with the actual process of physical maturation in association with pubertal onset further exacerbating the issue. This suggests that, rather than being a causal factor in the development of PBID, puberty may be a potential risk factor for girls who are already vulnerable.

Furthermore, failure to include an integrative evaluation of the many other variables identified as being pertinent to developing PBID also limits the predictive value of this research. It is only over the past few years that issues of integration between predictor variables such as menses and other concomitant factors have been addressed. For example, Smolak, Levine and Gralen (1993), conducted a longitudinal examination of the impact of synchronised stressful life events as they interacted to explain variance in reported PBID, amongst a group of 79 school girls, over a two year span (grades six and eight). Smolak et al. found that actual onset of menarche alone did not differentiate levels of PBID amongst girls at the sixth grade level. Rather, it was those girls who were experiencing a synchronicity of stressful life events (i.e., were early in their development of puberty, began dating and experienced school transition within the same time frame) who appeared most at risk for expressing ongoing body image problems and future eating pathology.

Moreover, more recent research indicating the presence and high prevalence

rates of PBID in pre-pubescent adolescent populations has begun to erode previously held notions of an aetiological understanding of PBID from a developmental perspective that incorporates pubertal development as the catalyst. For example, in an exploration of pubertal status as a component of developmental factors relating to PBID and dysfunctional eating behaviours Levine, Smolak, Moody, Shuman and Hessen (1994), found that amongst 382 early adolescent girls, although menstruation was found to be a significant correlate of weight management, it accounted for only four percent of the variance in scores. Furthermore, the data indicated that recent onset of menstruation was not associated with greater levels of reported shape dissatisfaction amongst the girls.

Similarly, in a comparative study of 59 pre- and 41 post-pubescent girls, Brodie, Bagley and Slade (1994), administered three different instruments to measure PBID, and found that regardless of measurement modality or stage of pubertal development, the difference between perceived current and idealised images was significant. This further indicated that pubertal development is not of itself a necessary nor sufficient condition for the development of PBID. Moreover, this inconsistency in empirical support for developmental factors such as 'adolescence' and pubertal onset as precipitating factors of body image concern over recent years, has led to researchers extending the boundaries of their work to further examine the manifestation and prevalence of this construct within younger pre-pubertal children.

Pre-adolescent development

The seminal work to be reported in this area is that by Maloney et al. (1989), who conducted one of the first, cross-sectional studies into the dietary behaviours and eating attitudes of pre-adolescent children. Their study indicated that of 318 upper primary aged children (53% girls, mean age 9.7 years), 45% wanted to be thinner, 37%

had tried to lose weight, and 7% of the children were found to be within the anorexia range for PBID. Maloney et al. (1989), concluded that the preoccupation with PBID and REB found to be so high in adolescents might actually begin in primary school.

Notably, their study indicated that concerns about body fat and dieting are prevalent in pre-adolescent children, with the desire to lose weight and engage in weight control behaviours beginning around grade three then increasing with age. Over the past ten years several other studies have been published which indicate a similar trend in pre-adolescent children's development of PBID and restrictive dietary behaviours (Collins, 1991; Ohtahara, Ohzeki, Hanaki, Motozumi & Shiraki, 1992; Rolland et al., 1997; Rhynne-Winkler, 1994; Thelen et al., 1992).

For example, Collins (1991), found that amongst 1,118 preadolescent children (51% male, 49% female), from grades one, two and three (mean age eight years), for females there was an overall preference for thinness across age, weight, racial and socio-economic groupings. In contrast, whereas 47% of boys and 44% of girls indicated no figure discrepancy between their perceived current and ideal self, 42% of girls selected an ideal self that was thinner compared to 14% who desired an ideal that was heavier. Comparatively, 30% of boys indicated a desire to be thinner, whereas 23% indicated a preference to be heavier. Collins concluded that children begin to develop gender-based stereotypes of attractiveness early in life, with the potential onset of disparate figure perceptions and expectations regarding thinness among girls being evident as early as six and seven years of age.

A comparative study of body image concerns for 255 Japanese children and adolescents by Ohtahara and colleagues (1992), also indicated that 41% of the girls (n=60) and 25% of boys (n=69) in the elementary age-group (6-11 years) perceived their ideal figure to be thinner than their perceived actual figure. These authors also

reported that there was no significant age difference in reported PBID, although for girls there was a noted trend for the size of the discrepancy to increase with age. As with many other researchers however, Ohtahara and colleagues relied on the mean difference in figure rating scores to determine their PBID scores, therefore negating the effects of the desire to be larger to be included as a separate consideration.

In an attempt to clarify the age parameters for children reporting PBID and REB, Thelen et al. (1992), conducted an investigation of eating and body image concerns among 191 non-obese children. Their study indicated that, for the younger children (mean age 8 years), there were no gender differences on measures of body image, eating behaviour and concerns with being overweight. However, the older girls (mean age 12.4 years) indicated both more concern with being or becoming overweight and a preference for being thinner than the older males. These authors further noted that the younger girls (2nd grade) indicated a desire to be heavier than their current weight, whereas the converse was true for the older girls (4th and 6th graders). They found that weight concerns began between second and fourth grades for young girls, concurring with Maloney et al's proposal of the genesis of PBID being around grade three. There were no age differences found for boys. However, the instrument utilised to assess body image and eating concerns within this study was heavily biased towards evaluating issues of concerns with fatness and dieting behaviours, and furthermore the measure had not been psychometrically evaluated for construct validity nor reliability. Therefore, the findings, although indicative of issues associated with body image and dieting arising in younger children, are limited in their generalisability.

Summary

From the current literature it would appear that PBID is prevalent amongst children well before the onset of adolescence. Given the current status of research in

this area, previously held beliefs that PBID is a construct arising from early pubertal onset or maturation into adolescence are now less compelling. Rather, the potential of puberty or onset of adolescence to be a risk factor in the pathway to potential psychopathology for the already vulnerable individual would seem to be a more feasible proposition. However, whilst it is apparent that children do report PBID, this issue of predisposed body image vulnerability interacting with puberty to act as a catalyst for future psychopathology, has not yet been addressed. Moreover, the question also remains as to whether there is a specific cognitive/developmental age at which children begin to report consistent and stable levels of dissatisfaction with their perceived body image, or indeed if these reports are valid.

Similarly, little is known of the structure or stability of reported PBID or REB in pre-adolescence. Therefore, further research is required to examine the factors which may predispose children to develop a sense of incongruence between their perceived body image in relation to an 'idealised' norm, and how this may be associated with dysfunctional behaviours such as dieting. As noted in Chapter Two, one's cultural and social milieu heavily influence the development of one's attitudes and behaviours. Furthermore, socialisation processes have been found to be strongly correlated with reported PBID and REB in adolescence. The following chapter, (Chapter Four), will provide a review of current literature that explores the socialisation and contextual factors that have been found to be strongly linked with PBID. The review is also intended to provide an indication of which of these factors may be pertinent to include in future research with children.

Chapter 4

Socialisation Processes

Emphasis on the process of socialisation as being a major determinant of body image attitudes and the effectiveness of cultural inculcation of Western values as a determinant of the 'thin ideal' have been held as strong theoretical tenants within the body image/eating disorder research (Garner et al., 1980; Feldman, Feldman & Goodman, 1988; Shaw & Waller, 1995). In defence of adopting a socio-cultural perspective towards conceptualising PBID, particularly for females, Delaney, O'Keefe and Skeene (1997), argued that much of the previous literature has centred on an individualistic psychiatric perspective. That is, it had stripped away any contextual underpinning which may influence and predispose women to pursue a socially prescribed standard of body self.

In order to address the perceived inadequacy of existing methodologies that have failed to incorporate these contextual elements, Delaney et. al. (1997), set out to examine the cultural reality and societal messages in which women's experience of their body was grounded. Their study, incorporating semi-structured interviews across a sample of 15 - 29 year old females and evaluation of a subsequent self-report survey with 287 undergraduate female students, resulted in a 55-item, five-factor self-report inventory depicting the experiences of women in relation to their body shape and weight. The factors extracted (i.e., weight dissatisfaction, slimness as a quality of life, interpersonal messages regarding slimness, rejecting societal values of thinness, and valuing exercise) were found to be conceptually distinct and to highlight the sociocultural context in which women's feelings and evaluations of their bodies are derived.

In discussing their findings, the authors concluded that their research was

limited in its scope, and acknowledged that each of the factors identified required further examination. The researchers also argued that such evaluative research serves to emphasise the importance of socialisation processes in defining the way in which young women experience, and feel about, their bodies.

Claims regarding the processes through which this socialisation occurs are diverse. For example, gender stereotyping of emotions (Plant, Hyde, Keltner & Devine, 2000), has been found to have a profound influence on the subsequent role males and females adopt in their social relationships. Research has shown that children readily adopt their parents', peers' and community attitudes and beliefs regarding gender appropriate behaviours and emotional dispositions from a very early age (Lobel, Gewierz, Pras, Shoeshine-Rokach & Ginton, 1999; Powlishta, 2000). Similarly, researchers have claimed that the commodification of the body through the media (Freedman, 1984; Garner et al., 1980; Levine, Smolak, & Hayden, 1994; Orbach, 1978; Paxton, et al., 1991), role modelling (Pike & Rodin, 1991; Rozin & Fallon, 1988; Silberstein et al., 1986), parental and peer pressures (Benedikt, Wertheim & Love, 1998; Oliver & Thelen, 1996; Paxton, Shutz, Wertheim & Muir; 1999; Wertheim, Mee & Paxton, 1999), and teasing (Cash, 1995; Rieves & Cash, 1996; Thompson; Coovert, Richards, Johnson & Cattarin, 1995) are all major protagonistic influences. Furthermore, negative stereotyping and social pressure to be thin have been implicated as core factors which lead many adolescents to develop negative attitudes towards their bodies and to experiment with dieting (Fabian & Thompson, 1989; Gross & Rosen, 1988).

The ways in which such socialisation influences become so pervasive in determining an individual's perception of self have been strongly debated. However, the majority of research in this area has relied heavily upon the theoretical orientation

of Social Learning Theory.

Social Learning Theory

Social learning theory is a theoretical perspective that views the individual as an active participant in their environment. Relying heavily on the work of Bandura and Mischel, social learning theory proposes that there is a 'reciprocal determinism' (Bandura, 1977), between the individual and their environment. That is the individual acts upon the environment, as well as being acted upon by it.

Bandura (1986), moved to re-identifying his theory as Social Cognitive Theory. He justified this name change as a means of emphasising his belief in the fundamental importance of cognitive processing for motivation, affect and action. That is, the primary focus of cognitive learning theory is on the interactive process of learning through observation and experience, and the ability to cognitively extrapolate this information, developing internal working models that act as templates for future action. Rather than reacting to the environment, individuals are believed to be guided by internal and purposive action, deriving their motivation from the ability to engage in forethought, to anticipate events and to set goals. Bandura identified five capabilities [i.e., symbolisation – the ability to think about our world in words and images; forethought – the ability to anticipate consequences; self-regulation – adoption of behaviours acceptable to self; self-reflection – the ability to analyse thoughts and actions; vicarious learning – learning through observation (Bandura, 1986; 1989)], that contributed to the child learning about their environment.

Moreover, Bandura argued that the ability to symbolise and to be self-reflective enables the individual to evaluate their experience and derive an understanding of themselves as active agents in their environment. As an ongoing process this means that the individual develops an internalised set of standards. Therefore, individuals are

not merely dependent on adapting to their environment or social group, but are simultaneously capable of engaging in self-analysis and acting accordingly. Identified as self-efficacy, it is proposed that this ability to reflect and self-regulate one's behaviours strongly influences one's thought patterns, motivation, emotional arousal and subsequent performance. Thus, the individual's perceived self-efficacy is believed to be constantly changing as well as being situation-specific.

Social learning theory rejects the medical model of disease and psychopathology, and considers abnormal behaviour to be on a continuum with normal behaviour. As such, behaviour that is maladaptive or pathological is believed to be an outcome of dysfunctional learning of behaviours, expectations and self-standards, either directly or through observation of inadequate models. More specifically, in relation to PBID and dieting, several specific modalities of socialisation have been identified as being important to the subsequent learning of body image attitudes and eating behaviours. Primarily amongst these modalities are the generally accepted persuasive influences of the popular media in disseminating cultural values and norms, and both the direct and vicarious influences of family and peers. Given the ease with which one can apply seemingly valid and reliable empirical measures to evaluate the strength of these proposed socialisation processes in predicting attitudes and behaviours, the research examining each of these modalities is in itself extensive. Therefore, a review of the current research associated with each modality will be addressed separately.

The importance of the Media

The perceived effectiveness of the mass media in promoting and influencing social perceptions of the 'thin ideal' has been well documented (e.g., Freedman, 1984; Garner et al., 1980; Levine et al., 1994; Orbach, 1978; Paxton et al., 1991). Indeed, Desmond, Price, Gray and O'Connell (1986), have argued that we are bombarded with

messages of the thin ideal everyday, to the extent that it becomes a part of life experience, particularly for females. Moreover, for women who are not thin, the associated social stigma is especially strong.

An evaluation of the 'ideal body type' as it was promoted through Playboy magazine and Miss America Pageants over a 20 year period (1959 – 1978) by Garner et al. (1980), indicated that the female form had undergone a major transformation during that time, from being buxom and voluptuous to having a more tubular form. A replication of this study by Wiseman, Gray, Mosimann and Aherns (1992), confirmed Garner et al's findings that bust and hip measurements of female centrefold models continued to decline over the post war period from 1959 until the late 1980's. The assumptions arising from this type of evaluative research are that such media presentation of the normative ideal constituted a pervasive influence on women as they struggled with enhancing their perceived attractiveness in order to procure a mate.

However, whilst such studies provide a valuable insight into the chronicalisation of the cultural evolution of the female form, research such as this fails to address the issue of why not all females who are subjected to this form of media idealisation develop severe levels of body image malaise. Importantly, although research has indicated that over 50% of adolescent school girls utilise popular magazines as a resource for information on ideal body shape and weight control (Desmond et al., 1986; Levine et al., 1994; Martin & Gentry, 1997; Paxton et al., 1991), it has also indicated that the influence of the media is not as direct as earlier proposed. Rather, current research suggests that an important factor to be considered in examining the proposition that the media influences perceptions of one's self and body image is that of 'individual vulnerability' (Henderson-King & Henderson-King, 1997; Levine et al., 1994; Martin & Gentry, 1997; Posavac, Posavac & Posavac, 1998).

For example, an evaluation of the relationship between sociocultural cues from parents, peers and popular magazines in relation to body image and dieting amongst 385 young adolescent girls by Levine et al. (1994), indicated that media avenues were reported by the girls to be a valuable source of information regarding attractive and ideal body shapes and provided them with the methodology for how to obtain such. However, their data did not provide the researchers with any possible means of extrapolating causality between reading the magazines and developing PBID. Rather, it was those girls who received multiple messages regarding the "thin ideal" from parents and peers, as well as reading the magazines, who were more likely to have higher levels of PBID and engage in dietary behaviours. (For details of research cited in this chapter refer to Table 4, Appendix A).

From their findings, Levine et al. (1994), suggested that the role of the media may be one of reinforcing more immediate personal pressures and individual vulnerabilities rather than of actually creating them. Others (i.e., Cusumano & Thompson, 1997; Henderson-King & Henderson-King, 1997; Martin & Gentry, 1997; Posavac et al., 1998), have reported similar findings in their research. For example, Martin and Gentry (1997), found that the manner in which the girls were instructed to view advertisements (i.e., as a process of evaluation, etc.) influenced the girls' perceptions of their physical attractiveness. They proposed that their research indicated that it was not simply a direct process of cause and effect between the media and development of PBID or dieting behaviours. Rather, they argued that there are motivational drives (i.e., self-evaluation, self-improvement, or self-enhancement) that predetermine the extent to which one draws comparison of one's self in relation to advertising.

Similarly, Cusumano and Thompson (1997), reported that media exposure itself

was not a predictor of subsequent attitudes. Rather, they found that the individual's level of awareness of sociocultural values and norms in relation to appearance and the subsequent internalisation of these were more important and significant predictors of subsequent PBID, lower self-esteem and eating disturbance. They argued that exposure to the unfavourable media acted more as a reinforcer of these already internalised attitudes and norms.

Notwithstanding the methodological limitations (i.e., definitions of attractiveness, limited range of body sizes exposed in the media, quantification of viewing/reading material, specificity of sample sizes) of these studies, the research does highlight the fact that rather than being directly related to the manifestation of body image attitudes, exposure to idealised images through the media has an indirect relationship, through the process of individual vulnerability, with the development and maintenance of body image concerns amongst adolescent females. Importantly, it would appear that the popular media, in particular young women's magazines, is a medium for the exacerbation of an already existing vulnerability within the individual, within the context of their social milieu. This milieu being a combination of other extrinsic socialisation processes including role modelling, direct and indirect communication from one's family and peers.

Indeed, a recent investigation of adolescent female attitudes and beliefs about their bodies and dieting by Wertheim, Paxton, Shutz and Muir (1997), indicated that, whereas the girls believed that the media portrayal of the thin ideal created a major pressure to be thin, it was the reinforcement of these influences by peers and family which was more influential. In particular these researchers reported that social comparison and "I'm fat talk", along with believing that others were making negative appraisals were some of the main influences perceived to lead to PBID. Whilst

limitations of sample size and reliance on qualitative reports restrict the reliability of their study, Wertheim and colleagues' results were found to support similar findings by Nichter and Vuckovic (1994). Moreover, the research reinforces the notion that particularly for adolescent females, extrinsic forces such as the media, parental and peer socialisation processes are an important and integral component to be considered in evaluating the development and maintenance of PBID. Unfortunately, to date the impact or influence of the media on males' perceptions of their bodies has not been explored.

The importance of family and peer relationships for individual body perceptions.

The literature exploring the socialisation processes of families and peers provides suggestive support for the influences of parental evaluation, role modelling, social comparison and negative verbal commentary (teasing), on the reported levels of PBID (Levinson, Powell & Steelman, 1986). Research has also shown that the behaviours, health beliefs and attitudes of families are related with the food and exercise habits of young people (Crockett, Muller & Perry, 1988; de Bourdeaudhuij, 1997; Tinsley, 1992).

For example, a prospective study of eating behaviour in childhood and subsequent development of adolescent eating disorders by Marchi and Cohen (1990), found that fighting with one's family over mealtimes during childhood was associated with elevated rates of food avoidance in adolescence. They also reported that 'pickiness in eating' was strongly predictive of future weight reducing concerns, restrictive eating patterns and anorexic symptoms. Furthermore, de Bourdeaudhuij (1997), reported that amongst a large sample of adolescents and their parents (n= 522 family triads) there were strong similarities in the eating patterns of family members. de Bourdeaudhuij also found that mothers who imposed restrictions on their children's

unhealthy food choices, themselves consumed lower amounts of fats and sugars, whilst fathers who imposed unhealthy food restrictions not only had reduced fat and sugar consumption but also higher frequency of healthy food consumption such as fruits and vegetables. These findings support the current contention that the family environment and culture, parental modelling and style of verbal communication are significant correlates of the child's psychosocial development (Emery & Kitzmann, 1995; Sweeting & West, 1995).

Family Environment

The importance of the family environment for the individual child's development cannot be dismissed. Underpinning the theoretical construct of self-determination (Deci & Ryan, 1995; Ryan, 1993), is the important developmental assumption that children who experience supportive environments, which foster self-determination and autonomy, are more likely to derive an intrinsic sense of high global self-esteem which is based on a secure perception of oneself. Conversely, those children in restrictive and controlling environments, that make it difficult for the individual to strive for and attain a sense of autonomy, are more likely to resort to, and seek extrinsic rewards and evaluation of self by others. This assumption has been confirmed by an extensive body of research (e.g., Baumrind, 1997; Parker et al., 1997; Sameroff, Bartko, Baldwin, Baldwin & Seifer, 1998, Ryan & Grolnik, 1984).

Furthermore links between autonomy, self-esteem and eating disorders (Fredrick & Grow, 1996) and between conflictual family environments and eating pathology (Hodges, Cochrane & Brewerton, 1998; Haworth-Hoeppner, 2000), have been reported. Similarly, earlier research indicated that family factors such as enmeshment and overprotectiveness were related to the lack of autonomy and independence found amongst anorexic patients (Bruch, 1973; Crisp, Hsu, Harding &

Hartshorn, 1980; Garner et al., 1982).

In contrast, research with non-clinical populations has not shown support for these relationships. For example, Kagan and Squires (1985), found that, amongst a group of non-eating disordered college students who dieted and ate compulsively, there was no indication of family characteristics that are reported to be common in families who have an eating disordered member, such as overprotectiveness, enmeshment, rigid boundaries or conflict avoidance. Similarly, Faust (1987), in an extensive examination of personal and familial factors that correlate with the construct 'drive for thinness', found that there was no relationship between reported levels of family conflict, dependence and drive for thinness. This lack of association between family environment factors and dysfunctional eating behaviours has also been reported by others (e.g., Cachelin, Striegel-Moore & Paget, 1997), and has led researchers to question the nature of the relationship between family environment factors, personality differences and eating pathology. Indeed they suggest that it may be that the reported relationships result as a consequence of the child having developed a pathological eating disorder, rather than causing its development. Importantly, such research raises questions regarding the assumptions extrapolated from correlational research with clinical populations into non-clinical populations or claims of possible causality. Thus further research is required to clarify the importance of the overall family environment in direct relationship to body attitudes and eating pathology.

However, whilst this area of research remains limited, other aspects of parental and family influences (i.e., family attitudes and values towards weight and dieting, role modelling of dieting, direct communication, perceived and actual body size evaluation, teasing) have received extensive attention.

Role Modelling

In line with the theoretical proposition that parental modelling behaviour is a significant correlate of subsequent child behaviour, several of the earlier studies demonstrated significant correlations between a mother's body attitudes and dieting behaviour and her daughter's attitudes and behaviours (Pike & Rodin, 1991; Rozin & Fallon, 1988; Ruther & Richman, 1993; Wooley & Wooley, 1984). However, as noted by Levine et al. (1994), reports of correlations between daughters' and mothers' dietary behaviours are inherently ambiguous because they do not permit discrimination between the varying and cumulative processes of learning or adopting behaviours (i.e., direct modelling, vicarious learning through variety of media and pressures from the broader social environment). Also they do not consider the direct contingencies of reward and punishment with regard to controlling children's behaviours nor the influence of direct communication of information.

Other studies (Attie & Brooks-Gunn, 1989; Benedikt, Wertheim & Love, 1998; Saftner, Crowther, Crawford & Watts, 1996; Thelen & Cormier, 1995; Wertheim et al., 1999), that have included varying modes of transmission of attitudes and behaviours between the parents and child (i.e., direct appraisal, reinforcement through material reward, modelling, dietary control, overall emphasis on attractiveness and thinness etc.), have failed to find any direct relationships between mothers' eating attitudes and PBID and those of their pre- or post-adolescent daughters. For example, Thelen and Cormier (1995), conducted a study of body image and weight control behaviours amongst 118 families [70 two parent families, 30 single parent families, 61 girls & 49 boys (age range 9 - 10.5 years)]. They found that parental modelling of dieting behaviour and PBID were not significantly correlated with their son or daughter's body image concerns or dieting behaviour. Furthermore, these researchers also found that

family type (i.e., single or two parent families) was not a significant factor influencing mother-daughter variables, although sons in single-parent families were found to report significantly lower dysfunctional eating behaviours than sons in two-parent families. Although this finding seems counter-intuitive, the authors offered no explanation for their results. However it may be that the dynamics of single families are such that body image issues and weight control behaviours are manifested differently in relation to two-parent heterosexual, or other forms of reconstituted family structures. Interestingly, Thelen and Cormier did find that parents' direct encouragement to control weight was significantly correlated with their daughter's, but not their son's, body image and dieting behaviour. This suggests that direct communication from parents regarding their child's weight influences pre-pubescent females' desire to be thinner and their attempts to restrict their food intake far more strongly than the modelling of these behaviours and attitudes.

Wertheim et al. (1999), found comparable results in their examination of the relationships among adolescent girls' eating behaviours and their parents' weight-related attitudes. Amongst a group of 396 adolescent girls' and their parents (both mother and father), Wertheim et al. (1999), found that parental encouragement was a more important predictor of daughters' dieting behaviours than the parents' modelling of weight loss behaviours. Moreover, they found that whilst mother and father reports of their encouragement for their daughter to lose weight were highly correlated, it was the mother's direct encouragement which was the strongest predictor of such behaviours. Encouragement was still found to be significant even after controlling for daughter's body mass, indicating that this encouragement was not only directed towards overweight daughters.

Interestingly, Wertheim et al. (1999), also found that daughters' perceived

encouragement from parents to lose weight was an even stronger predictor of their actual behaviour than the parents' reported encouragement. Daughters' perceived encouragement to lose weight was also found to be moderately correlated with their reports of being 'criticised about their weight'.

Thus it would appear that the process of socialisation is not as direct as proposed within the context of role modelling. Rather, as with media influences, there is an interactive effect of direct and/or perceived disapproval from the parent/s to the child in association with modelling of attitudes and behaviours which encourages and reinforces the child's adopting a particular self attitude or engaging in particular behaviour. However, caution must be taken in considering these results. Whilst having access to multiple informants does provide the researcher with rich data from which to extrapolate relationships, there are limitations of self-selection arising through voluntary participation, particularly so where one is attempting to access two or more related members for each participant (Maude et al., 1993). Furthermore, these studies are still primarily focused on evaluating the construct of body image as it relates to the drive for thinness or being too fat. As such they ignore the consideration of the impact of parental role modelling and communication on children who are considered to be too thin or encouraged to 'build themselves up'.

Notwithstanding the limitations of these studies, the findings do indicate that direct, indirect and, in particular, perceived parental evaluation and encouragement (i.e., verba! encouragement to diet, disparagement of weight) are as important, and perhaps even more influential than modelling of behaviours, in determining the child/adolescent's subsequent behaviours and attitudes.

Parental Evaluation and attitudes towards their child's body shape and size.

Research by Crandall (1995), has indicated that parental attitudes towards their

children are not necessarily magnanimous. Indeed, Crandall's research demonstrated that daughters were less likely to receive financial support for a college education from their parents if they were overweight. Crandall argued that this parental discrimination against their "fat" daughters was an outcome of a social ideology that is defined by individual responsibility and a tendency towards stereotyping "fat" people as being lazy and lacking self discipline. Although several independent studies by Crandall (i.e., Crandall, 1991; Crandall & Biernat, 1990), have supported these findings, Crandall cautioned that, to date, the research has only encompassed a restricted upper socio-economic grouping and relied on child reports, thus limiting the generalisability of her findings. However, the research does indicate that, along with gender-role attitudes and political ideology, other attitudes such as anti-fat stereotypes, particularly from parents, can potentially limit the overweight adolescent's access to higher education and possibly impact on their future social and economic success.

That parents influence their children's social, emotional, and cognitive development is not disputed (Andre, Whigham, Hendrickson & Chambers, 1999, Hughes, Deater-Deckard & Cutting, 1999; Polcelynch, Myers, Kilmartin, Forssmannfalk & Kliewer, 1998; Ragg, 1999; Tiedman, 2000). Indeed, a review of the literature on childhood acquisition of health attitudes by Tinsley (1992), highlighted the importance of the mother, along with developmental constructs (e.g., individual differences, cognitive understanding) and parenting styles in influencing the development of children's health attitudes. Furthermore, as noted by Andre et al (1999), parents hold very strong gender biased attitudes and beliefs regarding their child's level of competence, with this attitude being reflected in the child's own responses. Even within today's more socially "enlightened" society, research has indicated that new parents still hold strong gender stereotyped perceptions of their

newborn (i.e., Karraker, Vogel & Lake, 1995), such that daughters are seen to be more finer featured, less strong and more delicate than sons.

That parents can hold negative attitudes towards their child's appearance has also been supported. For example, Striegel-Moore and Kearney-Cooke (1994), found that out of a sample of 1,276 parents of children aged between 2 and 16 years, over one third had attempted to improve their child's appearance, either through topical treatments (e.g., acne creams, skin whiteners, facial peels, etc.), orthodontics, and/or grooming. Striegel-Moore and Kearney-Cooke (1994), also found that the child's age was a significant factor in defining parental attitudes towards their child's physical appearance, eating behaviours and exercise habits. That is pre-primary school children received the most favourable responses, whilst adolescents received the least positive encouragement, most criticism, least praise and the most efforts to improve their appearance.

The research indicates that direct communication, especially negative appraisal, from parents does impact on children's subsequent development of attitudes and behaviours (Koivisto, Fellenius & Sjoden, 1994; Smolak, Levine & Schermer, 1991; Thelen & Cormier, 1995; Wertheim et al., 1999). Importantly, however, it is the function of indirect or perceived evaluation and communication that also has to be considered. For example, Pierce and Wardle (1993), found that it was not only overt communication from parents that was influential. Rather, they found that children were accurate predictors of non-expressed evaluation by parents and that their self-esteem scores were strongly correlated with not only actual, but also perceived parental dissatisfaction with their child's body size. To examine convergence between children's perception of their parents' evaluation of their child, and the parents' actual evaluation of their child, Pierce and Wardle conducted a survey including 461 parent-

child dyads (child age range 9 - 11 years). The results of this study confirmed a strong correspondence between the children's perception and actual parental evaluations of the child's body size. Furthermore, negative appraisals of the child's body size were found to be significantly associated with low levels of self-esteem, and to differ by sex and actual body mass, such that girls appraised as "fat" and boys appraised as "too thin" reported the lowest levels of self-esteem.

From the above review it would appear that significant others' evaluation of the child, whether explicit or inferred, are important correlates of the child's adoption of attitudes towards their body and dietary behaviour. However, as noted by Wertheim et al. (1997), this relationship does not, in itself, comprehensively explain causality of body attitudes or subsequent behaviour. For example, it does not address the cumulative effects of other socio-cultural agents (eg. siblings, media and peers) in the adoption of dieting behaviours in girls. Furthermore, although the family is considered to be the most important socialising agent, peer group and friendship cliques are also considered to be influential in determining behaviour and attitudes, particularly in the adolescent years (Heaven, 1994; Levine et al., 1994; Paxton et al., 1999).

Peer Group Influences

Research indicates that the role of one's peer group and extended social circle is also of importance to the developing child's conceptualisation and perception of their position within their social milieu (Banjeree & Lintern, 2000), with the adoption of peer endorsed behaviours (generally stereotypical gender based), especially for boys, being a functional means of self-preservation, gaining acceptance and social approval. The importance of friendship and peer group relationships for body image concerns amongst children and adolescents has only recently begun to be explored. However, the research that has been conducted does indicate that peer group relationships exist in

relation to the development of body and eating attitudes also (Dyer & Tiggemann, 1996; Oliver & Thelen, 1996; Paxton et al, 1999). For example, a study exploring the relationship between children's perceptions of peer influence and their concerns regarding eating and their body by Oliver and Thelen (1996) (n = 264, age range 9 - 11 years), found that the children's perceptions of peer messages regarding likability were significant predictors of their eating behaviours and body image concerns. Specifically, the child's reported belief that being thin will increase peer likability was found to be a significant predictor of several factors, including drive for thinness, body image, diet and overweight concerns. This relationship was also found to be stronger for girls than for boys. However, Oliver and Thelen queried whether the relationship between peer influences and eating-related concerns in children occurred because the "children with maladaptive eating concerns actually received more peer influence, or because these children simply perceived more influence being given to eating-related concerns or some other sensitivity factor" (p. 37). Furthermore, the researchers acknowledged that reliance on child self-reports alone could limit the validity of their findings, in particular in relation to the Peer Relationships Scale, as this had only been developed within the context of their study, and was not validated.

However, a more recent study of friendship groups and peer influences on body image and dieting concerns amongst 523 adolescent girls (mean age 15.5 years) by Paxton et al. (1999), has reinforced the proposal that friendship cliques share similar levels of PBID and REB. These researchers found that, after controlling for individual psychological (i.e., self-esteem, depression, anxiety) and physical (i.e., BMI) factors, perceived friend's attitudes and behaviour and social comparison of self were significant predictors of variance in the girls' reported PBID and REB. However, whether this perceived communication of attitudes and behaviours amongst friends was

a consequence of the priority of these constructs within actual conversation, or whether it resulted from the individual girl's prioritisation of these constructs within her schema of her relationships was not able to be determined. What was evident was that girls' friendship circles tended to reflect communality amongst the individual members in relation to their body image concerns and, with the exception of binge eating, dietary behaviours.

Furthermore, as with Oliver and Thelen's study, Paxton et al., noted that it was difficult to say whether it was the friendship clique which preceded the girls' behaviour, or whether the participants were more likely to orient themselves towards like minded peer environments as a means of retaining some salience between their own perceptions and their environment. Similarly there were methodological limitations in defining discrete friendship cliques, for as Paxton et. al. found, over 24% of their sample reported being members of more than one clique. Moreover, girls who had large deficits in their social relationships were also under-represented.

Dyer and Tiggemann (1996), found that type of school environment was an important factor in the girls' identification of perceived ideal and attractive body types, with girls from a single-sex school choosing a significantly thinner ideal and attractive figure than those girls from a coeducational school. The single sex school girls were also found to report significantly higher levels of PBID and drive for thinness scores than girls from coeducational schools. However there were no significant differences between schools in role concerns (i.e., intelligence, popularity, professional success or importance of slimness), although the researchers did find there were different interactive effects noted for these role concerns in predicting body concerns depending on type of school attended. For example, they found distinct differences between the two groups of girls in their ratings of popularity in relation to body type, and most

importantly in the importance of professional success, with single sex girls endorsing these as being strongly related to ideal body shape. This study was limited in the scope of its sample to a comparison between only two schools, albeit of comparable socio-economic status. Also the instrument utilised to measure role concerns was restricted in that it used only one item for each attribute and, as noted by the authors, was found to be potentially ambiguous in its contextual meaning with regard to different populations. For example, whilst co-education girls may have evaluated "popularity" on the basis of relationships with boys, single sex girls may have premised their interpretation of "popularity" on relationships with girls. Irrespective of these shortcomings, the authors argue that, although the factors involved in determining body image concerns are complex, the results of their study have indicated that social environments such as type of school may be a potentially important factor in the determination of girls' attitudes towards their bodies and their subsequent eating behaviours.

Therefore, although it is apparent that there may be some communality within and between peer group environments in relation to the sharing and maintenance of body image concerns and dietary behaviours, the exact nature of the relationship between these factors remains unclear. However, what is clear from the research cited, is that perceived and actual communication from peers as well as parents is significantly related to the individual's reported body image attitudes and eating behaviours.

Importantly, one form of communication from significant others that has been found to associated with PBID and dietary restraint is that of negative verbal commentary (i.e., teasing). For example Cash et al. (1986), found that men and women who reported being rejected or teased by their peers in childhood because of their

appearance reported higher levels of PBID than non-teased controls. Similarly Fabian and Thompson (1989), evidenced teasing history to be positively correlated with PBID in a group of 121 pre- and post-menacheal girls. Studies have also confirmed that women's PBID is significantly related to retrospective accounts of the frequency of teasing about size and weight (Rieves & Cash, 1996; Thompson & Heinberg, 1993; Thompson & Psalitis, 1988).

Negative Verbal Commentary: Teasing

The act of teasing has been found to be a common behaviour throughout childhood and adolescence, with physical attributes and appearance being the most typical focus (Rieves & Cash, 1996; Shapiro, Buameister & Keisler, 1991; Thompson, Fabian, Moulton, Dunn & Altabe, 1991). As noted by Shapiro et al. (1991), although teasing can be a benign experience, for some it can have an extremely negative impact. Thompson et al. (1991), argued that this is particularly so when the teasing relates to a particularly sensitive topic such as shape or weight. Moreover, Wertheim and colleagues (1997), found through interviews with year 10 adolescent girls, that whilst the girls recognised teasing about their weight from peers as a form of being taunted, they frequently took these taunts as literal.

A study of teasing and body image amongst a sample of 111 college women by Cash (1995), indicated that 72% of women reported having experienced appearance-related teasing/criticism throughout their middle childhood and early adolescent years, with a duration spanning two to six years. Over 70% of those reporting teasing/criticism recalled this experience to be moderately (29%) or severely (42%) upsetting. Cash (1995), reported that facial characteristics (41%) and weight (31%) were the most frequently cited foci of teasing/criticism, with 45% of respondents recalling one or more nicknames with which they had been labelled. The recalled

severity of teasing amongst these women was found to be significantly correlated with negative body image evaluations and affect.

Furthermore, Reives and Cash (1996), found that appearance-related teasing, sibling social comparisons and perceived maternal modelling of body image attitudes and behaviours independently and additively explained variance in current body image amongst a sample of 152 college women (aged 17 - 35 years). The construct of teasing was found to account for 15% of the variance in appearance self-evaluation and 16% of appearance schemata. The most common attributes subjected to teasing were features of the head and face (45%) and weight (36%). Peers in general were reported to be the most prevalent perpetrators of teasing/criticism (62%), with family members, especially brothers also cited as strong offenders.

Although these studies have demonstrated a strong positive relationship between teasing and PBID in older adolescent females, unfortunately, most have been based on the participant's retrospective accounts of events and relationships. As noted by Willet et al. (1998), and others (e.g., Lin, Ensel & Lai, 1997; Henry, Moffit, Caspi, Langley & Silva, 1994), retrospective recall of both psychological status and social events is confounded by the simple passage of time, present affective state and the individual's current relationship with the previous event. Therefore, such data are not necessarily reliable.

In order to address this limitation, Thompson et al. (1995), conducted a longitudinal evaluation of the impact of current teasing history on the development of body image satisfaction and subsequent eating disturbance. Their study examined the potential covariance of identified latent variables including maturational status, body weight and teasing history in predicting PBID, subsequent REB and global psychological functioning within a population of adolescent girls (n = 87, age range 13

to 18 years) over a three-year period. These authors found that teasing and level of obesity at time one predicted levels of weight and appearance dissatisfaction at time two. More importantly, Thompson et al. (1995), found that level of obesity alone had no independent effect on body image. Rather, being overweight was a risk factor for being teased about weight, size and overall appearance. Teasing was found to be a mediating factor for subsequent PBID.

However, the authors cautioned that their findings were limited not only because of small sample size but also because the theoretical postulates and statistical methodology they employed. For example, the study was designed to examine the specific role of teasing in predicting PBID, and therefore limited the possibility of considering other potential socialisation factors and/or interactive processes. Furthermore, they noted that, although designed to determine potential pathways of relationship, Covariate Structural Modelling of itself does not prove definitive causality. Indeed, as noted by Breckter (1990), even when the proposed model fits the data well, one must not rule out the possibility that another model may fit just as well. Therefore, before any definitive statements regarding the immediate importance of teasing on the subsequent development of PBID can be made, further studies, incorporating broader and more diverse samples of participants and other potential 'causal' factors are required.

Summary

Undeniably, the literature indicates that social learning theory has provided a valuable framework from which to explore the construct of PBID and also potential predictors for its development, particularly for females. Importantly, the research has shown that it is not only indirect and vicarious learning through the popular mass media and modelling that is important in the development of subsequent behaviours and

attitudes. There are also other pertinent factors, including one's perceived physical identity in relation to significant others, being teased and being a member of, or selecting specific social environments, which reinforce these attitudes and behaviours.

As proposed by Bandura (1986; 1989), learning comes about through a complex process of cognitive integration of a variety of differing social experiences. However, to date, the majority of research exploring socialisation factors which may correlate with PBID has been conducted on a micro basis, without consideration of the many other socialisation factors which may be interacting with or predisposing the individual to be vulnerable to that particular influence. Furthermore, aside from the research related to teasing, there has not been any satisfactory prospective analysis conducted between identified contextual correlates and subsequent body image attitudes.

Moreover, little research has been conducted into examining the importance of contextual factors, particularly the impact of negative verbal commentary, on the development of PBID in childhood. Whether the influences remain the same across the ages from pre- to adolescent development has also yet to be addressed. As noted in Chapter One, an exploration of the structure of relationships between PBID and other biopsychosocial factors in childhood is a primary objective of this current thesis. As such it would seem important that those primary contextual and socialisation processes that have been found to be strongly predictive of PBID in adolescence (i.e., teasing, perceived negative evaluation, role modelling) be included. Moreover, given the lack of clarity regarding the relationship between family environment and the manifestation of PBID or REB in non-clinical populations, it is important that this factor also be considered in future analyses.

A further limitation of the past research investigating the importance of socialisation processes for the adoption of body image attitudes, is that in isolation, a

contextual perspective remains limited in its ability to offer any comprehensive understanding of the actual ontological basis of PBID for the individual. Indeed, the question remains as to why, even after controlling for factors such as body mass, not all persons who are exposed to similar social experiences (i.e., teasing, anti-fat attitudes, pressures to diet) and models of restrictive eating behaviour develop extreme levels of PBID, and proceed to developing severe dysfunctional or pathological eating behaviours.

As noted by Heinberg, Thompson and Stormer, (1995), in their evaluation of the influences of socialisation on the subsequent adoption of body image attitudes, it is important to not only consider the strength and directionality of the messages that are central in defining one's perceptions of themself, but also the degree to which one internalises these messages and adopts them as personal derivatives. However, the majority of research in this area has not addressed the issue of individual variability and vulnerability to either the internalisation of appraisals from others, or external social pressures. Given this, the current thesis will incorporate an examination of individual differences.

As noted by Davis (1992), it appears to be a certain group of women who seem to be psychologically vulnerable to external influences and therefore more likely to be responsive to external pressures to adopt particular standards of perceived female attractiveness. Furthermore, it is this same group of women (i.e., who reported high levels of emotional lability and low self-esteem) who appeared to succumb more readily to such maladaptive attitudes as chronic PBID and subsequent REB. It is this question of individual differences between people who do and do not indicate high levels of PBID that is the subject of the next chapter.

Chapter 5

Individual differences

Notwithstanding the overwhelming evidence highlighting the association between factors such as actual body weight, sex, socialisation processes and the development of PBID, as noted previously, it is apparent that these factors alone are not sufficient indicators nor predictors of the development of PBID. Research that has explored the psychological correlates of PBID in non-clinical populations has indicated that there is also a strong correlation between PBID and individual difference factors, such as emotional reactivity (i.e., neuroticism) (Brookings & Wilson, 1994; Davis, 1992). Moreover, given the moderate to strong genetic basis proposed for individual difference factors such as neuroticism (e.g., refer Eysenck, 1977), it has been suggested that these correlations are indicative of a causal relationship between individual difference factors and subsequent PBID (e.g., Davis, 1992; Silberstein et al., 1988).

Indeed the search for an understanding of the individual difference factors which may predispose one individual to be more vulnerable to the development of psychopathology than another has led several theorists to emphasise the role of personality traits as being the stepping stone to future development of disparaging body image attitudes and subsequent behaviours.

Trait Personality Theory

Trait theory has played a central role in the examination of personality characteristics which may predict dysfunctional levels of PBID and/or pathological eating behaviours (e.g., Bulik, Sullivan, Weltzin & Kaye, 1995; Brookings & Wilson, 1994; Davis, 1992; Gendall, Joyce, Sullivan & Bulik, 1998; Sohlber & Strober, 1994; Strober, 1980). This theory is premised on the belief that the individual possesses a defined basic response set, or predisposition, to respond in a given manner to an event

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(Underwood, Froming & Moore, 1980). There is not one major theorist to whom trait theory can be accredited, although the leading figures of this school of thought are documented as Gordon Allport, Hans J. Eysenck, Raymond Cattell and more recently Paul McCosta and Robert McCrae. Whilst differing in their determination of traits and their specificity, all agree that personality traits are inherent, fundamental building blocks of human personality and behaviour. Similarly, all share the view that traits are hierarchical in nature, such that components of personality and behaviour are seen to be interlinked, with some components being more central and influential than others (Bradburn, 1969; McCrae, 1983, Warr, Barter & Brownbridge, 1983). Moreover, these constructs are believed to be, in large part, biologically derived (Eysenck, 1977), and to remain very stable and consistent across the lifespan (Headey & Wearing, 1989; Magnus, Diener, Fujita & Pavot, 1993; McCrae, 1983). As such this theoretical perspective has provided a coherent, stable set of constructs with which the clinician or researcher can identify individual differences (in particular neuroticism), in persons who report high versus low PBID (Davis, 1992), or within clinical populations of eating psychopathology (Head & Williamson, 1990; Vitousek & Manke, 1994).

Trait theory, as defined by Eysenck and Cattell, is heavily embedded in empiricism, particularly factor analysis. This methodology allows large numbers and facets of behaviour to be categorised into discrete clusters on the basis of their communality, thus identifying the unitary structures of personality. Eysenck further extended his analysis of these unitary structures, or traits, into basic dimensions known as types. For example the traits of sociability, activity, liveliness, excitability and impulsiveness all become grouped under the dimension of extraversion, whereas the traits of anxiety, rigidity, moodiness and aggressiveness are grouped under the dimension of neuroticism.

Eysenck (1977), proposed that individual variations in the dimension of introversion-extroversion were reflective of differences in neuro-physiological functioning. He claimed that the introverted individual was more easily aroused by events in their environment and more easily prone to adoption of social prohibitions than the extroverted individual, and as such was more restrained and inhibited in his or her functioning. Similarly, with neuroticism Eysenck proposed that there was an inherited biological difference in nervous system functioning which accounts for the fact that some individuals were more stable in their emotional responding, or lower in levels of neuroticism, compared to others. He noted that individuals high on neuroticism tend to be emotionally labile, anxious and experience high levels of somatic complaints such as dizziness, headaches and stomach pains. They also tend to react more quickly to stressful events and to take a longer period of time to recover from stress inducing events than individuals who score low on this dimension.

Although as noted, trait theory is heavily embedded in empiricism, there have been continuous criticisms directed towards this theory as a whole. In particular, Mischel and Peake (1983), and others (e.g., Lawton, 1983), have criticised the emphasis on a hierarchical organisation of stable and enduring personality characteristics. Importantly, these critics have questioned the adequacy of trait theory for the prediction of behaviour, arguing that behaviour is not necessarily consistent across situations (Bandura, 1986; Mischel & Peake, 1983; Shweder, 1982). However, extensive work by Costa, McCrae and others has continued to support the proposal that neuroticism and extraversion are stable personality traits that significantly influence the behavioural adaptation of the individual to their environment (e.g., Costa, Headey & Wearing, 1989; Costa & McCrae, 1980; Costa & McCrae, 1984; Costa, McCrae & Arenberg, 1980; Costa, McCrae & Norris, 1981; McCrae & Costa, 1985, Magnus et al.,

1993). Indeed, longitudinal studies by these researchers have found stability of the neuroticism and extraversion constructs to remain consistently high over extended periods of the lifespan. For example, Headey and Wearing (1989), reported uncorrected stability co-efficients of .67 for neuroticism and .63 for extraversion over an 8 years period. Similarly, Magnus et al. (1993), reported 4-year stability co-efficients of .54 for neuroticism and .73 for extraversion, whilst Costa et al. (1980), reported 12-year stability co-efficients of .70 for neuroticism. Others (i.e., Viken, Rose, Kaprio & Koskenvuo, 1994), have reported comparable high correlations extending over 30 to 50 years.

Personality and temperament as predictors of Body Image Dissatisfaction

Investigations of inherent vulnerability amongst non-clinical populations have indicated a strong positive relationship between PBID, weight concerns, dieting and neuroticism for undergraduate females (Brookings & Wilson, 1994; Davis, 1992) and males (Davis, Elliott, Dionne & Mitchell, 1991). For example, Brookings and Wilson (1994), found that neuroticism, and to a lesser extent extroversion, made a unique contribution to female college undergraduates' (n = 137) reported PBID scores and restrictive eating behaviour. Similarly, Davis (1992), reported neuroticism to be a significant and independent predictor of weight and diet concerns in both a group of high performance female athletes and a control group of non-athletic university women. Davis et al. (1991), also found similar relationships between neuroticism and body image and weight dissatisfaction amongst two independent groups of males (i.e., undergraduates; regular exercisers). (Refer to Table 5, Appendix A for details of studies cited in this chapter).

Interestingly, more recent research by Davis, Dionne and Lazarus (1996), which evaluated the function of gender-role orientation and neuroticism in the prediction of

body image amongst a group of undergraduate university students, found that neuroticism played an important mediating role in the relationship between gender-role orientation and body image. That is, whilst femininity in males and masculinity in females were positively associated with high levels of body esteem, this relationship was no longer significant when neuroticism was added to the equation.

The investigation of other personality traits (e.g., perfectionism, narcissism) has further indicated that the observed relationship between these constructs and body image/esteem is more complex than can be assumed from simple correlations (Davis, 1997b; Davis, Claridge & Cerullo, 1997; Davis et al., 1996). For example, in an evaluation of the relationship between narcissistic tendencies and body esteem amongst a cohort of female college students, Davis (1997b), found that the construct of narcissism was divisible into both adaptive and maladaptive aspects. Furthermore, these two aspects were interactively associated with body esteem, such that whilst adaptive aspects of narcissism were positively associated with high levels of positive body esteem, increases in levels of maladaptive narcissistic behaviours systematically eliminated this relationship. Importantly these effects were only determined after the researcher had controlled the variance of neuroticism.

This effect was also noted in examining the role of perfectionism, neuroticism and body esteem amongst a group of females who were diagnosed with pathological eating disorders (Davis, 1997b). The results of this research indicated that body image perceptions resulted from an interaction between both normal and neurotic perfectionism, with normal perfectionism being positively related to body esteem only when neurotic perfectionism was low. As neurotic perfectionism increased, this relationship was observed to flatten out, and then reverse. Davis (1997b), concluded that, body esteem appeared to arise from a complex interaction of high levels of

"healthy" self-enhancing attributes (e.g., positive perfectionistic and narcissistic tendencies) and low levels of neurotic (self-depreciating) tendencies.

The extensive research conducted by Davis and colleagues supports the proposal that the simple relationship observed in studies relating trait personality factors, other than neuroticism, to eating pathology is somewhat misleading. Rather it would appear that each of these factors have been found to function interactively with neuroticism, such that positive relationships systematically "diminish" as the individual's level of neurotic characteristics increase (Davis et al., 1996; Davis et al., 1997; Davis & Fox, 1993).

Unfortunately, to date the research conducted in this area has been limited to examining the construct of body image within specific adult samples and utilising small numbers of participants. An increased understanding of the importance of personality traits in predicting PBID can only be determined through more extensive research amongst personality variables, and across larger, more diverse populations. Importantly, research examining the strength of the relationship between neuroticism, or indeed other personality or temperamental variables, and PBID amongst adolescent or younger populations is non-existent.

Moreover, whilst individual difference factors such as neuroticism are believed to be predicates of PBID and dysfunctional eating behaviours (Davis & Cowles, 1989; Dionne, Davis, Fox & Gurevich, 1995), the relationships between other individual difference factors such as self-esteem and PBID are less clear. Some have argued that body image is a component of self-esteem and therefore dissatisfaction with one's body would logically lead to a lowering of self-esteem (e.g., Lerner & Jovanovic, 1990; Davis, 1997a), whereas others have proposed that there is a circular relationship between the two constructs (Tiggemann et al., 1994). Still others have found that there

is absolutely no relationship between the two (i.e., Silberstein et al., 1988).

Self-esteem

As defined by Coopersmith (1967), and others (eg., Rosenberg, 1965), overall global self-esteem is the personal judgement of worthiness and affective evaluation, whether positive or negative, the individual holds of themself. Furthermore, research has indicated that psychological well-being and global self-esteem are highly correlated with both extraversion and neuroticism (Francis, 1997; Francis & James, 1996), with high levels of self-esteem being associated with low neuroticism and high extraversion scores. Moreover, self-esteem has been found to be positively correlated with an internal locus of control (Martin & Coley, 1984), high academic achievement and motivation (Prawat, Grisson & Parish, 1979), family cohesion (Bahr & Martin, 1983), and perceived positive appraisal from others (Lorr & Wunderlich, 1986). High self-esteem is also reported to be negatively correlated with anxiety (Hart, 1985), depression (Allgood-Merten, Lewinsohn & Hops, 1990), and suicidal ideation (Thompson et al., 1994).

Therefore, whilst inherent personality traits such as neuroticism have been shown to be risk factors for developing poor psychological health including low self-esteem and PBID, the exact relationship between self-esteem and body image is not necessarily as direct.

Self-esteem as a correlate of PBID

As noted previously, research examining the relationship between body image and self-esteem has not been consistent in its findings. For example, an investigation of the relationship between PBID and self-esteem, amongst a group of college students by Silberstein et al. (1988), indicated that whilst for males there was a positive relationship between body size satisfaction and multiple dimensions of PBID and self-esteem, this

was not the case for females. To explain the lack of association between self-esteem and PBID for females, the authors suggested that the cultural emphasis placed upon thinness for women functioned in such a manner that the woman "who experiences herself as dissatisfied with her weight resembles rather than deviates from her peers" (p. 230). Furthermore, they argued that this cultural emphasis had created a sense of 'normality' in association with body and weight dissatisfaction, thus ameliorating any negative influences that PBID may have on a female's self-esteem.

Similar relationships between self-esteem and PBID have been found amongst pre-adolescent children. For example, Tiggemann and Wilson-Barrett (1998), found that, within a sample of 140 primary school aged children, PBID was significantly correlated with self-esteem for boys, but not for girls. No age effects were noted for PBID or self-esteem. However, PBID was found to be variable with sex. That is girls reported significant levels of dissatisfaction between their ratings of current and ideal body sizes, whereas boys indicated no differences between these ratings.

Interestingly, research amongst adult males and females by Tiggemann (1992), found that the relationship between self-esteem and PBID for females altered as they matured. Tiggemann's (1992) study, involving the evaluation of the relationship between PBID and self-esteem amongst a group of undergraduate students divided into young and mature groups on the basis of age [i.e., young (under 21 years): mature (over 21 years)] indicated that self-esteem was significantly correlated with PBID in the mature group of women. Tiggemann found that overall females reported significantly higher PBID than males. She also noted that older female participants rated their current figure size as significantly larger than younger females, whereas there were no significant differences in figure ratings between the two age groups for males. Body mass was not related to self-esteem for any of the groups, however, mature females

were found to report higher levels of self-esteem than the younger females. Moreover, there appeared to be an interactive relationship between self-esteem and PBID, wherein it was those women who reported their current body size to be equivalent with or smaller than the idealised size that had higher self-esteem.

According to Tiggemann, the lack of relationship between self-esteem and PBID amongst the younger females was supportive of Silberstein et al's (1988) findings, and further supported the notion of body image being a universal normative condition for young women. Furthermore, she argued that rather than this relationship being ameliorated in older years, the relationship between self-esteem and PBID in mature females possibly arose as a consequence perceived success. That is the older women who had successfully maintained a slim figure over an extended period experienced a sense of success with their achievement, and vicariously, an increased self-esteem.

However, the proposed conclusion, that this "normative discontent" with one's body is unrelated to self-esteem in younger adult and adolescent females, can only be considered tentative at best. Indeed research in this area remains equivocal, with others (Abell & Richards, 1996; Folk, Pedersen & Cullari, 1993; Kostanski & Gullone, 1998; McAllister & Caltabiano, 1994; Mendelson & White, 1982, 1985), reporting a significant correlation between reported PBID and self-esteem amongst both adolescent and pre-adolescent females and males. Nevertheless, it is noteworthy that these relationships were again found to be variable depending upon sex, as well as the definition and measurement of PBID and self-esteem.

For example, Abell and Richards (1996), investigated the relationship between multiple measures of body shape satisfaction and self-esteem, amongst a group of 41 male and 43 female undergraduate students, controlling for socioeconomic status and

sex. Whilst these researchers found no significant differences in body shape satisfaction between males, females or socio-economic status, they did find that males reported significantly higher dissatisfaction with their current weight than females. Moreover they found that both measures of body image were significantly correlated with self-esteem for females, however only one measure of body image was significantly correlated with self-esteem for males.

Furthermore, Kostanski and Gullone (1998), found that amongst a large group of adolescent high school students (268 females, 248 males, mean age 14.7 years), self-esteem was significantly correlated with PBID for both males and females. Moreover, self-esteem was found to be a significant predictor of PBID, and in conjunction with actual body mass, depression and anxiety was found to significantly discriminate between groups of high versus low PBID with over 77% accuracy.

Moreover, amongst a group of 91 primary school children, Folk et. al. (1993), found that for girls, self-concept was positively correlated with body satisfaction in both pre- and early pubertal groups. In contrast, for boys, there was no correlation between self-concept and body satisfaction in the pre-pubertal group. However, in the pubertal group of boys, there was a positive correlation between four of the six Piers-Harris self-concept subscales and body satisfaction. Folk et al. (1993), suggested that their findings might indicate that the link between self-concept and body image is a result of the social importance which is placed on the "perfect body", with girls having already met their idealised norm by grade three whereas for boys this does not occur until much later. However, the small sample size of children utilised within this study limits the generalisability of the findings.

In fact, the small sample size utilised in many of the above-cited studies is a serious limitation. Moreover, due to the limitations of the cross-sectional correlational

design characterising the majority of studies on which this research is based, any conclusions regarding the exact nature of the relationships found between constructs, such as proposals regarding causality, can only be tentatively deduced. There is a strong need for prospective studies to be conducted in this area in order for the purported causality of the relationships to be empirically determined. Indeed, several researchers have argued that although their investigations have indicated a negative relationship between PBID and self-esteem, these constructs may actually be non-causally related (Fabian & Thompson, 1989, Wertheim et al., 1992). As Berscheid, Walster and Bohnrstead (1973), have suggested, rather than a causal relationship existing between the two, it may be the case "that the groundwork for both positive body image and high self-esteem is set early in life and that some other factor determines both" (pp. 126).

Furthermore, a lack of consistency in the instruments utilised to measure PBID, and the interchangeable use of the self-esteem construct with self-concept (i.e., the sum total of cognitions of oneself), may also confound the results presented. For example, dissatisfaction as measured by the discrepancy between self-reported satisfaction with current weight and actual weight (Tiggemann, 1994), was found to be significantly correlated with self-esteem for females but not males. In contrast, dissatisfaction as measured via the cognitive component of the Figure Rating Scale (Silberstein et al., 1988; Tiggemann, 1992, Tiggemann & Wilson-Barrett, 1998), was found to be significantly correlated with self-esteem for males, but not females. However dissatisfaction as measured with less global measures (e.g., body-esteem, or satisfaction with specific body parts) (Abell & Richards, 1996), and the affective component of the Figure Rating Scale was found to be significantly correlated with self-esteem in adolescents.

Furthermore, an investigation of the dimensionality of PBID by Tiggemann (1996), indicated that the two components of body image (i.e., affective and cognitive) were differentially related to self-esteem. Tiggemann (1996), argued that the inconsistency noted in the literature regarding the relationship between self-esteem and body image may well be a confound of the variance in instruments used to measure the construct of body image (Refer Appendix B for a review of psychometric properties of body image measures). Tiggemann further noted that although all measures of body image may, to some extent, include both affective and cognitive components, it is not clear exactly what the ratio of each is within any one measure. Therefore, some researchers may have measured predominantly cognitive aspects of body image and found no relationship with self-esteem, whilst others may have measured predominantly an affective aspect resulting in positive associations being found.

Interestingly, recent research by O'Dea (2000), has further indicated that using a self-esteem approach to intervention has provided positive encouragement to improving body image and appearance attitudes amongst adolescent females. A 12-month follow-up of their program has indicated that there have been sustained improvements in both body image and eating attitudes. Such findings provide more support for the proposal that self-esteem is strongly and significantly related to PBID. Moreover, Tiggemann (1997), found that REB had a moderating as well as a mediating effect on the relationship between PBID and self-esteem. That is Tiggemann (1997), found that the relationship between PBID and self-esteem was mediated by the presence of REB for a group of 215 undergraduate students. Moreover, this relationship was moderated by the strength of REB, such that there was a much stronger relationship between these two constructs when REB was high than when it was low.

Summary

The assumption that individual differences, in particular neuroticism, are important factors to be considered in determining the aetiology of PBID has received some support. However, whilst research into the structure and stability of relationships between individual difference factors and PBID, has been conducted with adult populations, to date little research has been conducted into exploring these issues in children. Moreover, the noted complexity and inconsistent outcomes of research exploring some of these relationships, particularly regarding self-esteem, indicates the need for further exploration in this area.

Furthermore, the research has highlighted that some of the inconsistencies noted in the research are due to the variance in measures used to define both PBID and self-esteem. Indeed, as noted previously (refer Appendix B), psychometric evaluation of measurement instruments has indicated that there are distinct differences between many of the instruments used to measure PBID. Similarly, there is a continual shift between identifying 'self-esteem' as either a concept, a global self-evaluation and a structural attitudinal scale. Therefore, as discussed in Chapter One, not only is it important that researchers are clear in defining exactly what aspect of body image (i.e., affective, cognitive or perceptual), or self-esteem they are exploring, they need to also ensure the instrument they use to measure such is appropriate.

Notwithstanding these limitations, the literature does indicate that the relationship between individual difference factors, such as neuroticism and self-esteem, and PBID do need to be included in any comprehensive evaluation of the aetiology of PBID. Therefore, as well as incorporating epidemiological and contextual/socialisation factors as predictors of PBID in childhood, the current thesis will also include the individual difference factors of personality traits and global self-esteem.

Chapter 6

Study One

Biopsychosocial correlates of PBID in middle childhood.

As noted in Chapter One, the strong relationships reported in the literature between PBID and REB in adolescent girls, (e.g., Freeman, 1985; Hsu, 1990; Rodin et al., 1984), have made the research into developing an understanding of the aetiology of this construct a high priority over the past two decades. From the adolescent research, it would seem that the two constructs (i.e., PBID and REB) are inextricably linked, with prospective studies (e.g., Attie & Brooks-Gunn, 1989; Cattarin & Thompson, 1994; Patton et al., 1990; Stice et al., 1998), finding that PBID predicts REB in adolescent girls.

The research within adolescent and young adult populations has shown that PBID is gender specific (Gralen et al., 1990; Maude et al., 1993; Paxton et al., 1991; Tiggemann et al., 1994; Silberstein et al., 1988), such that females have a higher level of dissatisfaction being more likely to perceive themselves as overweight than males. Importantly, the prevalence of PBID has been found to be so consistently high within adolescent and young adult female populations (Gralen et al., 1990; Maude et al., 1993; Tiggemann & Pennington, 1990; Wertheim et al., 1992), as to be considered a 'normative' condition (Silberstein et al., 1988), of modern Western society.

More recent research has shown that PBID is also of concern for males (Drewnowski & Yee, 1987; Kos..nski & Gullone, 1998; Muth & Cash, 1987), albeit for males, dissatisfaction is more directed towards concerns with being too thin than too fat. Moreover, whereas PBID was once believed to be associated with the onset of puberty (Davis & Furnham, 1986; Koff & Rierdan, 1993), as noted in Chapter Three,

several researchers have reported PBID to also be prevalent amongst younger samples (Rolland et al., 1997; Shapiro et al., 1997; Tiggemann et al., 1998). The reported finding of PBID in pre-adolescents' has raised important questions regarding the potential age of onset of this construct. Whilst some (e.g., Maloney et al., 1989), have suggested that this may be between the ages of eight and nine years, others (e.g., Collins, 1991) have argued that it is already present from the age of seven years.

As noted throughout the previous chapters, although extensive research has examined the physiological, contextual/socialisation and individual difference correlates and potential predicates of PBID in adolescents, little is known regarding the actual structure and nature of this construct in children. Whether PBID in childhood is comparable to that observed in adolescence, whether gender disparity is as strongly evident in children, and whether the identified links between PBID and REB in adolescence are as evident for children are questions which to date have received only scant attention in the literature. Furthermore, whilst research has confirmed the presence of both PBID and REB in pre-adolescent populations, the researchers themselves (i.e., Maloney et al., 1989; Rolland et al., 1997; Thelen, 1992), have cautioned against assuming the validity and reliability of these findings.

The purpose of Study One therefore is to investigate the potential emergence of PBID and REB in middle childhood years. In particular, this study aims to extend previous research, by incorporating a biopsychosocial model of health to identify the strength of physiological, individual difference and contextual factors identified as predictors of PBID in adolescence (e.g., sex, BMI, age, teasing, perceived evaluation, family environment, self-esteem and personality factors), in the development of PBID in children. Furthermore, given the concerns expressed regarding the possibility of young children being too naive to provide valid and accurate accounts of their dietary

behaviours, this study aims to investigate the validity of reported REB, and the significance of this behaviour in relation to PBID in a sample hildren.

The overall aim of Study One is to address the first n objectives of the current thesis. The specific aims of Study One are to:

- Determine the extent to which PBID is prevalent in middle childhood years, and to examine whether this construct is differentially manifested across age, sex and body mass.
- Explore the relationship between individual difference variables (i.e., self-esteem, neuroticism, extraversion), contextual/socialisation variables (i.e., teasing, perceived evaluation of self by others, family environment) and PBID within childhood.
- Examine children's understanding of, and behaviours associated with, the concept of dieting in order to establish validity of reported REB in this age group.
- Determine the relationship between children's REB, PBID and individual difference and socialisation/contextual factors.

These aims will be executed through a quantitative and qualitative examination of PBID, REB, individual difference and contextual factors within a cross-section of middle to upper primary school aged children.

Method

Participants

A sample of 431 school children in grades two, three and four, from 10 primary schools (6 public and 4 private) across the Melbourne metropolitan region, a large city in Australia, participated in this study. The sample consisted 199 boys and 232 girls, with an age range of 7 to 10 years ($M = 8.8$ years, $SD = 0.92$). An independent samples t-test indicated no significant differences between the age distribution of children by

sex (t = -.49, df = 429, p > .05).

Body Mass Index (BMI)

Mean BMI was calculated to be 16.7 (*SD* = 2.3) for boys and 16.5 (*SD* = 2.3) for girls. Based on current Australian norms for children (Harvey & Althaus, 1993) this indicated that 19% (n = 37) of boys and 24% (n = 53) of girls were classified as overweight whilst 21% (n = 40) of boys and 28% (n = 62) of girls were classified as underweight.

Instruments

Body image, Dieting Behaviour and Attitudes Scale (Kostanski & Gullone, 1998). Appendix C).

Components of this measure were adapted from several previous studies (Maloney et. al, 1989; Pierce & Wardle, 1993), and designed to assess the child's perceived parental and peer attitudes towards their body size, teasing status and dieting behaviours. The instrument is a brief self-report inventory, comprising five questions related to self, parental and peer evaluations of body size, three items exploring current teasing experience, and three items related to current self and parental dieting.

Body image and dieting items are scored on a three point Likert scale, (for example: "I diet"… always, sometimes, never; "I think I am"… too fat, just right, too thin). In consideration of the potential impact of questioning bias, such that young children are believed to feel compelled to offer a socially desirable response (Dent & Stephenson, 1979; Huon, Godden & Brown, 1997; Moston, 1990), as suggested by Schwartz, Strack, Hippler and Bishop, (1991) *I don't know* was offered as an option answer to one sentence completion item ("Dieting means ..."). Similarly, for the sentence "When I diet…" *I don't diet* was offered as an acceptable response. The

instrument also provides a section for obtaining pertinent demographic information from the children, such as age, date of birth, and sex.

Figure Rating Scale (FRS: Collins, 1991). (Appendix D)

Comparable to previous research amongst adolescents (refer Appendix B), the current study will examine body image dissatisfaction as it relates to both affective and cognitive dissatisfaction, utilising a version of the FRS found to be psychometrically sound within pre-adolescent children. The FRS comprises a set of seven pre-adolescent figure drawings (male or female) ranging from very thin to obese, scored from 1 through to 7 respectively. Participants are required to nominate which figure they *think* looks most like them in the present (cognitive/rational), which figure looks most like they would like to be (ideal) and which figure looks most like they *feel* in the present (affective). The discrepancy between the actual and ideal measures on these two sets of ratings provides an indication of level of perceived cognitive and affective PBID. Collins (1991), reported three-day test-retest correlation coefficients of .71 for current self and .59 for ideal self. Collins (1991), also reported criterion-related validity through comparison of pictorial figure selections with the child's actual weight and BMI to be .36 and .37 respectively. Similarly, Tiggemann and Wilson-Barrett (1998), reported a significant correlation between ratings of current figure and BMI (girls: $r = .53$, $p < .001$; boys: $r = .46$, $p < .001$). Given previous research has not considered the validity of affective versus cognitive dissatisfaction amongst children, the current study will include an evaluation of such.

Coopersmith Self-Esteem Scale: school short form (SEI: Coopersmith, 1981). (Appendix E)

The SEI is a self-report inventory comprising of short statements such as "I am a lot of fun to be with" which are answered "Like me" or "Not like me". It consists of 58 items, eight of which comprise a measure of the respondent's defensiveness or test wiseness. The total score provides a comparative age-group level of global self-esteem, and also four separate sub-scale scores: General Self, Social Self-Peers, Home-Parents, and School-Academic. A three year test-retest analysis yielded a reliability co-efficient of .70 in a sample of 50 children (Coopersmith, 1967). Split-half reliability

varying age groups has yielded coefficients of .87 to .92 (Kimball, 1972; Fullerton, 1972 cited in Coopersmith, 1981). An extensive review of validity and reliability of the SEI has been documented by Coopersmith (1981). In this study the shortened School Form, which comprises the first 25 items of the original inventory, was used. This version does not include the defensiveness scale nor does it elicit subscale scores. Coopersmith (1967), reported a total score correlation of .86 between the short form and the School Form.

Eysenck Personality Questionnaire - Junior Form (EPQ: Eysenck & Eysenck, 1975). (Appendix F)

A short self-report inventory of 60 items, the EPQ is designed to measure major dimensions of personality including extroversion, neuroticism (emotional reactivity) and psychoticism (tough mindedness). Respondents are requested to answer either yes or no to a series of questions such as "Would you like to explore an old haunted castle?", or "Do you think water ski-ing would be fun?". Test-retest reliability over a one-month period has been found to vary according to age level (11 to 14 years) and ranges between .69 to .83 (Extroversion), .64 to .82 (Neuroticism), and .55 to .78 (Psychoticism), which the authors suggest is acceptable for group testing and comparison. Age-related (7 - 15 years) alpha coefficients of .57 to 85 (Extroversion), .75 to .86 (Neuroticism), and .64 to .74 (Psychoticism), indicate satisfactory internal consistency of the scale (Eysenck & Eysenck, 1975).

Family Cohesion Scale (Cooper, Holman & Braithwaite, 1983) (Appendix G)

This is a projective measure of perceived family cohesion. It consists of a series of diagrammatic representations of family types, from which the child is encouraged to select the one which best represents their family. The different family types (two-parent cohesive family, divided family, parent coalition, isolated child and one-parent

cohesive family) are represented by diagrams that depict the family members as small circles within a larger circle. As noted by Cooper et al. (1983), children demonstrate a clear understanding of this pictorial concept of family structure. Validity of the Family Cohesion Scale has been established through correlation of the child's identified family type with their reports of conflict and enjoyment within the family (high parent/parent conflict: $\chi^2 = 15.91$, $p < .001$; high parent-child conflict: $\chi^2 = 13.88$, $p < .001$; high total family conflict: $\chi^2 = 20.39$, p, $< .001$) (Cooper et al., 1983). For the purposes of this study, a further diagram, depicting an "enmeshed" family situation was also included. Analysis of data was based on a classification of family structure scores into cohesive (a combination of the two parent and single parent cohesive groups) versus fragmented or conflictual (a combination of the divided family and parent coalition, isolated child and enmeshed groups).

Children's Version of the Eating Attitudes Test: (ChEAT: Maloney, et al., 1989). (Appendix H)

The ChEAT is a modified version of the Eating Attitude Test (EAT-26) developed by Garner and Garfinkel (1979), to measure dieting behaviours, food preoccupation, bulimia and weight concerns. The ChEAT is a 26-item self-report inventory based on a 6 point Likert scaling system ranging from "always" to "never". Examples of items include "I have been dieting... ," and "I am scared about being overweight... ". The most extreme responses (always, very often, often) are scored from 3 to 1, with the other three responses (sometimes, rarely, never) being scored 0. The ChEAT has been reported to have high internal reliability (alpha = .76) and test-retest reliability (r = .81) (Maloney, McGuire & Daniels, 1988). For the purposes of this study the dieting scale only was used to assess the pathological avoidance of fattening foods (as identified by Garner, Olmstead, Bohr & Garfinkel, 1982). This

subscale has been reported to be highly reliable (alpha = 0.90) and correlates highly with the total EAT-26 scale (r = 0.93) (Garner et al., 1982).

Procedure

Following the receipt of Directorate of School Education (see Appendix I) and Monash University Ethics Committee approval (see Appendix J), school principals were approached and parental consent was sought. An outline of the study, accompanied by a plain English language statement (see Appendix K) and incorporating a proviso of confidentiality, was distributed to all children in classes nominated by the school principal. The children were required to take these forms home to their guardians for consent. For those children who received guardian approval and personally indicated a desire to participate, administration of the questionnaires was conducted in a small group format within a quiet classroom provided by the school.

The researcher read out the instructions for each component of the questionnaire to the students, then assisted with reading the items of each questionnaire to the group as they worked through the set. Each set of questionnaires was administered in a rotated sequence, to control for potential set response to the various components. For children in grade two, two sessions of approximately 30 minutes each with a short break in between were required to complete the battery of questionnaires. The children in grades three and four required one session of approximately 50 minutes. Height and weight were also measured. Children removed their shoes and over-jacket or coat in order to accurately assess their height and weight.

Once all the data had been collected for each class, the researcher facilitated a brief, in class, review of the study, and invited the children to engage in a discussion of their experiences. The researcher also iterated to the children that any child who had

concerns or questions regarding the survey was welcome to approach the researcher during their lunch break or recess, at the designated 'data collection' room. The children were also provided with the name and contact details of their school welfare teacher or coordinator, in case they desired to discuss anything arising from the survey over the next few days.

Results

Given that the instrument used to measure PBID (i.e., FRS) provides for dissatisfaction with being both under- and over-weight, for the purposes of analysing the predictive values of individual difference and contextual/relationship variables in relation to PBID, absolute scores were used. Furthermore, given the strong indications that PBID is not a unidimensional construct, but rather comprises two sub-components (i.e., affective and cognitive/rational) (Tiggemann, 1996), analyses were conducted separately for both perceived affective and cognitive PBID measures. Similarly, given the extensive literature indicating that actual weight (BMI) is a mediating variable in PBID and REB, all analyses controlled for BMI. All categorical variables (i.e., teasing, perceived evaluation, family environment, modelling of dieting) were converted to dummy variables, whilst, where required, BMI was divided into three groups (underweight, normal weight, overweight) for purposes of analysis. Similarly age was divided into four years levels [(i) under 8 years n = 107; (ii) 8years - 8 years 8 months n = 113; (iii) 8years 9 months - 9 years 8 months n = 110; (iv) 9 years 9 months and over n = 101]. Following the recommendations of previous researchers (i.e., Paxton, 1991), that the issues associated with PBID are substantially different for girls and boys, all descriptive and inferential analyses were also conducted separately for each sex.

Inferential statistical methods, including Pearson's product moment correlation, MANCOVA and hierarchical regression analyses were conducted to evaluate the

strength of relationship between PBID, reported dieting behaviour, actual body mass, individual difference factors and contextual/relationship variables. Data were analysed using SPSS for Windows, version 7.2 (1994).

The data analyses are presented in six sections. Section one reports the validity of PBID ratings obtained in this study. It also provides an overview of reliability ratings for each of the instruments used in this study, and an examination of the validity of children's self-reports of dieting. Section two provides analysis of PBID as measured by the figure rating scale (cognitive and affective) and its relationship with age, sex and BMI (hereafter referred to as physiological variables). Section three examines the relationship between individual difference factors (self-esteem, neuroticism, extroversion and psychoticism) and PBID. Similarly, section four examines the relationship between contextual and relationship factors (teasing, family types, perceived evaluation) and PBID. Section five extends this evaluation by examining the comparative strength of significant physiological, individual difference and contextual/relationship variables in predicting PBID. Finally, section six examines the relationship between PBID, individual difference factors (self-esteem), socialisation processes (parental modelling of dieting) and REB in young children.

Section 1: Validity and Reliability Ratings

1.1: Validity of the Figure Rating Scale (FRS)

Validity of the figures used in the FRS was determined through correlations of participants' actual weight and their BMI scores with perceived current cognitive (I think) and current affective (I feel) figure ratings [Actual weight: (current cognitive: boys $r = .43$, $p < .001$; girls $r = .50$, $p < .001$; current affective: boys $r = .25$, $p < .001$; girls $r = .36$, $p < .001$): BMI: (current cognitive: boys $r = .35$, $p < .001$; girls $r = .50$, $p < .001$; current affective: boys $r = .27$, $p < .001$; girls $r = .26$, $p < .001$)]. As can be

seen from these analyses, both girls' and boys' reports of their current cognitive figures were significantly correlated with both their actual weight and their BMI status. Affective ratings were also significantly correlated with both physiological measures, albeit sharing slightly less variance.

1.2: Internal consistency of self-report measures

The individual difference measures used in this study (Coopersmith Self-esteem and Eysenck Personality Inventory) were found to have comparable levels of internal consistency to previous reports (refer Table 6.1).

Table 6.1

Cronbach's alpha coefficients for self-reports instruments used in study one (n = 431).

Measure	Number of items	Cronbach alpha
ChEAT	12	.70
Coopersmith		
self-esteem	25	.77
EPQ		
neuroticism	20	.74
extroversion	23	.69
psychoticism	17	.70

The internal consistency of the ChEAT was found to be improved by the removal of one item (no 13: I enjoy trying new rich foods) from a level of .66 to .70. This level of reliability is believed to be satisfactory and an acceptable level of internal consistency to be included in analysis of group data (refer Table 6.1 for reliability scores). Thus this item was removed for all further analyses.

1.3: Validity of Children's reports of dieting (REB)

Children's Dieting Knowledge

The participants' completion of the sentence "Dieting means... " indicated that clear social beliefs and attitudes towards restrictive eating practices were held by the majority of children in this study. Whilst a moderate proportion (28%) indicated they did not know what dieting meant, 15% wrote it meant feeling fat and trying to lose weight by eating 'better', 'healthy' or 'good' food. Another 16% wrote it meant eating 'special' or 'healthy' food, and 9% indicated it meant cutting out or reducing the amount of 'junk' or 'bad' food. Specific restraints such as not eating chocolate, sweets or lollies (9%), eating less fatty foods (7%), or including lots of vegetables and fruits (4.5%), were also identified as dieting. Watching what you eat or reducing food intake with the aim of losing weight (14%), and eating 'good' food in conjunction with increasing exercise (5%), were the other behaviours cited. The notion of dieting meaning excessive restraint, such as not eating or feeling sick after meals was recorded by 2% of the children.

Dieting Practices

Over 76% of children indicated that they never dieted, whilst 20% indicated they dieted 'sometimes' and 3% claimed to diet 'always'. As shown in Table 6.2 below, the frequency of reported dieting for girls was found to be higher than for boys. Chi square analysis indicated that this difference was significant ($\chi^2 = 8.65$, $df = 2$, $p < .01$). Furthermore, an evaluation of children's self-reported dieting for those identified as being within normal BMI range, indicated that the ratio of children who reported dieting in comparison to those children who reported not dieting was found to be comparable to the ratio for the overall population. Age was not found to be related to the children's reports of dieting.

Table 6.2:

Frequency of reported dieting by sex.

	N	Dieting Frequency never %	n	sometimes %	n	always %	n
Boys	199	83	(162)	14	(28)	3	(6)
Normal weight	115	84	(97)	15	(17)	1	(1)
Girls	232	72	(166)	25	(59)	3	(7)
Normal weight	109	75	(85)	20	(22)	2	(2)

Dieting Behaviours

The sentence completion task, which required that children who reported engaging in dieting identify their specific dietary practices (When I diet I.....), indicated that these children did deliberately participate in identifiable REB. As shown in Table 6.3 below, for the majority of children who reported deliberately dieting this meant either actively reducing their intake of specific foods (e.g., *no pizza, no chips, no sweets*), reducing their overall intake (e.g., *I cut down on what I eat*) or eating only those foods identified as healthy (e.g., e*at fruit and vegetables and drink lots of water*).

Increased exercise alone (e.g., *I train harder, I jump on my trampoline for 10 minutes morning and night*), or a combination of exercise and eating healthy foods (e.g., *I run a lot and eat healthy foods*) was also a reported dietary behaviour for a portion of the children. A small number of 'dieters' also indicated that they engaged in total restriction of food intake (e.g., *I don't eat, I eat nothing*), whilst one child reported purging (e.g., *I spew up*). Two underweight children indicated they actually attempted to increase their food intake (e.g., *I do the opposite I eat more*).

Table 6.3

Specific dieting behaviours reported by those children who diet.

Behaviour	n	%
cut out item of food (i.e., chocolates, lollies, sweets, fat)	23	19.2
eliminate junk foods (i.e., pizza, chips, McDonalds)	21	17.5
eat healthy foods (i.e., apples, fruit, vegetables, milk)	35	29.2
exercise and eat healthy foods	8	6.7
increase exercise	6	5.0
reduce overall food intake	10	8.4
stop eating	7	5.8
lose weight	7	5.8
purge	1	0.8
eat more	2	1.6
total	120	100.0

Section 2: Affective and Cognitive PBID

2.1: Figure Ratings

As previously reported, the FRS provides a rating of each child's perceived current cognitive figure size (i.e., actual cognitive), currently felt figure size (i.e, actual affective) and ideal figure size. The mean perceived current cognitive figure for boys was 4.02 ($SD = 0.74$) and for girls was 4.04 ($SD = 0.80$). For current felt sizes boys

recorded a mean score of 4.10 (*SD* = 1.10) and girls a mean of 4.05 (*SD* = 1.13), whilst the mean ideal size for boys was 3.92 (*SD* = 0.91) and girls 3.73 (*SD* = 0.75).

2.2: Affective PBID

Affective PBID (the reported discrepancy between the child's reported current felt figure and their ideal size) was found to range from -3.50 to + 4.00, with 48% of children indicating a discrepancy of one size or greater between their felt and ideal size. This indicated that 15% (boys 18%; girls 13%) felt at least one size smaller than their ideal and 33% (boys 30%; girls 34%) felt at least one size larger than their ideal.

2.3: Cognitive PBID

Cognitive PBID (the measure of discrepancy between the child's perceived current cognitive figure and ideal size) was found to range from -2.00 to +4.00. Over 42% of children reported a cognitive discrepancy of at least one whole size in their perceived ideal and current figures; with 13% (boys 17%; girls 10%) indicating they thought they looked at least one size smaller than their ideal size whilst 30% (boys 25%; girls 33%) thought they looked at least one size larger.

2.4: Relationships between Affective and Cognitive PBID and physiological factors

As shown in Table 6.4 below, mean PBID was found to increase with increases in body mass. Furthermore, this table indicates that girls report higher mean levels of both affective and cognitive PBID than boys. As further shown in Table 6.4, both cognitive and affective PBID are greatest for those children who are classified as being overweight. However, at the same time, boys who are underweight report higher levels of both affective and cognitive PBID than girls. Conversely, normal and overweight girls report higher levels of affective and cognitive PBID than boys.

Table 6.4:

Means and standard deviations for cognitive and affective PBID by sex and BMI.

	Underweight		Normal Weight		Overweight		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Affective PBID								
Boys	.35	(.70)	.38	(1.1)	.60	(1.1)	.25	(1.1)
Girls	.08	(1.0)	.41	(0.9)	.72	(1.2)	.33	(1.1)
Cognitive PBID								
Boys	.19	(0.7)	.17	(0.7)	.54	(0.8)	.17	(0.8)
Girls	.08	(0.7)	.23	(0.6)	.96	(1.0)	.32	(0.8)

Pearson's product moment correlations indicated that the affective and cognitive measures of PBID were significantly and moderately correlated to each other (overall: $r = 0.54$, $p < .01$; boys: $r = .54$, $p < .01$; girls: $r = .55$, $p < .01$). A significant correlation was also noted between BMI and affective and cognitive PBID (*affective*: overall: $r = .27$, $p < .01$; boys: $r = .23$, $p < .01$; girls: $r = .30$, $p < .01$; *cognitive*: overall: $r = .42$, $p < .01$; boys: $r = .33$, $p < .01$, girls: $r = .51$, $p < .01$). A 2(sex) x 4(age) MANCOVA controlling for BMI, with cognitive and affective PBID as the dependent variables yielded significant multivariate effects for BMI [Wilk's lambda = .82, $F(2,462) = 44.84$, $p < .001$] and sex [Wilk's lambda = .98, $F(2,406) = 3.30$, $p < .05$]. Univariate analysis revealed BMI to have a significant effect on both cognitive PBID [$F(1,407) = 69.53$, $p < .001$] and affective PBID [$F(1,407) = 37.18$, $p < .001$]. Univariate analysis also indicated sex to have a significant effect on cognitive PBID [$F(1,407) = 6.60$, $p < .05$]. Neither multivariate interaction nor age effects were significant.

Section 3: Individual Difference Factors

The mean scores for reported individual difference factors are listed in Table 6.5 below.

Table 6.5:

Mean scores and standard deviations for reported self-esteem, extroversion neuroticism and psychoticism by sex.

	Boys n = 199		Girls n = 232		Total n = 431	
	M	*SD*	*M*	*SD*	*M*	*SD*
Self-esteem	60.18	(18.4)	61.74	(18.9)	61.02	(18.7)
Neuroticism	10.64	(4.0)	12.06	(4.1)	11.41	(4.1)
Extroversion	18.67	(3.4)	17.48	(3.6)	18.03	(3.6)
Psychoticism	4.53	(3.6)	2.40	(2.1)	3.39	(3.1)

As shown in Table 6.5, girls reported higher self-esteem and neuroticism scores, and lower extroversion and psychoticism scores than boys did.

3.1: Relationship between individual difference factors, BMI, sex and age.

A 2(sex) x 4(age) MANCOVA controlling for BMI with the variables neuroticism, psychoticism and extroversion as the dependent variables indicated that neither the multivariate interaction effect nor the multivariate effect for BMI were significant. The multivariate effect for age was found to be significant (Wilk's lambda = .90, $F = 4.75$, $p < .01$). Univariate analysis revealed age to have a significant effect on both extroversion ($F = 6.57$, $df = 3,407$, $p < .01$) and neuroticism ($F = 7.04$, $df = 3,407$, $p < .01$); each of these measures increasing with age (extroversion: (i) $M = 17.08$, $SD = 3.63$; (ii) $M = 17.74$, $SD = 3.7$; (iii) $M = 18.21$, $SD = 3.07$; (iv) $M = 19.17$, $SD = 3.75$; neuroticism: (i) $M = 10.38$, $SD = 3.96$; (ii) $M = 10.49$, $SD = 4.05$; (iii) $M =$

12.19, *SD* = 4.19; (iv) *M* = 12.74, *SD* = 3.92).

The multivariate effect for sex was also found to be significant (Wilk's lambda = .84, F = 25.50, p < .01). Univariate analysis revealed sex to have a significant effect on extroversion (F=13.66, df = 1.407, p < .01), neuroticism (F = 11.37, df = 1,406), p < .01) and psychoticism (F = 46.25, df = 1, 407, p < .01). As shown in Table 6.5, girls reported higher levels of neuroticism than boys, whilst boys reported higher levels of extraversion and psychoticism than girls.

A 2(sex) x 4(age) ANCOVA controlling for BMI, with self-esteem as the dependent variable indicated that there were no significant interaction, BMI, age nor sex effects on children's self-esteem scores.

3.2: Inter-relationships between individual difference factors

Although not directly related to the aims of this study, inter-correlations between the individual difference variables were also examined to better understand their status in this sample. Pearson's product-moment correlation analyses indicated that there were significant negative correlations between self-esteem and neuroticism (overall: r = -.42, p < .01; boys: r = -.41, p < .01; girls: r = -.45, p < .01) and psychoticism (overall: r = -.26, p < .001; boys: r = -.26, p < .01; girls: r = -.27, p < .01) and positive correlations between self-esteem and extroversion (overall: r = .26, p < .01; boys: r = .26, p < .01; girls: r = .27, p < .01). Significant correlations were also found between psychoticism and neuroticism (overall: r = .11, p < .05; boys: r = 08, p > .05; girls: r = .32, p < .01) and psychoticism and extroversion (overall: r = .16, p < .01; boys: r = .11, p > .05; girls: r = 12, p < .01). There were no significant correlations found between neuroticism and extroversion.

3.3: Relationship between Individual Difference Factors and PBID

Given that PBID has been reported to be significantly correlated with individual

difference factors for older adolescent/young adults, in particular self-esteem and neuroticism, further analysis was conducted to examine these relationships in the present sample. Given the previous significant differences found between boys' and girls' reported cognitive PBID scores, these correlations were also conducted separately for each sex.

Table 6.6:

Pearson's correlations for Individual Difference Factors and PBID by sex.

	Extroversion	Neuroticism	Psychoticism	Self-Esteem
Affective PBID				
Boys	-.11	.23**	.13	-.27**
girls	-.04	.04	.09	-.17*
total	-.07	.12*	.11*	-.22**
Cognitive PBID				
boys	-.13	.16*	.02	-.19**
girls	-.04	-.03	.06	-.09
total	-.09	.06	.02	-.13**

Note: * p<.05; ** p<.01; *** p<.001.

As shown in Table 6.6 above, Pearson's product-moment coefficients indicated that there were significant negative correlations between affective PBID and self-esteem for both girls and boys, and between self-esteem and cognitive PBID for boys only. Also for boys, neuroticism was found to have a significant small positive correlation with affective PBID. Extroversion and psychoticism were not found to be correlated with either measure of PBID for either sex.

Section 4: Contextual and Relationship factors

4.1: Perceived Parental/Peer evaluation

The first contextual factor to be considered was perceived evaluation by parents

and peers. Table 6.7 below details the percentage of children who reported that their parents and/or friends thought they were either "too fat", "just right" or "too thin".

As shown in Table 6.7, boys were more likely to perceive both of their parents as thinking they were too fat compared to girls. Interestingly, whilst perceived evaluation of being too fat by friends was comparable to perceived parents' evaluation for boys, for girls the number who reported perceived evaluation by friends as being too fat was found to be quite a bit higher than perceived parents' evaluation. Conversely, for both sexes ratings of being too thin were higher for parents than peers.

Table 6.7:

Perceived parental/peer body size evaluation by sex.

	Too Fat		Just Right		Too Thin	
	%	n	%	n	%	n
Mother						
boys	6.5	(13)	77.9	(155)	15.6	(31)
girls	3.9	(9)	80.1	(185)	16.0	(37)
overall	5.1	(22)	79.1	(341)	15.6	(68)
Father						
boys	7.7	(15)	78.1	(153)	14.3	(28)
girls	3.1	(7)	82.4	(187)	14.5	(28)
overall	4.9	(21)	81.0	(349)	14.2	(61)
Friends						
boys	8.5	(17)	82.9	(165)	8.5	(17)
girls	8.7	(20)	81.7	(188)	9.6	(22)
overall	8.8	(38)	83.1	(358)	8.8	(38)

A composite score of perceived evaluation (mother + father + friend), indicated that 67% (n=290) of children perceived that both their parents and friends thought they were "just right", whilst 33% (n = 141) believed their parents and/or friends thought they were either "too fat" or "too thin".

4.2: Teasing

The second contextual factor to be considered was children's reported teasing by their parents and their friends. An examination of the children's report of teasing indicated that they were called a variety of names associated with their physical weight. These names ranged from skinny bones and spaghetti sticks through to fatso, pig and pumba. For a detailed listing of teasing nomenclature and frequencies see Appendix L. Table 6.8 below indicates the proportion of boys and girls who reported being teased by their parents and/or friends about their weight.

Table 6.8:

Percentage of children reporting being of teased by parents and friends about their weight by sex.

	Teasing					
	Boys n = 199		Girls n = 232		Total n = 431	
	n	%	n	%	n	%
Mother	(11)	5.5	(10)	4.3	(22)	5.1
Father	(15)	7.5	(12)	5.2	(27)	6.3
Friends	(25)	12.6	(17)	7.3	(42)	9.7
Overall	(34)	17.1	(32)	13.8	(66)	15.3

As shown in Table 6.8 above, friends were reported to be the greatest perpetrators of teasing followed by fathers then mothers. A higher percentage of boys reported being teased about their weight compared to girls. Overall, 15.3% of children

experienced some teasing about their weight.

4.3: Family Functioning

The third socialisation factor to be examined was that of children's perceived family functioning. The diagrams depicting the dynamics of family functioning indicated that 65% of children perceived their family structure to be cohesive (boys 57%; girls 72%), whilst 35% indicated their family structure to be conflictual (boys 43%, girls 28%) (12% divided, 10% parent coalition, 3% isolated child, 10% enmeshed).

4.4: Inter-relationships between contextual factors.

Pearson's correlation analysis indicated that the constructs of teasing and perceived evaluation were significantly correlated for both boys and girls (boys: $r = .29$, $p < .01$; girls: $r = .38$, $p < .01$). This relationship indicating that there was a level of congruency between how the children perceived significant others evaluated their bodies and their external experiences. Family environment was also found to be significantly correlated with perceived evaluation for girls ($r = .14$, $p < .05$), such that those girls from conflictual family environments more frequently perceived themselves as being evaluated as too fat or too thin by significant others. No other significant correlations were found between these three constructs.

4.5: Relationships between contextual factors and PBID.

Given the strong indications of significant and predictive relationships between socialisation/contextual factors within the literature, Pearson's product moment correlations were calculated between affective and cognitive PBID and the contextual factors (teasing, perceived evaluation and family type) measured in this study.

As shown in Table 6.9 below, both teasing and perceived evaluation were found to be significantly correlated with affective and cognitive measures of PBID for boys.

Perceived evaluation was also found to be significantly correlated with both measures of PBID for girls, however for girls teasing was only significantly correlated with cognitive PBID. Correlations between socialisation/contextual factors and dimensions of PBID were also found to be consistently higher for boys compared to girls. No significant relationships were found between family types and either measure of PBID for boys or girls.

Table 6.9:

Pearson's correlations for PBID and socialisation/contextual factors (teasing, perceived evaluation and family type) by sex.

	Teasing	Evaluation	Family
Cognitive PBID			
girls	.16*	.23**	.01
boys	.30**	.25**	.05
total	.22**	.24**	.02
Affective PBID			
girls	.10	.16*	.03
boys	.32**	.30**	.05
total	.22**	.22**	.04

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

Section 5: Individual differences and contextual factors as predictors of PBID

As reported, both individual difference factors and contextual factors were found to be significantly correlated with PBID, albeit in differing configurations depending upon sex and component of PBID being considered. Further analysis to examine the specific contribution of these factors to the prediction of PBID was conducted using a series of hierarchical multiple regressions. Hierarchical multiple

regression was used firstly, to control for differences in PBID due to actual BMI, and secondly to examine how much, if any, unique contribution each of the predictor variables made to the equation.

5.1: Prediction of perceived affective PBID

A series of hierarchical regression analysis (i.e., one for each sex), entering BMI first, followed by each of the other individual difference and contextual factors, in order of their correlational size with affective PBID (i.e., self-esteem, perceived evaluation then teasing), was found to significantly predict 8% of the variance for girls', and 18% of the variance in boys' affective PBID scores (Refer Table 6.10 below). Whilst BMI was found to significantly predict 4% of the variance in girls affective PBID, it was not found to be a significant predictor of boys'

Table 6.10

Prediction of affective PBID scores by BMI, teasing, perceived evaluation and self-esteem, for girls and boys.

Step	Predictors	adj R^2	F	Change in R^2	Change F	β
Girls						
1	BMI	0.04**	10.78			0.22**
2	self-esteem	0.07**	9.82	0.04**	8.49	- 0.19**
3	evaluation	0.08*	7.47	0.01	2.62	0.11
4	teasing	0.08*	5.88	0.00	1.12	0.07
Boys						
1	BMI	0.01	1.98			0.10*
2	teasing	0.10**	11.41	0.10**	20.63	0.31**
3	evaluation	0.14**	11.71	0.05**	11.11	0.24*
4	self-esteem	0.18**	11.72	0.04**	10.04	- 0.22

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

As shown in Table 6.10, self-esteem explained a further 3% of the variance to

girls', and 4% of the variance in boys' affective PBID. Teasing and perceived evaluation were also found to be significant predictors of affective PBID for boys, uniquely contributing 10% and 5% respectively to the explained variance. In contrast these two socialisation/contextual factors were not found to be significant predictors of girls' affective PBID.

5.2: Prediction of cognitive PBID

Two hierarchical regression analyses (i.e., one for boys and one for girls), to examine how much variance in cognitive PBID scores was accounted for by the predictor variables found to be significantly correlated with this construct (i.e., self-esteem, perceived evaluation and teasing), were run. As for the previous analyses, BMI was entered first, followed by perceived evaluation then teasing, and for boys, self-esteem. These variables were found to significantly predict 19% of the variance in girls', and 11% of the variance in boys' cognitive PBID (refer Table 6.11 below).

Table 6.11:

Prediction of cognitive PBID scores by BMI, perceived evaluation and teasing, for girls and boys.

Step	Predictors	adj R^2	F	Change in R^2	Change F	β
Girls						
1	BMI	0.12**	32.65			0.36**
2	evaluation	0.18**	25.58**	0.06**	16.27	0.25**
3	teasing	0.19**	18.29	0.01	3.21	0.12
Boys						
1	BMI	0.02*	5.24			0.16*
2	teasing	0.07*	8.69	0.06**	11.84	0.24**
3	evaluation	0.10**	8.12	0.03*	6.48	0.18*
4	self-esteem	0.11*	7.04	0.02	3.49	- 0.13

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

As shown in Table 6.11 above, BMI accounted for 12% of the variance in girls', and 2% of the variance in boys' cognitive PBID scores. Perceived evaluation added a further 6% to girls', and 5% to boys' cognitive PBID. Whilst teasing was also found to be a significant predictor of boys' cognitive PBID, contributing 5% to the explained variance, it was not found to be significant for girls'. Self-esteem also failed to contribute significantly to the equation for boys.

Section 6: PBID and REB

6.1: REB as measured by the ChEAT

Dieting behaviours as measured by the ChEAT indicated that the "pathological avoidance of fattening foods" reported by the children in this study ranged from a score of 0 through to 26 ($M = 5.52$, $SD = 5.21$, n = 431), with the maximum possible score being 39. Five percent of the sample scored greater than two standard deviations above the mean (n = 22), with 3% scoring outside the total normative range (n = 13).

Table 6.12

Frequency of reported ChEAT scores by sex and BMI.

		Boys		Girls	
BMI group	n	*M*	*SD*	*M*	*SD*
Underweight	102	3.70	(3.7)	4.45	(4.3)
Normal weight	224	4.90	(4.6)	5.26	(5.0)
Overweight	90	6.99	(6.0)	8.68	(6.2)
Total	416	5.12	(4.9)	5.86	(5.4)

As shown in Table 6.12, children's reported REB as measured by the ChEAT were found to increase with increases in actual body mass. At the same time girls were found to consistently report higher levels of REB than boys.

Given that REB are predicted to be more likely in females, and to be associated with age and actual body weight, further analysis was conducted to determine the effects of these variables on reported ChEAT scores. A 2(sex) x 4(age) ANCOVA controlling for BMI, with ChEAT scores as the dependant variable indicated that BMI was a significant covariate of dieting behaviours [$F(1,407) = 42.36$, $p < .001$], with heavier weight children reporting higher ChEAT scores than normal and underweight children (Underweight: $M = 4.16$, $SD = 4.11$; Normal weight: $M = 5.07$, $SD = 4.8$; Overweight: $M = 7.94$, $SD = 6.1$). A main effect was also found for sex [$F(1,407) = 4.12$, $p < .05$], with girls recording significantly higher ChEAT scores than boys. There were no significant main effects found for age on ChEAT scores, nor were there any significant interaction effects found.

6.2: Parental modelling of dieting

Children's reports of parental modelling of dieting behaviours indicated that dieting was an observed parental behaviour for over 59% of children, with 55% of boys and 63% of girls reporting that their parents dieted.

Table 6.13

Parental modelling of dieting behaviour by sex.

	Dieting Frequency					
	never	%	sometimes	%	always	%
Mother Diets						
Boys	105	(53)	85	(43)	9	(5)
Girls	97	(42)	119	(51)	16	(7)
Total	202	(47)	204	(47)	25	(6)
Father Diets						
Boys	140	(70)	52	(26)	7	(4)
Girls	149	(64)	67	(29)	16	(7)
Total	289	(67)	119	(28)	23	(5)

As shown in Table 6.13 above, parental modelling of dieting behaviours was more frequently reported for mothers than for fathers. Similarly, girls were more likely to be aware of, and report, both parents as engaging in dieting behaviours than boys.

6.3: Relationships between PBID, individual difference and contextual factors and REB.

Given that PBID (particularly that of being too fat) has been considered to be strongly associated with dieting behaviours, further analysis was conducted to examine the relationships between REB and PBID. Furthermore, in consideration of the literature that indicates that parents are believed to be strong role models for their children's subsequent behaviours and that low self-esteem predicts dysfunctional behaviour such as dieting, these variables were also included in the analysis. Table 6.14 below provides Pearson's product moment correlations for PBID, parental modelling of dieting behaviours, self-esteem, BMI with ChEAT scores.

Table 6.14:

Pearson's correlations for ChEAT scores, parental modelling behaviours, self-esteem, BMI and PBID by sex.

	Cognitive PBID	Affective PBID	Self-esteem	Modelling	BMI
ChEAT					
boys	.22**	.19**	-.11	.07	.26**
girls	.28**	.05	-.14*	.17**	.35**
total	.26**	.11*	-.12*	.13**	.30**

Notes: (1) * = $p < .05$; ** = $p < .001$

As shown in Table 6.14, correlations between proposed predictor variables and REB as measured by the ChEAT varied as a function of sex. For girls, there were significant correlations found between ChEAT scores and BMI, cognitive PBID,

parental modelling of dieting behaviours and self-esteem. For boys, ChEAT scores were found to be significantly correlated with BMI and both affective and cognitive PBID, but not with parental modelling of dieting or self-esteem.

A series of hierarchical regression analyses (one for each sex), entering BMI first, followed by those variables found to be significantly correlated with the dependent variable; ranked in order from highest to lowest (i.e., cognitive PBID, parental modelling of dieting behaviours and then self-esteem), with ChEAT scores as the dependent variable were conducted. These analyses indicated that these factors significantly predicted 16% of the variance in girls', and 8% of the variance in boys' ChEAT scores. As shown in Table 6.15 below, BMI uniquely accounted for 12% of the variance in ChEAT scores for girls, and 6% of the variance in ChEAT scores for boys.

Table 6.15

Prediction of REB by BMI, cognitive PBID, parental modelling of dieting behaviours and self-esteem for both girls and boys.

Step	Predictors	adj R^2	F	Change in R^2	Change F	β
Girls						
1	BMI	0.12**	30.52			0.35**
2	cognitive PBID	0.14**	17.71	0.02*	4.43	0.15*
3	modelling	0.16**	14.01	0.02*	5.84	0.14*
4	self-esteem	0.18**	11.67	0.02*	4.04	- 0.12*
Boys						
1	BMI	0.06**	13.91			0.26**
2	cognitive PBID	0.07**	8.51	0.01	2.95	0.13
3	affective PBID	0.08**	6.61	0.01	2.66	0.13

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

As further shown in Table 6.15 (above), each of cognitive PBID, parental

modelling of dieting behaviours and self-esteem were found to uniquely add a further 2% to the explained variance in REB for girls. However, none of these psychosocial/contextual factors were found to uniquely contribute to explaining variance in boys' ChEAT scores.

Discussion

The purpose of Study One was to investigate the potential genesis of PBID and REB in childhood. The study was also designed to explore the predictive strength of physiological, individual difference and contextual factors in explaining the variance in PBID for children. Furthermore, Study One was designed to examine the validity of reported REB in middle childhood, and the proposed relationship between this behaviour and PBID, as well as other biopsychosocial variables (i.e., role modelling, self-esteem, BMI).

Genesis of PBID

The findings of this study confirm previous reports (e.g Collins, 1991; Maloney et al., 1989; Rolland et al., 1997), that have suggested that PBID is an intrinsic aspect of many pre-adolescent children's lives. As with previous research (Collins, 1991; Hill & Pallin, 1998), almost 50% of the children in this study reported a high level of PBID. This level of dissatisfaction is comparative to that also found within the adolescent literature (e.g., Kostanski & Gullone, 1998; Maude et al., 1993; Paxton et al., 1991), and suggests that PBID may also be considered a normative condition of life for children.

Although, based on previous research (e.g., Rolland et al., 1997; Thelen et al., 1992), it was expected that evidence of this construct would emerge between the ages of eight and nine years, the findings of this study did not indicate any such specific timeframe. In contrast, age was not found to be a significant factor in explaining

differences in children's reported levels of either facet of PBID (i.e., affective & cognitive). Indeed, as proposed by Collins (1991), the children in grade two (age 7) reported just as frequent and strong indications of dissatisfaction as those in grade 4 (age 10). As such it would appear that this comparative evaluation of one's body in relation to an idealised norm does not surreptitiously manifest itself at a particular age nearing puberty. Rather this comparative disposition is present within the child's schema of self from a much earlier period of development than has previously been suspected.

As suggested by Davis (1996), PBID may not only comprise an attitudinal state fluidly evolving from socio-cultural pressures to conform to particular ideals at specific ages, but may also comprise a relatively fixed component. Perhaps it is possible that what one witnesses in these middle childhood aged children is primarily this proposed relatively fixed component. This relatively fixed component arising out of an, as yet unspecified, individual differences disposition. However, whether there is a component of PBID that is intrinsic to the individual cannot be ascertained without further extensive research of the structure of the construct. Furthermore, the question of whether PBID is fixed or fluid, or a combination of both, can only be answered by prospectively exploring the questioned continuity of this construct into later childhood and adolescence.

Structure of relationships between PBID and other biopsychosocial factors

The findings of this study have indicated that there are several physiological, individual difference and social/contextual factors that can be identified as significant correlates of PBID, even if only explaining a small component of variance at this young age. The findings further highlight that PBID is bi-dimensional, with the differentiation noted by Tiggemann (1996), and others (i.e., Thompson & Dolce, 1989, Thompson &

Psalitis, 1988), between psychosocial predictors and affective and cognitive components of PBID being reinforced in this study. That is, individual difference factors (i.e., self-esteem) were found to be more strongly aligned with the affective dimension of PBID, whereas socialisation/contextual factors were found to be more aligned with the cognitive dimension of PBID. Moreover, these differences were also found to vary dependent on sex.

Physiological predictors

The predicted relationship between BMI and PBID was found to be evident, with overweight children having higher mean levels of PBID than normal or underweight children. However, this relationship between the two factors was not as pronounced for boys as it is for girls. For example, within the current study, regression analyses indicated that for girls, BMI was a significant and unique predictor of both affective and cognitive PBID, explaining 5% and 13% respectively. In contrast, for boys, BMI was not found to be predictive of affective PBID, although it did contribute a small amount to the explained variance (i.e., 3%) for cognitive PBID.

The data also indicated that girls who were identified as being overweight reported significantly higher levels of both affective and cognitive PBID than boys who were identified as being overweight. Conversely, boys who were identified as being underweight reported significantly higher levels of both affective and cognitive PBID than girls who were identified as being underweight. Such findings support the proposal that, in focusing only on that dimension of PBID associated with being too fat, early researchers have been remise in overlooking the presence of PBID for males (e.g., Kenny & Adams, 1994). Furthermore, the indications of BMI being less important in explaining boys' overall PBID than girls', suggests that, as proposed by McCreary and Sasse (2000), there are other more pertinent factors than fat distribution influencing

how boys perceive themselves. That is, for males, their primary physical concern is with being more bulky and muscular.

Whereas recent research (e.g., Abell & Richards, 1996; Drewnowski & Yee, 1987; Kostanski & Gullone, 1998; Muth & Cash, 1997), has highlighted that males are concerned as much with being underweight as with being obese, in general this research itself has not questioned the potential differentiation of this aspect of PBID. That is, consideration has not been given to the underlying structure of this PBID being distinct from that which has already been identified in association with what is considered normative for girls. However, as noted by Paxton et al. (1991), their research indicated that for boys, bigness as distinct from fatness was considered to be a positive factor. Furthermore, as more recently suggested by McCreary and Sasse (2000), the "drive for muscularity" amongst boys is conceptually distinct from, rather than merely the opposite to, girls' "drive for thinness". Therefore, it would appear that research investigating the intrinsic meaning of this aspect of PBID for boys is required prior to any conclusive arguments being drawn in regard to this current finding. However, what is clear from the current study is that PBID is evident is that BMI does play a significant role in the manifestation of this construct, particularly for girls. Furthermore, the manifestation of affective and cognitive PBID varies dependant on both the sex and weight of the child.

Psychosocial Predictors

As with BMI, the predictive value of both individual difference and contextual factors in explaining the variance in children's reported PBID was found to be differentially associated with the two components of PBID, dependent on sex. For girls, in addition to BMI, self-esteem was found to be predictive of affective PBID and perceived evaluation was found to be predictive of cognitive PBID. For boys, self-

esteem, teasing and perceived evaluation but not BMI were predictive of affective PBID, whilst in addition to BMI, teasing and perceived evaluation were predictive of cognitive PBID. These findings further confirm the affective/cognitive dichotomy inherent in the measurement of this construct. They also strongly support the aforementioned notion, previously identified by Paxton (1996), and others (i.e., Keel et al., 1997, McCreary & Sasse, 2000), that the issues associated with PBID are conceptually different for each of the sexes.

Individual Differences

In contrast to previous research within older adolescent and adult populations (i.e., Brookings & Wilson, 1994; Davis et al., 1991, 1993, 1997), the importance of personality traits, such as neuroticism, in predicting PBID in children was not observed in this study. One possibility for this lack of relationship may be that the constructs being measured were too specific. As noted by Shiner (1998), whilst structural models of personality traits (i.e., Costa & McCrae, 1985; Eysenck & Eysenck, 1975), would suggest that the construct is static, this is a false assumption when it comes to considering children. Shiner argues that the individual differences noted in middle childhood have not yet been adequately addressed or fully realised into a comprehensive taxonomy of the child's evolving individuality or predisposition to engage in particular ways with their environment. Further, she states that at this early stage of development, it is potentially the identification of "lower order traits" or behavioural dispositions that are more likely to differentiate children. Therefore, although the EPQ has been found to be a psychometrically sound instrument for measuring higher order traits, it may be too crude a measure for depicting less refined childhood psychosocial relationships, such as with PBID. Alternatively, the indications of self-esteem being predictive of affective PBID for both girls and boys in this study,

and the strong inter-correlations noted between self-esteem, neuroticism and extroversion (e.g., Francis, 1997), may suggest that any unique variance which was to be offered by these higher order traits may have been subsumed within the predictive power of self-esteem.

As identified within this study, the relationship between affective PBID and self-esteem is evident for both girls and boys. This finding contrasts with previous research (i.e., Silberstein et al., 1988; Tiggemann, 1992; Tiggemann & Wilson-Barrett, 1998), which has found that self-esteem was only correlated with PBID for boys. However, it is also possible that this contradictory evidence of self-esteem being associated with PBID for girls is, as noted in Chapter Five, due to variation in measures used in this study in comparison to previous research (Tiggemann, 1996). Furthermore, as noted in Chapter Five, the research related to exploring the relationship between these two constructs remains equivocal. Therefore, whereas it conceptually makes sense that self-esteem would be associated with the affective component of PBID, these current findings do not provide any further conclusive evidence of this relationship being any more than that proposed by Berschied et al., (1973). That is, that high self-esteem and positive body image are non-causally related, with the groundwork for both factors being set much earlier in life

Socialisation/contextual factors

That socialisation/contextual factors impact on children's internalised perceptions of their self, and leave them vulnerable to developing a heightened level of dissatisfaction with their physical body (Oliver & Thelen, 1996, Thelen & Cormier, 1995; Tienboon et al, 1994; Paxton et al., 1999), was supported in this study. Specifically, the findings of Study One have supported Pierce and Wardle's (1993), proposal that for both boys and girls, perceptions of others' approval of their physical

size is important to how they perceive themselves. That is, perceived evaluation by significant others was found to uniquely contribute to both boys' affective and cognitive PBID, and to girls cognitive PBID. These findings also reinforce the argument proffered by others (e.g., Hughes et al., 1999; Tiedman, 2000; Wertheim et al., 1999), that it is important that the messages being transmitted to children, particularly through parents, are premised in affirmation of perceived positive attributes, rather than focusing on negatives.

In contrast, although previous literature (i.e., Cash, 1995; Thompson, et al., 1995), has shown that for older females, retrospective accounts of being teased about one's weight, and teasing history, predict PBID, the expected impact of teasing on girls' reported PBID was not found in this study. Conversely, for pre-adolescent boys, being teased about one's weight was a found to be predictor of both affective and cognitive PBID.

Whilst both boys and girls reported similar levels of teasing about their weight by friends, for boys reported teasing by parents was slightly higher than for girls. However, whether parents actually tease boys more than girls, or whether boys are more sensitive to recalling being teased than girls cannot be answered at this stage. It may be that at this young age, the impact of parental teasing is more pertinent to the boy's evolving self-esteem, than for girls.

As noted in the literature, parents' do hold stereotypical attitudes towards their children (Andre et al., 1999). Previous research has also shown that these attitudes are very much aligned with the expectation that boys will be strong and robust, whilst girls are more passive and fragile (Karraker et al., 1995). Therefore, the manner in which parents tease their children may be different, with teasing of girls being more friendly and cutely based, whereas for boys it may be more derogatory and dismissive (Hughes

et al., 1999). Furthermore, as noted by Rowe (1991), not all teasing is intended to, nor taken to be malicious. Therefore, it may be possible that those boys who report teasing are in fact being more maliciously teased than other boys and girls in general, or conversely it may be that they are more vulnerable to such social interaction.

Unfortunately, any rationalisation of the findings of the current study, in particular the lack of association between teasing and PBID for girls, in relation to previous research within adolescent and adult populations (i.e., Cash, 1995; Wertheim et al., 1997; Thompson et al., 1995), can only be speculative. Indeed, it may be that what these older populations have identified is, as proposed in Chapter Four, that their retrospective account of interpersonal relationships is strongly affected by their current psychological status. That it is those females who are feeling negative about themselves that are more prone to recall negative events.

Given the lack of research in relation to this issue with boys, it is not possible to extrapolate further on their situation without additional research being conducted. Indeed, many of the currently identified issues can only be addressed through a more extensive evaluation of the frequency, nature and importance of teasing in childhood. Similarly, whether the effect of teasing on girls' self-esteem and PBID intensifies in later years can only be assessed through longitudinal studies. However, the current findings do provide support for the argument put forward by others (i.e., Benedikt et al., 1998; Wertheim et al., 1999), that parental communication and perceived evaluation play a significant role in the psychosocial development of the child.

Interestingly, although the literature has indicated that a supportive family environment is important to the psychosocial development of the child (Deci & Ryan 1995, Ryan & Grolnik, 1984), this factor was not found to be important in predicting PBID for either sex. However, the instrument used to examine family environment

within this study, although reported in previous work (i.e., Cooper et al., 1983), to have good psychometric properties, was extremely simplistic. This simplicity of design, which limited the evaluation of family environment to a dichotomous variable of cohesion versus conflict, may have restricted findings. As noted by others (i.e., Achenbach, 1991; Ollendick & Hersen, 1984), in relation to the validity and reliability of measurement of a construct, without the use of multiple measures and/or informants, the results of any such research remain speculative.

Summary

The results of the present study indicate that the identified physiological, individual difference and contextual/socialisation factors chosen, either separately or in combination, explain a small but significant component of the children's reported PBID status. Which, if any, other factors are pertinent to the evolution of PBID in childhood remains to be identified. Similarly, whether PBID is stable across childhood and into adolescence remains unknown. What this study has shown however, is that from the age of seven years, as proposed by Collins (1991), children have already developed gender based ideologies regarding ideal figure types and have begun to evaluate themselves accordingly. Furthermore, the findings indicate that the dimensions of PBID are differentially associated with biopsychosocial factors, dependent on sex; BMI and self-esteem being more pertinent to girls' perceptions of their bodies, whereas teasing and perceived evaluation are more pertinent to boys'. This difference between the sexes reinforcing the proposed structural dichotomy between girls' and boys' ways of emotionally interacting with the world, such that girls are more likely to internalise and subjectively engage with their world, whilst boys are more likely to externalise and be more objective (Fiengold, 1994).

Restrictive Eating Behaviours

The findings of this study have confirmed that children intentionally engage in REB as a means of altering their body size and weight. As with previous studies (i.e., Hill et al., 1992; Maloney et al., 1989; Rolland et al., 1997), dieting was found to be evident for children, with over 20% of the sample reporting that they engaged in REB. An investigation of the children's social knowledge regarding dieting indicated that they had a wide and not inappropriate knowledge of what the construct meant in terms of intent and action. Actual reported dieting behaviours suggested that all of those children who reported that they engaged in dieting, consciously knew what they were doing. Moreover, apart from two underweight children who reported intentionally increasing their food intake, the children who dieted engaged in a broad spectrum of restrictive eating practices with the intent of losing weight.

The children's self reported dieting behaviours serve to negate questions regarding children's accurate understanding of the concept (e.g., Collins, 1991; Maloney et al., 1989). Furthermore, they provide validation for the empirical measurement of this construct. The findings of this study suggest that children who score extremely high on the ChEAT are not, as proposed by others (Rolland et al., 1997; Thelen et al., 1992), being naive (Refer Appendix M for a detailed account of the validation of children's REB). Rather the findings indicate that children are actively attempting to modify their eating behaviours, suggesting that educational programs aimed at encouraging healthy eating are working.

As with PBID, age was not found to be a relevant factor in determining onset or degree of REB for this sample of children. However, as with previous studies (i.e., Thelen et al., 1992), girls were found to report significantly higher levels of REB than boys. The expected relationship between BMI and REB (e.g., Rolland et al., 1997),

was also found to be significant. In fact, in the current sample, BMI was the only significant predictor of reported REB for boys. This finding is in contrast to previous research (i.e., Keel et al., 1997), which did not find significant predictive relationships between these two construct, either concurrently or prospectively, for boys. However, the boys in their study were several years older than the current sample (i.e., 12 years of age). Given the variance in structure of REB found in adolescent samples (Attie & Brooks-Gunn, 1989, Keel et al., 1997), may also suggest that this could also be expected for young children. As such, BMI may become more predominant for boys as they age. However, the findings do indicate that for young boys, the act of engaging in REB is a more objectively than subjectively motivated behaviour.

The predicted relationship expected between reported PBID and REB (i.e., Attie & Brooks-Gunn, 1989; Cattarin & Thompson, 1994; Killen et al., 1994), was evident for girls. However, the strength of this relationship was in contrast to strong relationships reported between PBID and dysfunctional eating behaviours in adolescent populations (Attie & Brooks-Gunn, 1989; Garner et al., 1980; Huon, 1994; Paxton et al; 1991), with only the dimension of cognitive PBID uniquely contributing 2% to the explained variance. As noted by Gravetter and Wallnau (2000), such small variances may as easily be due to Type 1 errors inherent in such analyses, as to being a true indication of a strong predictive relationship. Moreover, in contrast to the research with older adolescent females (Attie & Brooks-Gunn, 1989; Stice et al., 1998), where concurrently, PBID was found to be a much stronger predictor than BMI of girls' disordered eating behaviours, BMI was a much stronger predictor than PBID for young girls' REB.

The relationship between girls' reported dieting behaviour and their parents' was found to be significant, suggesting support for parental modelling of behaviours

offering some explanatory role to children's dieting behaviours (Stice et al., 1999). However, as with PBID, parental role modelling of dieting behaviours was found to predict only a small amount of the variance in girls' REB. Moreover, the impact of individual difference factors (e.g., self-esteem), identified as being pertinent to dieting in young adolescent female populations (Button et al.,1997; Hill & Pallin, 1998), also appear to only just be beginning to manifest in their importance for children. This construct uniquely predicting only 2% to the variance as well.

As with boys, therefore, it would appear that in middle childhood, girls' REB are not primarily premised on one's perceptions of self in relation to an idealised cultural norm. Rather, actual physical size was identified as the predominant motivating force of dieting for both sexes in this study.

Summary

Identified reports of REB in middle childhood appear valid. Overall, only a small amount of variance in REB was predicted via current identified predisposing factors. Importantly, this small amount of explained variance was primarily associated with actual body size, rather than other expected variables, such as PBID. Therefore, in contrast to previous proposals (i.e., Hill, 1993; Hill & Silver, 1995; Rolland et al., 1997), that the manifestation of REB within childhood is a response to "perceiving oneself as being too fat", or potentially a "naive modelling of behaviours", it would seem that at this young age, REB are a response to social and educational pressures to focus on "healthy" eating behaviours and increased awareness of nutritional standards and expectations (i.e., low fat diets, increased fibre, reduced take away, etc.), as well as actual fatness. As with previous studies, the prevalence and intensity of dieting was found to be higher for girls. Moreover, psychosocial factors were also beginning to manifest as significant predictors of girls' REB. However this was not the case for

boys.

Limitations and implications of the current study

The findings of the current study, that PBID is curvilinear, serve to reinforce the importance of Muth and Cash's (1997), argument that researchers need to become more cognisant of, and open to, reporting the potential limitations inherent in their particular methodological approach to evaluation and analysis of this construct. In particular, it is necessary to acknowledge that whilst the current study has been adapted to include both under and overweight PBID in the analyses, this method has also limited been limited to measurement of the dichotomy of either perceived thinness or fatness. Such limits restrict the opportunity to explore other intrinsic factors that may be associated with these two alternative aspects of PBID, such as the "drive for muscularity".

Furthermore, the study is premised upon identifying PBID as both an affective and cognitive component of the child's schematic representations of self. However, the current study has predominantly utilised literature related to the adolescent female for establishing an understanding of the structural framework of PBID in childhood. This premise has not accounted for the potentiality that the underlying conceptualisation of the self and one's representations of their body may be based upon different intrinsic meanings for children compared to adolescents (Ewell, Smith, Karmel & Hart, 1996). Therefore, whilst the individual difference and socialisation/contextual factors utilised to examine the structure of PBID in this study may be pertinent for adolescents, other factors could be more salient to children. Further research examining the meaning of PBID for children is required.

The reliance on cross-sectional analysis of data to examine the etiology of a construct is limited (Smolak, 1996). As such, whilst the findings of the current research have offered some indications of potential antecedent factors which may contribute to

the ongoing reinforcement of PBID, both affectively and cognitively, in childhood, they do not provide any understanding of the actual genesis, nor stability of this construct. Given that there were no age effects found in this study, suggests that to further understand the nature, cause and etiology of PBID (Fairburn & Belgin, 1990), research examining the potential manifestation of PBID within earlier age groups than have currently been addressed is needed. Prospective examination of the continuity/discontinuity of PBID across middle childhood into adolescence is also required.

Furthermore, as noted previously, the relevance to, and context of, teasing for children in this study has not been explored. The construct of teasing within the current study was premised upon the assumption that this form of verbal commentary is automatically internalised negatively. However, it is also possible that for some children teasing is an important and playful component of their relationship with their parents. As such, future research evaluating the context and salience of teasing for children is also required.

Conclusions

The findings of this study suggest that although PBID is highly prevalent within the middle childhood period, it remains rather benign at this young age. Indeed, although there have been strong indications of the links between PBID and dieting behaviours in adolescents, there is seemingly little evidence of such links in children. Indeed, it was those children who were identified as being overweight who appeared to be of most concern in regard to developing dysfunctional eating behaviours.

Moreover, the findings also indicate that the expected relationships between identified socialisation/contextual and individual difference factors with PBID were only minimal. As such, these factors were limited in offering conclusive support to any

one identified theoretical approach (i.e., individual difference, pubertal/adolescent development, social learning), as being tangential to the development of PBID in childhood. Whether other factors associated with any of these theoretical paradigms may influence the onset or structural composition of PBID in children remains unanswered.

As noted previously, further research, utilising an instrument which evaluates lower order traits and behavioural dispositions in children, to explore the relationship between children's PBID and individual differences needs to be conducted. Similarly, further research in relation to family environment factors and PBID in childhood is recommended. Moreover, evaluation of the conceptual meaning of PBID, especially for males (McCreary & Sasse, 2000), in order to clarify the intrinsic meaning of this construct for children in comparison to adolescents (Ewell et al., 1996; Montemayor & Eisen, 1977), is required.

Aside from those children who were identified as being overweight, the REB reported by children in this study, maybe, as noted by Hill (1993), just a fad or short lived craze fostered by heightened social pressures to adopt healthy eating practices, or observation of parental behaviours. The poor relationship between identified psychosocial factors, PBID and REB found in this study, indicates the development of preventative programs that address the incongruity of PBID within a social context as an intervention strategy to reduce dieting, would be of very little value to children. Fundamentally, whether the observed PBID and REB noted in this study are of concern to children as they enter puberty and adolescence can only be determined through further prospective analyses, examining the continuity or discontinuity of these constructs. Moreover, whether the structure of PBID remains fixed or more fluid as children age can also only be understood by further research, examining the structure of

this construct concurrently at differing ages.

Chapter 7

Study Two:

An examination of the continuity/discontinuity of PBID and REB in childhood

As noted in Study One, in order to understand whether the observed presence of PBID in middle childhood does become more salient to children's psychosocial development as they mature into adolescence requires further examination. This research needs to include not only an ongoing assessment of the structural development of this construct, but also the potential stability of PBID over time. However, as with the majority of research regarding adolescents, to date, the literature on PBID in childhood has been restricted to cross-sectional analysis. As discussed in Chapter One, this form of research is limited and does not provide any information regarding the continuity or discontinuity of children's attitudes to their bodies. Nor does it shed any light on the stability or otherwise of dysfunctional eating behaviours. As such, one cannot infer that what is observed in a group of seven to ten year-old children is necessarily stable, let alone a precursor to, or indicator of future psychosocial (e.g., depression, anxiety) or pathological difficulties (e.g., anorexia, bulimia, binge eating).

Unfortunately, the difficulty of engaging in longitudinal research (i.e., the need for large primary sample sizes, often high attrition rates, redundancy of particular measurement protocols over time, etc.), does render the execution of prospective research, although theoretically appealing, a rather prohibitive exercise. It is not surprising then that the longitudinal research published in this area remains sparse.

Importantly, the research that has prospectively examined the structure of PBID in adolescent populations has been primarily focused upon the theoretical postulate of negative verbal commentary (i.e., teasing), being the prevalent precursor to such in adolescent girls (i.e., Thompson et al., 1995). As noted in Study One, whilst teasing

was found to be salient to boys' affective PBID, the expected relationship between this factor and girls' PBID was not evident. Therefore, whether this factor becomes more salient to girls' PBID as they mature, and whether it is indeed a causal factor of increased or exacerbated PBID for early adolescent children remains unknown. Similarly, whether the strength of relationships between other identified factors, such as self-esteem and perceived evaluation, becomes more or less associated PBID as the children mature also remains unknown.

As noted previously, support for such relationships remains equivocal with some finding a significant relationship (e.g., Kostanski & Gullone, 1998), and others not (e.g., Silberstein et al., 1988). Moreover, others (i.e., Tiggemann, 1997), have proposed that any relationship between PBID and self-esteem is *circular*, and mediated by other factors, such as REB. Similarly, whilst the literature does indicate that indirect communication, particularly from parents, is strongly related to children's subsequent attitudes and behaviour (e.g., Pierce & Wardle, 1993), this was not supported for girls in Study One. However, both teasing and perceived evaluation were found to be salient for boys.

Furthermore, the longitudinal research that has been conducted into examining the structural development of eating pathology (e.g., Attie & Brooks-Gunn, 1989, Keel et al., 1997; Striegel-Moore et al., 1989, Stice et al., 1999), has highlighted strong predictive links between PBID, REB and future eating psychopathology. This research has also suggested that there are causal relationships between the three factors. However, as noted in Study One, the expected relationships between REB and PBID for children were not as evident either.

As noted in Chapter One, research into preventative programs designed to reduce the prevalence of PBID and REB in adolescent girls has indicated that a

determined focus on altering PBID and REB per se is not effective (Paxton, 1993; Smolak & Levine, 1994). Indeed, these researchers have argued that there is a need for further understanding of the longitudinal intra- and inter-relationships between PBID, REB and other identified psychosocial factors associated with them, before we can be hopeful of developing effective intervention or possible prevention strategies of eating disorders.

Moreover, the longitudinal research that has been conducted, to date has remained focused primarily on that component of PBID associated with weight and shape issues related with the desire to be thin. As found in Study one, PBID is curvilinear, being very much associated with perceptions of being too thin as well as too fat. These perceptions are compounded by actual BMI, and sex of the individual.

The purpose of Study Two is to address these above specified limitations by conducting a prospective study of reported PBID and REB of children who participated in Study One, following an 18-month interlude. In so doing, Study Two will also address the fourth and fifth objectives of this thesis.

The specific aims of this study are to:

- examine the continuity/discontinuity in prevalence of PBID and REB in children from Study One, at 18-month follow-up.
- evaluate the continuity/discontinuity of relationships between individual difference (i.e., self-esteem) and socialisation/contextual (i.e., teasing, perceived evaluation) factors and PBID as well as REB.
- determine the importance of time one factors in predicting PBID and REB at time two.

Methodology

Participants

Three hundred and twenty-nine children (151 boys, 178 girls), 76% of the original sample, were available at follow-up. Those children who did not participate in the follow-up had either relocated to a different school and had not left a forwarding address, or were absent from their classes on both occasions when the researcher attended to collect data. No child, nor their primary caregiver, who had consented to participate in Study One refused participation in Study Two.

The mean age of children in the follow-up sample was 9.9 years (*SD* = 0.97; range 8 – 12 years). Table 7.1 below provides a list of mean values for the main variables tested in Study One.

Table 7.1:

Means and t values for PBID, REB, individual differences, and contextual factors for those participants who participated in both Study One and Two versus those who only participated in Study One

Construct	Study 1 (n = 105)		Study 1 & 2 (n = 326)		t-value
BMI	16.77	(2.49)	16.54	(2.26)	0.26
Cognitive PBID	0.32	(0.77)	0.32	(0.79)	0.01
Affective PBID	0.24	(1.10)	0.30	(0.79)	0.30
Self-esteem	60.45	(19.28)	61.21	(18.51)	- 0.36
ChEAT	5.10	(4.71)	5.65	(5.36)	- 0.93

Note: Study1 = participated only in Study One,
Study 1 & 2 = participated in both Study One and Two

As shown in Table 7.1 above, the mean values of main variables used in Study One for those children who participated at only time one compared with those children

who participated at both time one and two were only marginally different. However, in order to ensure that the children who did participate in Study Two were representative of the total sample from Study One a series of independent samples t-tests were conducted. These were carried out to compare scores on the primary variables as measured at time one, between those participants who were only involved in Study One and not able to be followed-up, and the present sample. As can be seen in Table 7.1 above, no significant differences were found between measures of age, BMI, PBID, self-esteem, or ChEAT scores of participants.

Body Mass Index (BMI)

Mean BMI, at time two, was calculated to be 17.55 (SD = 3.1) for boys and 17.49 (SD = 3.1) for girls. A comparison with Study One data indicated that BMI for this group of children was 16.60 (SD = 2.3) for boys and 16.50 (SD = 2.2) for girls. Paired samples t-test indicated that, as expected, mean BMI had significantly increased for both boys and girls over the 18-month period. Based on Australian normative data (Harvey & Althuas, 1993), 34% (n = 51) of boys and 33% (n = 60) of girls were found to be underweight and 25% (n = 37) of boys and 22% (n = 39) of girls were found to be overweight at follow-up. In contrast, at time one, 21% (n = 32) of boys and 28% (n = 44) of girls were found to be underweight and 19% (n = 37) of boys and 24% (n = 40) of girls found to be overweight. Chi square analysis indicated that there was a significant relationship between the distribution of body mass groupings and time of data collection, with both proportionally less boys and girls being underweight at time one than at time two (boys: $\chi^2(4) = 68.02$, $p < .001$; girls: $\chi^2(4) = 86.67$, $p < .001$).

Instruments

Given that individual difference factors measured with the EPQ (i.e., psychoticism and extroversion) and the Family Cohesion Scale were not found to

contribute to the variance in PBID for Study One, these measures were not included in Study Two. The instruments that were included are described in detail in Chapter Six (refer pages 86 - 89) and are listed below:

(1) Body Image, Dieting Behaviour and Attitudes Scale (Kostanski & Gullone, 1999). (Appendix C)

(11) Figure Rating Scale (FRS: Collins, 1991). (Appendix D)

(111) Coopersmith Self-Esteem Scale: school short form (SEI: Coopersmith, 1981). (Appendix E)

(1V) Children's Version of the Eating Attitudes Test: (ChEAT: Maloney, et al., 1989) (Appendix F)

Procedure

As discussed in Study One, once ethical approval had been obtained, children's parents were informed of the intended research and their consent for their children to participate was obtained. At this time, parent/primary caregivers were also informed that the research was to be prospective and a second series of data would be collected in 18 months time. Subsequently, further contact was made with the principals of each school reminding parents of the intended follow-up study that had been planned and again requesting their participation. The principal of each school then proceeded to inform the children, via their classroom teachers and an information sheet was sent home with the children to their parent. This informed them of the intention of the researcher to return for a follow-up study and sought their further consent for their child to participate (Appendix N). Once the schools had processed consent of primary caregivers, those children with parental/guardian permission were consulted regarding the research and given the option to volunteer for data collection.

Administration of the questionnaires was conducted on a small group basis

(n = 6) within a small quiet classroom set aside for study purposes. Each group of children required approximately a 30 minute time period in which to complete their questionnaires. Details regarding height and weight were also measured and recorded at this time. Completion of the data collection was followed by a short debriefing session, allowing time for the children to discuss their thoughts related to the questionnaire and the topic in general. Each child was also invited to speak with the researcher, or their welfare coordinator, at a later stage of the day if they had any concerns or questions they may like to ask. Given the dynamics of school timetables and absences due to ill health, this procedure was conducted twice in each school.

Results

As with Study One, given that children's ratings of PBID are of both being too thin (negative values) and too fat (positive values), only absolute scores were be used to examine the correlation and predictive value of individual difference and contextual factors with affective and cognitive PBID. Analyses were also conducted separately for each sex. Given that actual weight (BMI) has been found to be a moderating variable in both PBID and REB, all analyses also control for BMI. For descriptive purposes, BMI has been divided into three groups (underweight, normal weight, overweight). All categorical variables have been converted to dummy variables (e.g. 0 = no teasing, 1 = teasing; 0 = parents/peers think I am just right, 1 = parents/peers think I am too fat or too thin, 0 = parents don't diet, 1 = parents diet) for analyses.

To explore the stability/instability of constructs over time, paired samples t-tests were run between time one and time two variables. To explore the continuity in, and structure of PBID and REB, a series of Pearson's correlation and hierarchical regression analyses were conducted between individual difference and contextual factors with PBID and REB at time two. To identify the significance of time one

factors in predicting time two PBID and REB, a series of multiple regression analyses, incorporating a mixed hierarchical and stepwise design (Cohen & Cohen, 1983), were run. As noted by Attie-Brooks-Gunn (1989), and others (i.e., Cattarin & Thompson, 1994), this form of analysis provides the researcher with the potential to predict change in the criterion variable. Therefore, for each of these analyses, the time one level for the criterion variable was entered on the first step, followed by BMI. On the third step, all identified time one predictor variables of the criterion variable were entered using a stepwise procedure, allowing only those variables that added significance at alpha < .05 level, to be entered.

The data are presented in three sections: Section 1 provides an examination of the structure and stability of PBID at Time 2. Section 2 explores the predictive value of Time 1 factors in explaining change in the PBID criterion variables (affective and cognitive) over an 18-month period. Finally, Section 3 explores the continuity and structure of REB at time two, as well as examining the predictive strength of time one PBID in explaining change in REB over an 18-month period.

Section 1:

Structure and Stability of PBID across childhood to early adolescence

1.1: Continuity of Figure Ratings.

As measured by the figure rating scale, at follow-up, the mean perceived current figure for boys was 4.09 (*SD* = .79) and girls 4.26 (*SD* = .83). The mean affective (felt) rating for boys was 4.10 (*SD* = .91) and girls 4.30 (*SD* = .98), whilst the mean ideal size for boys was 3.82 (*SD* = .64) and girls 3.84 (*SD* = .67).

Paired samples t-tests indicated that there were significant differences between time one and time two scores for girls for "How I feel" [t(177) = -3.64; time one: *M* = 4.01, *SD* = 1.15], "How I am" [t(177) = -5.21; time one: *M* = 3.99, *SD* = .77] and ideal

size" [t(177) = -2.45; time one: M = 3.69, SD = .73]. There were no significant differences found between time one and time two scores for boys on any of the figure rating scales ("How I am" time one: M = 3.97, SD = .75; "How I feel" time one: M = 4.13, SD = .91; "Ideal size" time one: M = 3.83, SD = .64).

1.2: Affective PBID

Time two affective PBID was found to range from -4.00 to + 4.00. Forty one percent of children indicated a discrepancy of at least one size between their felt current size and idealised size, with 8% of these choosing an ideal that was at least one size larger than they felt (i.e., felt they were too thin) and 33% choosing and ideal that was at least one size smaller than they felt (i.e., felt they were too fat) (Refer Table 7.2 below for a comparison of affective ratings at times one and two).

Table 7.2:

Percentage of children who perceived themselves as looking or feeling too thin, normal or too fat by sex and time.

	Affective (Felt)			Cognitive (Thought)		
	Too thin	Normal	Too fat	Too thin	Normal	Too fat
Boys: time 1	17	50	34	16	58	26
time 2	9	64	26	10	61	29
Girls: time 1	13	52	34	10	58	32
time 2	8	54	38	3	64	33

As indicated in Table 7.2, there was a reduction in the number of boys who indicated that they felt they were too thin or too fat at time two compared to time one. In contrast, whilst there was also a lower proportion of girls who indicated that they felt they were too thin at time two compared to time one, there was an equivalent higher

proportion who indicated that felt they were too fat at time two in comparison to time one. Two paired samples t-tests indicated that the noted differences between time one and time two affective PBID scores were not significant for either girls or boys.

1.3: Cognitive PBID

Time two cognitive PBID was found to range from -2.00 and +3.00, with over 37% of children indicating a discrepancy of at least one whole size between their perceived current and ideal sizes. Seven percent of children indicated they thought they were too thin, choosing an ideal figure that was at least one size larger than they thought they looked, whilst 31% of children indicated they thought they were too fat, choosing an ideal figure that was at least one size smaller than the size they thought they looked. In contrast at time 1, 17% of children indicated that they thought they were too thin whilst 34% of children thought they were too fat (Refer Table 7.2 above for percentages by sex and time).

As shown in Table 7.2 on previous page, at time two there was a decrease in the proportion of boys that indicated they thought they looked too thin, whilst there was also an increase in the proportion who indicated that they thought they looked normal or too fat in comparison to time one reports. For girls, there was a dramatic drop noted in the number who indicated that they thought they looked too thin, whereas there was only minimal increase in the proportion who indicated that they thought they looked too fat. Paired samples t-tests indicated that the difference between time one and time two cognitive PBID scores for girls [$t(177) = -.21$, $p < .05$] was significant but not for boys.

1.4: Relationship between physiological factors and PBID at time two.

Pearson's correlations indicated that the two measures of PBID were strongly and significantly correlated with each other (overall: $r = 0.76$, $p < .001$; boys: $r = 0.73$, $p < .01$; girls: $r = 0.76$, $p < .01$) at time two. A comparison of time

one and two correlations indicated that the relationship between the two dimensions of PBID had become significantly stronger over the 18-month period (boys: Fisher's Z = -2.96, p < .01; girls: Fisher's Z = -3.28, p < .01).

Table 7.3

Means and standard deviations for cognitive and affective PBID by sex, BMI and time.

	Underweight		Normal Weight		Overweight		Total	
	M	SD	M	SD	M	SD	M	SD
Boys								
Affective:								
Time one	-0.43	(1.20)	0.51	(0.68)	0.48	(1.07)	0.28	(1.12)
Time two	0.00	(0.86)	0.27	(0.84)	0.76	(0.92)	0.29	(0.91)
Cognitive								
Time one	-0.23	(0.68)	0.15	(0.69)	0.52	(0.76)	0.14	(0.75)
Time two	0.14	(0.68)	0.31	(0.68)	0.80	(0.71)	0.27	(0.77)
Girls								
Affective								
Time one	-0.01	(1.10)	0.39	(0.96)	0.61	(1.19)	0.33	(1.75)
Time two	0.01	(1.0)	0.41	(0.76)	1.23	(0.94)	0.47	(1.00)
Cognitive								
Time one	-0.04	(0.72)	0.18	(0.63)	0.93	(0.97)	0.30	(0.51)
Time two	0.01	(0.59)	0.37	(0.55)	1.12	(0.83)	0.43	(0.74)

As shown in Table 7.3 above, mean reported cognitive and affective PBID increased with increases in body mass for both boys and girls, at both time one and time two. The two dimensions of PBID were also found to be moderately correlated with BMI (*cognitive:* r = 0.51, p < .001; boys: r = 0.51, p < .01; girls: r = 0.49; p < .01; *affective:* r = 0.43, p < .001; boys: r = 0.43, p < .01; girls: r = 0.42, p < .01) at time two. As with the relationship between the two PBID

dimensions, the relationships between affective and cognitive PBID with BMI were also found to have increased significantly in strength over the 18-month period for boys (affective: Fischer's $Z = -2.10$, $p < .05$; cognitive: Fischer's $Z = -2.02$, $p < .05$). In contrast the strength of relationship between affective and cognitive PBID with BMI was not found to have increased significantly for girls over time.

Given the noted strength of relationship between BMI and PBID, and the variances noted between sex and cognitive PBID, further analyses were conducted to examine whether there were any significant interaction effects between these two physiological factors and PBID at time two. At the same time, given the appearance in the data of possible increases in levels of PBID over time, age was also entered as a potential predictor variable. A 2(sex) x 4 (age) MANCOVA was conducted, controlling for BMI, with time two affective and cognitive PBID as the dependent variables. This analysis yielded a significant multivariate effect for BMI [Wilk's lambda = .75, $F(2,328) = 55.65$, $p < .001$]. Univariate analysis indicated that BMI had a significant effect on both cognitive [$F(1,334) = 46.29$, $p < .001$] and affective [$F(1,334) = 54.03$, $p < .001$] PBID at follow-up. No multivariate sex effects were found, indicating that as children got older, the small effect of sex on cognitive PBID found in study one was no longer significant. As with study one, there were no significant interaction, nor age effects found.

1.5: Individual and Contextual Factors

1.5.1: Self-esteem

The mean self-esteem score for this sample of children at time two was 68.67 ($SD = 18.73$), with boys reporting a lower mean level of self-esteem ($M = 68.66$,

SD = 18.07) than girls (*M* = 69.03, *SD* = 19.79). However, an independent samples t-test indicated that this difference between the sexes was not significant at .05 level. A comparison of means between times one and two self-esteem sc. this sample of children (time 1: *M*= 61.32, *SD* = 18.51) indicated that both boys (time 1: *M*= 61.09, *SD* = 18.07) and girls (time 1: *M* = 61.51, *SD* = 18.91) had significantly higher self-esteem scores at follow-up (boys: t (150) = -5.62, p < .001; girls: t (177) = -4.92, p < .001).

1.5.2 Teasing

As noted in the literature, teasing about one's weight and size has been found to be a unique predictor of PBID. As shown in Table 7.5 below, teasing about one's size and weight was reported to be of concern for 16% of the children at time two, which is comparable to their reports at time one (n=15%). Friends were reported to be the most active instigators of this behaviour, followed by fathers then mothers. Boys were also noted to report a higher frequency of teasing than girls.

Table 7.5

Percentage of children who reported being teased by their parents or friends about their weight by sex and time.

	Boys		Girls		Total	
Time 1:						
Mother	9	(6%)	8	(5%)	17	(5%)
Father	8	(5%)	7	(4%)	15	(5%)
Friends	18	(12%)	15	(8%)	33	(10%)
Total	23	(15%)	25	(14%)	48	(15%)

Table 7.5 cont.

	Boys		Girls		Total	
Time 2:						
Mother	9	(6%)	9	(5%)	18	(6%)
Father	15	(10%)	10	(6%)	25	(8%)
Friends	15	(10%)	18	(10%)	33	(10%)
Total	27	(18%)	26	(14%)	53	(16%)

As shown in Table 7.5 above, there was also a slight increase in the percentage of children who reported that their fathers teased them about their weight at time two compared to 18 months previously.

1.5.3: Perceived Evaluation

As with teasing, Study One indicated that perceived evaluation by significant others was a significant predictor of cognitive PBID in young children. As shown in Table 7.6 below, reported perceived evaluation at time two was comparable to that at time one for this group of children.

A comparison of composite scores of perceived evaluation (mother + father + peers) indicated that there was no significant difference for the children's perception of significant others' evaluations between times one and two (*perceived their parents/peers to think they looked "just right":* time one: 67%, n = 221; time two: 67%, n = 219; *perceived their parents and/or peers to think they were "too fat" or "too thin":* time one: 33%, n = 108; time two: 33%, n = 110).

Table: 7.6

Perceived parental/peer body size evaluation by sex and time.

	Time 1						Time 2					
	Too Fat		Just Right		Too Thin		Too Fat		Just right		Too Thin	
	%	n	%	n	%	n	%	n	%	n	%	n
Mother												
boys	5%	(8)	78%	(117)	17%	(26)	7%	(11)	80%	(119)	12%	(18)
girls	4%	(7)	79%	(141)	17%	(30)	4%	(7)	81%	(145)	16%	(28)
overall	5%	(15)	78%	(258)	17%	(56)	6%	(18)	80%	(264)	14%	(46)
Father												
boys	6%	(9)	80%	(120)	15%	(22)	12%	(18)	76%	(113)	11%	(16)
girls	3%	(9)	83%	(147)	13%	(24)	3%	(9)	81%	(145)	13%	(24)
overall	4%	(14)	81%	(267)	15%	(48)	8%	(27)	78%	(258)	12%	(40)
Friends												
boys	9%	(13)	83%	(126)	8%	(12)	9%	(13)	82%	(122)	9%	(14)
girls	9%	(16)	80%	(143)	11%	(19)	7%	(13)	81%	(146)	11%	(20)
overall	9%	(29)	82%	(269)	9%	(31)	8%	(26)	82%	(268)	10%	(33)

1.5.4: Relationships between individual difference and contextual factors.

As with Study One, perceived evaluation and teasing were found to be significantly, and negatively, correlated with self-esteem for both boys and girls at time two (perceived evaluation: boys: $r = -.32$, $p < 01$; girls: $r = -.25$, $p < .01$; teasing: boys: $r = -.19$, $p < .01$; girls: $r = -.20$, $p < .01$). Teasing was also found to be significantly positively correlated with perceived evaluation for both boys and girls (boys: $r = .36$, $p < .05$; girls: $r = .21$, $p < .05$). As with Study One, there was no significant correlation found between self-esteem and BMI at time two, however, time two teasing was significantly correlated with time two BMI for both boys and girls (boys: $r = .23$, $p < .01$; girls: $r = .17$, $p < .05$), whilst time two perceived evaluation was significantly

correlated with BMI for girls only ($r = -.18$, $p < .05$).

1.6: Structure of PBID at Time Two

Given the varying relationships between individual difference and contextual factors with affective and cognitive PBID found in Study One, and the structural differences noted between sexes, Pearson's correlation analyses were conducted between these variables at time two. Table 7.7 below shows the correlations between PBID with contextual and individual difference factors by sex at time two.

Table 7.7

Pearson's product moment correlations between PBID measures and the predictor variables: self-esteem, perceived evaluation and teasing by sex and time.

	Time Two		
	Self-esteem	Teasing	Evaluation
Affective PBID			
Boys	-.28**	.36**	.30**
Girls	-.34**	.13	.21**
Total	-.32**	.23**	.26**
Cognitive PBID			
Boys	-.30**	.36**	.39**
Girls	-.28**	.14	.20**
Total	-.28**	.24**	.27**

Note: * = $p < .05$, ** = $p < .01$.

As shown in Table 7.7 above, Pearson's correlations indicated that there were significant correlations between self-esteem, teasing, and perceived evaluation with both affective and cognitive PBID for boys, at time two. However these relationships varied for girls, with only self-esteem and perceived evaluation being significantly correlated with affective and cognitive PBID at time two. Fisher's Z score calculations,

comparing time one and two correlations, indicated that there were no significant differences between the correlations of self-esteem, perceived evaluation and teasing with affective PPBID for girls or boys, or with cognitive PBID for boys. However, a significant difference was found for correlations between self-esteem and cognitive PBID for girls (Fisher's $Z = -1.49$, $p < .05$), with this relationship having increased in strength over time.

Further analyses to examine the predictive value of self-esteem, perceived evaluation and teasing for affective and cognitive PBID were conducted by running hierarchical regression analyses separately for each dimension of PBID by sex.

1.6.1: Affective PBID

Two hierarchical regression analyses, with BMI entered first, followed by the predictor variables in order of highest to lowest correlation with the dependent variable, and with affective PBID as the dependent variable, indicated that these variables jointly predicted 18% of the variance in affective PBID for girls, and 20% of the variance in affective PBID for boys. These findings indicate that, in comparison to Study One, the strength of prediction of affective PBID increased by 10% for girls, whereas it remained constant for boys.

As shown in Table 7.8 below, BMI was found to be a significant predictor of both girls' and boys' affective PBID scores, explaining 4% and 7% of the variance respectively. In comparison, at time one BMI contributed 5% to the variance in girls affective PBID, whereas it was not a significant predictor of boys'. This indicates that whilst the predictive value of BMI has remained stable for girls over 18-months, it has only just emerged as an important predictor of affective PBID for boys.

Both self-esteem and perceived evaluation were found to be unique predictors of girls' and boys' affective PBID at time two. Self-esteem added 12%, whilst perceived

evaluation added a further 2% to the explained variance in affective PBID for girls. In comparison, self-esteem only contributed 2% to the explained variance in boys' affective PBID, whilst perceived evaluation by significant others contributed 3%. These findings indicate that the predictive strength of self-esteem and perceived evaluation for affective PBID greatly increased over the 18-month period for girls (study one: self-esteem 4%; perceived evaluation n.s.), whilst it slightly decreased for boys (study one: self-esteem 4%; perceived evaluation 5%).

Table 7.8

Prediction of Affective PBID scores by BMI, self-esteem and perceived evaluation by sex.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	BMI	.04**	8.74			.22**
2	self-esteem	.16**	17.25	.12**	24.58	-.31**
3	evaluation	.18**	14.01	.03**	6.34	.18*
Boys						
1	BMI	.07**	11.27			.22**
2	teasing	.15**	14.49	.08**	16.50	.32**
3	evaluation	.18**	12.34	.03*	12.34	.24*
4	self-esteem	.20*	10.37	.03*	4.58	-.17*

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

For boys, teasing also remained a significant and unique predictor of affective PBID at time two, contributing 8% to the explained variance, in comparison to 10% for study one. In contrast, teasing did not offer any significant contribution to girls' affective PBID at either time one or two.

1.6.2: Cognitive PBID

Two hierarchical regression analyses, entering BMI first, followed in sequence by the predictors in order of strength of their correlation with cognitive PBID, with cognitive PBID as the dependent variable, indicated that these variables significantly predicted 27% of the variance in girls', and 26% of the variance in boys' cognitive PBID, increases of 9% and 15% respectively in comparison to those found in Study One.

Table 7.9

Prediction of Cognitive PBID scores by BMI, teasing, self-esteem and perceived evaluation by sex.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	BMI	.15**	32.69			.40**
2	self-esteem	.23**	25.41	.08**	15.41	-.26**
3	evaluation	.27**	21.36	.03**	10.49	.21*
Boys						
1	BMI	.09**	15.19			.31**
2	evaluation	.22**	22.37	.14**	26.88	.26**
3	teasing	.25**	17.28	.02**	5.69	.20*
4	self-esteem	.26**	14.24	.01*	4.02	-.17*

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

As shown in Table 7.9 above, BMI was found to be a unique predictor of both girls' and boys' cognitive PBID, explaining 15% and 9% of the variance respectively. These results indicate that, in comparison with the findings of Study One, the predictive strength of BMI for cognitive PBID increased over the 18-month period for both sexes (Study One: girls: 13%; boys: 3%).

Although self-esteem was not found to be a significant correlate or predictor of girls' cognitive PBID in Study One, at time two it was found to significantly contribute 8% to the explained variance of this construct. In comparison, the predictive strength of self-esteem for cognitive PBID for boys remained weak, with self-esteem only contributing 1% to the explained variance at time two.

In contrast, the strength of relationship between perceived evaluation and cognitive PBID was found to decrease for girls and increase for boys over time. At time two, perceived evaluation contributed 4% to the explained variance in girls' cognitive PBID (Study One: 6%), whereas it contributed 13% to the explained variance for boys (Study One: 3%). The unique contribution of teasing to variance in cognitive PBID reduced over time, with teasing significantly contributing 3% to the explained variance in boys' cognitive PBID at time two, in comparison to 6% in Study One. As with affective PBID, teasing was not found to be a unique predictor of girls' cognitive PBID at either time.

Section 2:

Prediction of change in PBID over time.

2.1: Relationship between time one predictor variables and time two PBID

Given the strength of physiological factors (i.e., BMI, sex) in predicting PBID at both times one and two, and the possibility of age acting as a mediator in changes of PBID over time, a 2 (sex) x 4 (age) repeated measures MANCOVA, controlling for BMI, with time one and two affective and cognitive PBID scores as the dependent variables was conducted. This analysis indicated a significant mutilivariate effect for BMI [Wilk's lambda = .99, $F(1,319) = 4.14$; $p < .05$]. Univariate analysis indicated that the were significant differences between reported cognitive PBID scores by BMI, [$F(1,316) = 4.09$, $p < .01$], with cognitive PBID scores increasing with increases in

BMI. No other significant multivariate effects were found.

Given the expectation that identified predictor variables (self-esteem, teasing, perceived evaluation), may predicate PBID in children, further analyses to examine the strength of any relationship between these variables were conducted. Firstly, in order to examine the potential relationships between time one predictor and time two criterion variables, Pearson's correlation analyses were conducted.

Table 7.10

Pearson's correlations between predictor variables (affective and cognitive PBID, self-esteem, teasing and perceived evaluation at time 1) and cognitive and affective PBID at time 2.

	Time 1				
Time 2	affective PBID	cognitive PBID	self-esteem	teasing	evaluation
Affective PBID					
Boys	.51**	.41**	-.25**	.31**	.30**
Girls	.23**	.22**	-.14*	.10*	.20**
Total	.38**	.30**	-.18**	.21**	.25**
Cognitive PBID					
Boys	.43*	.41**	-.33**	.30**	.20**
Girls	.27**	.35**	-.11	.17*	.17**
Total	.21**	.36**	-.20**	.25**	.18**

Notes: (1) * = $p < .05$, ** = $p < .01$.

As shown in Table 7.10, there were significant correlations between all of the time one predictor variables and both time two affective and cognitive PBID for boys. In contrast, self-esteem at time one was not significantly correlated with time two cognitive PBID for girls.

2.2 Prospective analyses of PBID

In order to examine the predictive strength of time one predictor variables in explaining the variance in affective and cognitive PBID scores over time, a series of combined hierarchical/stepwise regression analyses were run for each dimension of PBID by sex (Refer introduction to results for justification of these analyses).

2.2.1: Affective PBID

To evaluate the strength of time one variables in predicting affective PBID 18-months later, two hierarchical regression analyses were conducted, controlling for time one affective PBID and BMI, then entering the predictors self-esteem, teasing and perceived evaluation stepwise. These analyses found the predictor variables to significantly explain 12% of the variance in affective PBID scores for girls and 34% of the variance in affective PBID scores for boys (Refer Table 7.11 below).

Table 7.11

Prediction of affective PBID time 2 scores by time one individual difference and contextual factors, controlling for time one affective PBID and BMI, by sex.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	Affective PBID	.06**	12.41			.26*
2	BMI	.10**	10.08	.04*	13.49	.20*
3	evaluation	.12**	8.90	.03*	8.52	.17*
Boys						
1	Affective PBID	.25**	49.07			.50**
2	BMI	.31**	33.41	.06**	13.49	.25**
3	teasing	.34**	26.28	.04**	8.52	.21**

As shown in Table 7.11 (previous page), time one affective PBID was found to significantly predict 6% of the variance in time two affective PBID for girls, and 25% of the variance in time two affective PBID for boys. Time one BMI was found to significantly contribute a further 4% and 6% respectively to the explained variance in girls' and boys' affective PBID at time 2. In the third step, time one perceived evaluation uniquely contributed a further 2% to the variance in girls' time two affective PBID scores at time, whereas time one teasing was found to significantly contribute 3% to the explained variance in boys' time two affective PBID. Thus, once the variance of previous reports of affective PBID were taken into account, other variables, such as BMI, and socialisation factors (girls = teasing, boys = perceived evaluation), contributed only a slight amount to the explained variance of later affective PBID.

2.2.2: Cognitive PBID

As with the previous analyses, to examine the strength of time one factors in predicting time two cognitive PBID for girls and boys, two hierarchical regression analyses were conducted, controlling for time one cognitive PBID and BMI, then entering the time one predictor variables. These variables were found to significantly predict 22% of the variance in both girls' and boys' cognitive PBID at time two (Refer Table 7.12 below).

As shown in Table 7.12 below, time one cognitive PBID was found explain 12% of girls' and 13% of boys' cognitive PBID at time two. These results further indicate that the best prospective predictor of cognitive PBID for children is previous reports of the construct itself. As with affective PBID, BMI was found to be the second strongest predictor of girls' PBID at time two. Time one BMI significantly added a further 10% to the explained variance for girls. In contrast, for boys, self-esteem was

found to be the second strongest prospective predictor of cognitive PBID.

Table 7.12

Prediction of time 2 cognitive PBID scores by time one individual difference and contextual factors, controlling for time one affective PBID and BMI, by sex.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	Cognitive PBID	.12**	24.61			.37**
2	BMI	.22**	21.71	.10**	24.71	.33**
Boys						
1	Cognitive PBID	.13**	22.79			.37**
2	BMI	.15**	14.12	.03**	4.84	.17*
3	Self-esteem	.22**	14.86	.07**	13.81	-.28**

As noted in Table 7.12, time one self-esteem was found to contribute a further 7% to the explained variance in time two cognitive PBID for boys. At step 2, BMI added a further 3% to the explained variance for boys. These findings indicate that, when controlling for previous cognitive PBID, time one BMI was a strong predictor of time two cognitive PBID for girls, time one self-esteem was more pertinent to predicting this component for boys.

Section 3:

An evaluation REB over an 18-month period.

3.1: Continuity of REB over time.

A further aim of this study was to evaluate the continuity of REB across middle childhood and into early adolescence. In order to do this, it was first necessary to determine the stability of children's reported REB, as well as to identify significant predictor variables.

3.1.1: Self-reported dieting by children

Children's reports of their dieting behaviour indicated that at time two, a comparable proportion of children (i.e., 24%) to that at time one were consciously dieting. As shown in Table 7.13 below, as with Study One, the frequency of reported dieting was found to be higher for girls than for boys. Furthermore, the proportion of normal weight girls who reported dieting was comparable to those for the total population of girls. In contrast, the frequency of normal weight boys who indicated they dieted was lower than for the overall group, indicating that at time two, for boys, actual weight is a potentially important factor for dieting behaviour, whereas it is not so strong for girls.

Table 7.13

Frequency of reported dieting at time two by sex.

		Dieting Frequency					
	N	*never*		*sometimes*		*always*	
		%	*n*	%	*n*	%	*n*
Boys	151	80	(121)	19	(28)	1	(2)
Normal weight	60	87	(52)	13	(8)	0	(0)
Girls	176	73	(130)	24	(43)	2	(3)
Normal weight	77	72	(56)	27	(21)	0	(0)

3.1.2: Parental modelling of dieting

Reports of parental dieting by this sample of children indicated that over 67% of the children (60% of boys, 70% of girls), reported one or both of their parents to be dieting at time two. In contrast, time one data indicated that 61% of children (boys 56%, girls 65%) reported one or both of their parents to be dieting.

As shown in Table 7.14 below, more girls than boys reported that their parents engaged in dieting behaviours at both time one and time two. However, whereas Pearson's chi-square analysis indicated that, at time one, there was no significant relationship between the proportion of parents reported to be dieting by sex, this relationship had changed at time two. In this instance girls were found to be more likely to report that their parents diet compared to boys ($\chi^2 = 4.98$, $p < .05$).

Table 7.14

Children's reports of parental modelling of dieting by sex and time.

	Time One						*Time Two*					
	Girls		Boys		Total		Girls		Boys		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Mother												
never	(72)	40%	(81)	54%	(153)	46%	(62)	34%	(175)	50%	(137)	42%
sometimes	(93)	52%	(65)	43%	(158)	48%	(107)	59%	(68)	46%	(175)	53%
always	(13)	7%	(5)	3%	(18)	6%	(10)	6%	(6)	4%	(16)	5%
Father												
never	(108)	61%	(105)	70%	(213)	77%	(104)	58%	(98)	66%	(202)	61%
sometimes	(55)	31%	(42)	28%	(97)	30%	(68)	38%	(41)	28%	(109)	33%
always	(15)	8%	(4)	3%	(19)	6%	(5)	3%	(7)	5%	(12)	4%

There was a also significant relationship found between reported modelling of dieting behaviour and sex of parent. Chi-square analyses indicated that more mothers (time 1: 54%, time 2: 58%), than fathers (time 1: 36%, time 2: 38%), were reported to be dieting at both time one and time two (time 1: $\chi^2 = 61.09$, $p < .01$; time 2: $\chi^2 = 44.53$, $p < .01$). A significant relationship was also found between children's reports of their own dieting and that of their parents' at both times one and two (time 1: $\chi^2(2) =$

33.21, $p < .01$; time 2: $\chi^2(2) = 35.17$, $p < .001$).

3.1.3: Children's REB as measured by the ChEAT

Reported REB as measured by the ChEAT at the 18 month follow-up ranged from 0 through to 30 ($M = 4.67$, $SD = 4.9$). For boys, the mean ChEAT score was found to be 3.64 ($SD = 3.9$), whilst for girls it was 5.43 ($SD = 5.5$). Fourteen children (6 boys and 8 girls) were found to have scores higher than 2 standard deviations above the mean. In comparison, at time one the mean ChEAT score was 5.65 ($SD = 5.36$) (boys: $M = 5.08$, $SD = 5.0$; girls: $M = 6.13$, $SD = 5.6$). Paired samples t-test indicated that there was a significant difference between time one and time two ChEAT scores for boys [$t(150) = 3.72$, $p < .001$], but not for girls [$t(177) = 1.59$, $p > .05$]. These results indicate that REB reduced significantly over the 18 month period for boys, whilst it remained constant for girls.

Table 7.15

Frequency of reported ChEAT scores by sex, BMI and time.

	Boys			Girls		
BMI group	n	*M*	*SD*	n	*M*	*SD*
Time 1:						
Underweight	32	3.50	(3.6)	40	4.72	(4.7)
Normal weight	87	5.03	(4.9)	88	5.26	(5.0)
Overweight	27	6.67	(6.0)	46	9.32	(6.0)
Total	146	5.08	(5.0)	174	6.13	(5.6)
Time 2:						
Underweight	51	3.12	(4.1)	60	3.49	(3.2)
Normal weight	59	3.29	(3.2)	79	4.37	(3.7)
Overweight	37	5.11	(4.6)	39	10.51	(8.0)
Total	167	3.71	(3.9)	178	5.42	(5.6)

As shown in Table 7.15 on previous page, at both times one and two, mean ChEAT scores were found to increase with increases in BMI, and also to be higher for girls than for boys.

A 2(sex) x 4(age) ANCOVA controlling for BMI, with ChEAT scores as the dependent variable indicated that BMI was a significant covariate of reported ChEAT scores [$F(1,321) = 65.63$, $p < .001$]. A significant main effect was also found for sex [$F(1,321) = 11.98$, $p < .01$], with girls reporting significantly higher REB scores than boys. No interaction nor age effects were found.

3.2: Relationship between REB, PBID, individual difference and contextual factors.

In order to examine the strength of relationship between PBID and REB in childhood, and to investigate the strength of contextual and individual difference factors in predicting REB at time two, a series of two hierarchical regression analyses were conducted between these predictor variables and ChEAT scores at time two (i.e., one for girls and one for boys). Firstly, so as to determine the sequence of entering the various predictors into the regression analyses, Pearson's correlation analyses were calculated between PBID constructs, parental modelling of dieting behaviours, self-esteem, BMI and ChEAT scores by sex for time two data (Refer Table 7.16 below).

Whilst at time one some of the predictor variables were not found to be significantly correlated with REB as measured by the ChEAT (i.e., boys: parental modelling of dieting and self-esteem; girls: affective PBID), as shown in Table 7.16, all of the predictor variables were found to be significantly correlated to this factor for both sexes at time two.

Table 7.16

Pearson's correlations for PBID, parental modelling of dieting behaviours, self-esteem, BMI and ChEAT scores by sex and time.

ChEAT	Cognitive PBID	Affective PBID	Model	Self-esteem	BMI
Girls	.47**	.46**	.18*	-.25**	.48**
Boys	.37**	.39*	.28**	-.27**	.32**
Total	.44**	.44**	.23**	-.25**	.41**

Note: * = $p < .05$, ** = $p < .01$

Fisher's Z scores indicated that there were significant differences between time one and time two correlations for affective PBID and parental modelling with ChEAT scores for boys (Fisher's $Z = -2.02$, $p < .05$; Fisher's $Z = -1.99$, $p < .05$ respectively), and for affective PBID with ChEAT scores for girls (Fisher's $Z = -2.64$, $p < .01$). These findings indicating that the strength of relationship between these predictor variables with CHEAT scores increased over the 18-month period.

3.2.1: Structure of REB

Hierarchical regression analyses, conducted separately for boys and girls, entering BMI first, followed by the time one predictor variables (i.e., PBID - both cognitive and affective dimensions, parental modelling of dieting, then self-esteem) in order of highest to lowest correlation, with ChEAT scores as the dependent variable, indicated that these variables were significant predictors of REB, explaining 21% of the variance in boys', and 34% of the variance in girls' scores (Refer Table 7.17 below). These findings indicate that the predictive strength of identified variables increased greatly for both boys and girls over the 18-month period (time one: boys 8%; girls 16%).

As shown in Table 7.17 below, at time two, BMI was found to contribute 10% to the explained variance in REB for boys and 23% of the explained variance for girls. In step 2, PBID was found to contribute a further 7% to the variance in ChEAT scores for boys, however only affective PBID was found to be a unique predictor of variance in boys' ChEAT scores at this stage of analysis. In comparison, PBID was found to significantly contribute a further 8% to the explained variance in girls' scores, with neither dimension of PBID found to be unique contributors.

Table 7.17

Prediction of REB scores by BMI, PBID, parental modelling of dieting and self-esteem at time two for girls and boys.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	BMI	.23**	51.97			.48**
2	PBID	.31**	26.75	.09**	11.11	
	affective					.19
	cognitive					.17
3	self-esteem	.34**	23.05	.03**	8.34	-.18**
4	modelling	.34**	18.83	.01	8.43	.08
Boys						
1	BMI	.10**	16.75			.32**
2	PBID	.17**	11.04	.09**	7.44	
	affective					.25*
	cognitive					.10
3	modelling	.19**	9.56	.02*	4.15	.16*
4	self-esteem	.21**	8.91	.03*	5.18	-.17*

Note: * = $p < .05$, ** = $p < .01$.

Perceived parental modelling of dieting added a further 2% to the explained variance at step 3 for boys, although it was not a significantly unique contributor to

explained variance for girls. In contrast, the addition of self-esteem to the equation added a further significant 3% to the explained variance for both girls' and boys' ChEAT scores.

These results further indicate that the structure of children's REB as measured by the ChEAT has altered over the intervening 18-month period, with the strength of relationship between both BMI and PBID with ChEAT increasing over that time. However, only for boys was there any unique contribution found for the specific dimensions of PBID, and then only for the affective component. The strength of relationship between self-esteem and parental modelling with ChEAT scores also changed, with self-esteem remaining constant whilst parental modelling was no longer significant for girls, and both self-esteem and parental modelling became significant and unique predictors for boys.

3.3: A prospective analysis of REB over an 18 month period

In order to examine the prospective relationship between time one PBID, individual difference (i.e., self-esteem) and socialisation/contextual (i.e., parental modelling) predictor variables and time two ChEAT scores, Pearson's correlation analyses were conducted.

As shown in Table 7.18 below, significant Pearson's correlations were found for boys between the time one variables of cognitive PBID, self-esteem, parental modelling of dieting, and ChEAT with time two ChEAT scores. In contrast, for girls, only the cognitive PBID and ChEAT variables at time one were found to be significantly correlated with time two ChEAT scores.

Table 7.18

Pearson's correlations of time one predictor variables with time two ChEAT by sex.

	Time One				
	Affective PBID	Cognitive PBID	ChEAT	Self-esteem	Model
ChEAT 2					
Girls	.07	.23**	.45**	-.13	.10
Boys	.16	.27*	.46**	-.17*	.26**
Total	.08	.29**	.46**	-.14*	.18**

Notes: (1) * = p < .05, ** = p < .01.

In order to examine the predictive value of these variables in explaining variance in time two ChEAT scores, two hierarchical regression analyses were conducted (i.e., one for girls and one for boys), controlling for time one ChEAT and BMI scores, then entering the significant correlates as predictors. These analyses indicated that overall the predictor variables significantly predicted 33% of the variance in girls' and 25% of the variance on boys' REB as measured by the ChEAT at time two.

Table 7.19

Prediction of time 2 ChEAT scores, controlling for time1 ChEAT and BMI, then entering time one predictor variables by sex.

Step	Predictors	adj R^2	F	change R^2	change F	β
Girls						
1	ChEAT	.22**	47.25			.47**
2	BMI	.33**	42.87	.12**	30.33	.37**
Boys						
1	ChEAT	.22**	41.01			.47**
2	BMI	.25**	25.29	.04**	7.66	.20**

Note: * = p < .05, ** = p < .01

As shown in Table 7.19 on previous page, time one ChEAT scores significantly explained 22% of the variance in time two ChEAT scores for both girls and boys. BMI was also found to significantly explain a further 11% of the variance in girls' and 3% of the explained variance in boys' time two ChEAT scores.

Contrary to expectation, time one PBID, did not enter the equation for either sex, nor were self-esteem or parental modelling found to be significant contributors to explaining the variance in children's ChEAT scores. These findings indicate that the best prospective indicators of REB for children in middle childhood-early adolescence are previous reported REB, followed by BMI.

Discussion

Continuity/discontinuity of PBID across childhood

One of the primary aims of Study Two was to examine the continuity or discontinuity of children's PBID over an 18-month period. The results of this study have indicated that PBID is in fact continuous across childhood. Indeed, prospective analyses indicated that the strongest predictors of current PBID were previous reports of this construct. Previous affective PBID explained 6% of the explained variance in girls', and 25% of the variance for boys' current affective PBID. Previous cognitive PBID was found to explain 13% and 12% respectively, of the variance in current cognitive PBID for boys and girls. Furthermore, in comparison to Study One, the prevalence of PBID in children was found to remain moderately high, with over 40% indicating they felt "too fat" or "too thin", and 37% indicating they thought they looked either "too fat" or "too thin". This prevalence rate is comparable to previous reports of PBID amongst children (i.e., Collins, 1991; Maloney et al., 1989; Rolland et al., 1997).

Importantly, in support of the findings of Study One and contrary to previous expectations (i.e., Thelen et al., 1992), age was not found to be a significant predictor of

either dimension of PBID for children. As such it would appear that, even approaching adolescence, age does not of itself provide any useful indicator of specificity regarding the sudden onset, increase in intensity or prevalence of PBID. However, an examination of the structure of PBID in the current study in comparison to Study One, has indicated that the predictive strength of, and relationship between biopsychosocial factors and PBID has changed somewhat over the 18-month period. Therefore, it is possible that any impact that age does have on PBID across childhood, is not so much one of direct causality, but rather one of ongoing maturation of developmental processes (Ewell et al., 1996; Hart & Yates, 1996). That is, as the children mature and enter into adolescence, what we may be witnessing is, as has been noted in other research (i.e., Izard, 1993; Wilson & Gullone, 1999), the integration of their emotions and cognitions into a more unified system.

As found in the current study, previously weakly associated factors, such as the affective and cognitive dimensions of PBID, became more strongly aligned at time two. Indeed, the strength of relationship between affective and cognitive PBID doubled over the 18-months, increasing from 29% to 58% of shared variance. This shift in strength is reflective of the relationship noted between these two dimensions in adolescent literature (e.g., Kostanski & Gullone, 1998). Furthermore, the strength of relationship between these two PBID dimensions and other psychosocial factors also became more solidified at time two compared with time one.

Stability in relationships between PBID and other constructs

The second aim of this study was to examine the stability in structure of PBID across time from middle childhood into early adolescence. A comparison of the structural composition of PBID in Study One with that found in the current study suggests that in contrast to adolescent studies (e.g., Attie & Brooks-Gunn, 1989; Keel et

al., 1997), the structure of both affective and cognitive PBID is relatively constant for both sexes. That is, whilst aside from BMI, individual difference factors (i.e., self-esteem) remained a predominant predictor of girls' PBID, socialisation/contextual factors remained the predominant predictor of boys'.

However, as noted previously, the predictive strength of relationship between these biopsychosocial predictors (i.e., BMI, self-esteem, perceived evaluation, teasing), and PBID increased as the children aged. The strength of prediction for girls' affective PBID was found to have increased by 10%, to explain 18% of the variance; whereas the strength of prediction for cognitive PBID was found to have increased by 9% to 27% for girls and by 15% to 26% for boys.

Girls' PBID at time two

The strength of relationship between BMI and affective PBID for girls remained relatively constant from time one to time two, with BMI explaining 4% of the variance in affective, and 15% of the variance in cognitive PBID. In contrast, self-esteem was found to be a stronger predictor of girls' PBID in Study Two compared to Study One, more than tripling in strength for affective PBID, to explain 12% of the variance, and becoming a substantial predictor of cognitive PBID, explaining 8% of the variance. As such, the findings of this study suggest that the relationship between self-esteem and PBID is of as much, if not more concern than that between BMI and PBID, for pre- and early adolescent girls.

These findings are in strong contrast to previous research that has suggested that PBID is a "normative" aspect of life for females (Rodin et al., 1984; Silberstein et al., 1988; Tiggemann & Wilson-Barrett, 1996), and is therefore unrelated to their self-esteem. Rather the current findings support previous research (i.e., Abell & Richards, 1996; Folk et al., 1993; Kostanski & Gullone, 1998), that has found significant

correlations between self-esteem and PBID in adolescents girls. Furthermore, research by O'Dea (2000), has indicated that using a self-esteem approach to intervention provided positive encouragement, with a 12-month follow-up of their program indicating sustained improvements in both body image and eating attitudes. Such findings provide strong support for the proposal that, rather than being two disparate constructs, self-esteem is significantly related to PBID.

As noted in Chapter Five, the relationship between self-esteem and PBID is contentious. Importantly, not only what the relationship between PBID and self-esteem is, but how it develops, remains unclear. Indeed, others (e.g., Berscheid et al., 1973; Fabian & Thompson, 1989; Wertheim et al., 1992), have argued that whilst some association may be noted between these two constructs, this may actually be an indication of parallel processes, with the foundation of both constructs being set much earlier in life. As such, what the current findings may be indicating, is not a causal relationship between the two factors, but, as mentioned above, a parallel development and integration of cognitive and affective processes into a more cohesive system as the child matures (Scarr, 1992).

In contrast to the adolescent literature (e.g., Wertheim et al., 1999; Cattarin & Thompson, 1994), socialisation/contextual factors (i.e., perceived evaluation, teasing), were not found to be strong predictors of PBID for girls. Perceived evaluation by significant others was found to only predict 3% of the variance in affective and 4% of the variance in cognitive PBID for girls. Moreover, the strength of prediction of PBID by perceived evaluation at time two was found to have decreased for cognitive PBID and to become significant for affective PBID. Given the strength of relationship found for parental communication (e.g., Pierce & Wardle, 1993, Wertheim et al., 1999), and peer group relationships (e.g., Paxton et al., 1999), with PBID in adolescent females,

this finding is rather surprising.

Furthermore, in contrast to the literature for adolescent and young adult females (e.g., Cattarin & Thompson, 1994; Thompson et al., 1995;), as with Study One, teasing was not found to be a significant predictor for either dimension of PBID for girls. As discussed in Study One, the method of measuring teasing in the current research was limited to only exploring frequency, rather than context or intensity of teasing experience. Such differences may explain why there was no support for previous research with adolescent girls in this study. However, given that previous research has only focused on adolescents, it may also be that the issue of teasing does not, of itself, become one of great concern for females until they have entered into the developmental phase of adolescence. Conversely, as discussed in Chapter Four, retrospective accounts of subjective experiences are strongly influenced by the current psychological status of the participant, and as such can be distorted by current states (e.g., negativity and depression). Therefore, the relationships noted between teasing and PBID in older females may be an artefact of their current perceptions more than of actual recalled events.

However, as with Study One, the findings of the current study also indicated that both teasing and perceived evaluation shared a small but significant association with self-esteem. Therefore it may be that the influence these two socialisation/contextual factors have on the development of PBID for girls' prior to adolescence, is primarily indirect, and mediated by self-esteem.

Notwithstanding these identified limitations, the current findings do support the findings of Study One. That is, for girls, the structure of PBID is manifestly different to that observed for adolescent girls. The findings do highlight a conceptual difference between the two dimensions of PBID, with, as noted by Tiggemann (1996), cognitive

PBID being more heavily premised upon actual physiological weight than affective PBID. Aside from this physiological reality, overall the construct of PBID for pre-adolescent girls is more strongly aligned with individual difference processes, rather than external socialisation/contextual factors as identified in adolescence.

PBID for boys at time two

Whereas BMI did not feature in the prediction of affective PBID and only marginally predicted cognitive PBID for boys 18-months previously, at time two BMI had become a significant predictor of both dimensions of PBID. At time two, BMI significantly explained 7% of affective and 9% of cognitive PBID. These findings indicate that the proposed concerns males have over their actual physiological weight status in relation PBID as reported by others (i.e., Davis, 1997a; Kenny & Adams, 1994; McCreary & Sasse, 2000), do become more evident as they mature.

Interestingly, as discussed previously, it was the socialisation/contextual factors (i.e., teasing, perceived evaluation) that were found to be pertinent in explaining dimensions of PBID for boys. This contrasts somewhat with the findings for girls. As with Study One, teasing was found to contribute the most to explained variance in boys' affective PBID, explaining 9% of the variance. In contrast, perceived evaluation by significant others became the strongest predictor of boys' cognitive PBID, more than quadrupling its' predictive strength from time one, to explain 13% of the variance. Therefore, the current findings do indicate that in contrast to girls, social perceptions and experiences, as well as actual physiological size, are of importance to the way boys think and feel about their bodies.

As noted in the literature, and discussed in Study One, little is known of how boys perceive their bodies. The research that is available has indicated that for boys, their concern lies more with issues of lack of perceived muscularity (McCreary &

Sasse, 2000), than with being overweight. Moreover, as noted by Pearce and Wardle (1993), those boys appraised as being "too thin" reported the lowest levels of self-esteem, further supporting the notion that being thin or 'puny' is of more concern for boys. Furthermore, parents' stereotypical attitudes towards their sons and daughters, appear to strongly influence their social, emotional and cognitive development (Andre et al., 1999; Hughes et al., 1999; Tiedman, 2000). Such research has also shown that these stereotypical attitudes hold that boys are more likely to be strong and robust, to externalise their feelings and be active, whereas girls are more likely to fragile, to internalise their feelings and to be passive. The findings of Study Two, as with Study One, offer some support for such proposals in relation to both boys' and girls' PBID. That is, in combination with a physical reality, as they enter into early adolescence and puberty, girls' PBID remains primarily an internally focused process of self-evaluation, whereas boys' PBID remains primarily an externally focused process of self-evaluation.

Prospective evaluation of PBID in childhood/early adolescence

As noted previously, prospective analyses indicated that both affective and cognitive PBID were continuous over the 18-month period of this study. More importantly, whilst the stability of affective PBID for girls was found to be relatively weak, (time one factors predicting 12% of the variance at time two), for boys this dimension was found to be much more stable, with time one factors predicting 34% of the variance at time two. Cognitive PBID was also found to be relatively stable, with previous factors significantly predicting 22% of the current variance in this construct for both sexes.

Controlling for previous levels of PBID, only previous BMI was found to be a significant predictor of future PBID for girls. This relationship was also found to be much stronger for the dimension of cognitive PBID than affective PBID. Given the

findings of Study One in relation to the structure of PBID, where concurrently, BMI was also found to be significantly predictive of both dimensions PBID, these findings are not surprising. Moreover, the prospective strength of relationship between BMI and PBID is reflective of the cross-sectional strength of relationship found between these factors in Study One.

Such findings reinforce the notion that for young girls, as with adolescent girls, actual distribution of body weight is a significant factor in determining dissatisfaction with their bodies. Whilst perceived evaluation was also found to offer some explanation of variance in future affective PBID for girls, the variance explained by this factor was minimal (i.e., 2%) and may as easily have been explained by Type 1 error (Gravetter & Wallnau, 2000).

As with girls, for boys, when controlling for time one PBID, previous BMI was found to be the most significant predictor of time two affective PBID. In contrast, the amount of time two cognitive PBID explained by BMI for boys was weak, and as with perceived evaluation for girls, may have been due to Type 1 error as much as to being a true predictor. In contrast, self-esteem was found to be the most significant predictor of boys' cognitive PBID at time two.

Teasing was also found to offer a small amount of explained variance to boys' affective PBID at time two. This finding is interesting in light of previous longitudinal research (e.g., Thompson et al., 1995), which has found teasing to have a moderating effect on BMI; and for both teasing and BMI to be a powerful "interactive" force for the development of future PBID. Moreover, Cattarin and Thompson (1994), argued that teasing was a definite developmental antecedent to body image problems for adolescent and young adult females. The current research did not find such significant relationships to be present for girls. As such these findings indicate that the

development of PBID in childhood is different than for adolescents, and also for each sex. However, they do support previous literature (e.g., Tiggemann & Rothblum, 1988), which has found that being overweight is not as central a concern for males as it is for females. Rather, it would appear that prospectively, for boys, it is not only their actual BMI, but also how others relate with them regarding this issue and how they personally evaluate their self-worth in relation to ideal body norms, that are of central concern.

Restrictive Eating Behaviours

A further aim of Study Two was to examine the continuity or discontinuity of REB, as well as the relationship between PBID and other biopsychosocial factors with this construct, across childhood into early adolescence. As with PBID, REB were found to be continuous for children across time. Moreover, prospective analyses indicated that these behaviours were relatively stable, with time one REB explaining over 20% of the variance in time two REB scores for both sexes.

As with PBID, the predictive strength of identified biopsychosocial factors (i.e., BMI, affective and cognitive PBID, parental modelling of dieting, self-esteem) was found to have increased substantially from time one to time two; more than doubling to 34% for girls and almost tripling to 21% for boys. Moreover, at time two, PBID was found to have become more prominent in the prediction of REB, for both boys and girls.

REB at time two for girls

For girls, BMI was a much stronger predictor of REB than it was for boys. BMI predicted over half of the explained variance in girls' REB, reinforcing the supposition that actual physical size is a major motivating force for girls to diet. The predictive

strength of both girls' affective and cognitive PBID was also found to have increased at time two in comparison to time one, although at this time neither dimension (i.e., affective, cognitive) was found be a unique predictor in itself. This lack of uniqueness perhaps indicates that the relationship found between PBID and REB may well be an aspect of PBID associated with actual weight rather than other psychosocial factors.

Self-esteem remained a significant and unique, although small, predictor of girls' REB at time two. Modelling of dieting by parents was not found to significantly predict girls' REB at time two. These findings offer support for the findings of Study One. Furthermore, in contrast to previous research (e.g., Hill et al., 1992; Hill & Pallin, 1998), these findings suggest that for young girls, rather than REB being a consequence of perceiving oneself as being overweight, these behaviours appear to be very much associated with the physiological reality of actually being overweight, and /or intentionally altering one's eating behaviours for "health" reasons.

REB for boys at time two

In contrast to girls, the predictive strength of BMI for boys' REB at time two was not found to have increased substantially. Moreover, whereas BMI was the only significant predictor of boys' REB at time one, at time two PBID had also entered the equation. Interestingly, it was the dimension of affective rather than cognitive PBID that was found to be a unique contributor to the explained variance of REB for boys. Modelling of dieting by parents and self-esteem were both found to be marginally predictive of boys' dieting behaviours.

Although little is known regarding the rationale for males to diet, as noted by Paxton et al. (1991), the majority of adolescent boys believed that losing weight, or being thinner would have negative consequences on their lives. Furthermore, the literature that is available (e.g., Kenny & Adams, 1994; McCreary & Sasse, 2000),

argues that the issue for boys is with having a "drive to be bigger" or "more muscular", therefore to intentionally restrict one's food intake to become thinner would seem to be contradictory. The current findings support this contention. Indeed, the current findings suggest that, as time passes, in contrast to girls, for boys their emotive perceptions of their body become a significant motivating force as their actual physiological status in their adoption of subsequent dietary behaviours. As noted previously, affective PBID for boys is somewhat premised on their experiences of being teased. As such it seems to be those boys who are not only physically overweight, but who also subjectively feel that they are too fat, possibly as a consequence of being teased, who are more likely to restrict their dietary intake.

Prediction of REB over time

As with previous studies (e.g., Attie & Brooks-Gunn, 1989; Keel et al., 1997), the most significant indicator of future eating pathology for both boys and girls, was a previous history of such. Interestingly, whereas Keel et al. (1997), also found that PBID was a significant predictor of boys' REB over time, this was not the case for the current study. Furthermore, whereas Keel et al., also found BMI to have lost its significance as a predictor of REB over time for girls, BMI remained a strong predictor of girls' REB within the current study, contributing 13% to the explained variance over time. At the same time, although BMI was also found to be a significant predictor of boys' REB over time, this relationship was weak, contributing only 4% to the explained variance. This further supports the argument that the relationship between BMI and REB is fairly robust for girls but not for boys.

Whereas previous longitudinal research with adolescents has indicated that PBID and personality factors (i.e., self-esteem) explain more variance in REB than physical factors in older females (i.e., Attie & Brooks-Gunn, 1989; Killen et al., 1994),

this was not the case for pre-adolescent children. Moreover, in contrast to adolescent literature (e.g., Leon et al., 1995; Stice et al., 1998), PBID was not found to be a unique predictor of subsequent REB amongst pre- and early adolescent children.

Limitations and implications of Study Two

As with all research there are limitations to the interpretations that can be applied to the current findings. One of the limitations of the current study is that, although it provides two waves of data, it still does not allow for more than a cautionary prediction of causality (Willet et al., 1998). Indeed, as argued by Smolak (1996), to confidently predict or understand causality requires multiple waves of data, over an extended developmental period. Furthermore, as noted by Ollendick, Oswald and Francis (1994), the over-reliance on self-report data also weakens the strength of drawing conclusive arguments.

Given that the findings of Study Two indicated that the strength of relationship between biopsychosocial predictors and PBID increased as the children matured, would suggest that it was also premature to decide on the basis of Study One findings to remove the EPQ from the second study. Indeed, it is highly possible that the personality traits did become more evident as predictors of PBID as the children aged.

Similarly, it is unfortunate, due to the requirements of retaining continuity in measurement, that it was not possible to include more extensive measures of the factors teasing and perceived evaluation, in order to address some of the questions that arose from their naive measurement in Study One.

Conclusions

Notwithstanding these limitations, it is apparent from Study Two that PBID is not a transient artefact of childhood. The structure of PBID was shown to

remain relatively stable over time. Furthermore, the structure of PBID was noted to have evolved from a more ephemeral and physical construct at time one, into a more substantially grounded construct at time two. Undeniably, the results relating to PBID in Study Two further indicate that there is a complex dynamic occurring in the underlying structure of PBID. Indeed, it would seem that PBID has become a more fluid construct over time, to be more strongly influenced by the current biopsychosocial status of the child, as well as being dependent upon sex.

Importantly, although there is an indication of there being a physical reality to children's PBID, it is apparent that BMI alone is not sufficient to explain children's discontent at any one given period of time. Although this study has shown that individual difference (i.e., self-esteem) and socialisation/contextual factors (i.e., teasing, perceived evaluation) are significant predictors of children's PBID cross-sectionally, these factors are only minimally indicated as important prospective predictors of PBID.

As such it would appear that any form of generic intervention or prevention program that is aimed at stemming the development of PBID would be obsolete. Moreover, the relationship between PBID and REB amongst young children, both concurrently and prospectively, was not found to be as strong as expected. Therefore to intentionally target the reduction or elimination of PBID as a means of stemming this behaviour would be futile. Rather, as argued by Shapiro (1995), any intervention requires careful consideration of the actual developmental issues associated with the given construct within the age group targeted.

The findings of the current study do not suggest that either PBID or REB

are of any grave concern within the broader range of a "normal" population of children. Although there are some indications that PBID becomes more enmeshed with psychosocial factors as children enter early adolescence, according to the present findings this factor is not a strong motivating force for engaging in REB. Moreover, REB were not found to have escalated over time. Rather they appeared to have reduced slightly for boys, whilst remaining constant for girls.

Whether PBID is of concern in relation to other forms of negative psychosocial or psychopathological conditions (e.g., anxiety, depression) in childhood remains unknown. How the relationship between PBID, REB and other biopsychosocial factors evolves as the children reach further into adolescence also remains unknown. What is known however is that PBID as a construct of childhood perceptions, is distinct to that reported for adolescents. Furthermore, PBID as a construct is not only associated with a fear of fatness, nor is it a strong motivating force for children to engage in unhealthy eating behaviours. Rather PBID is a complex and diversely associated conceptual component of the growing child's self-schema. The evolution of this conceptual construct appears to be associated with girls' subjective appraisal of the self, and boys' perceptions of external experiences of themselves in relation to significant others. Such findings indicate that the development of this construct, particularly for children, is not so much embedded in specific individual differences, nor social learning, as being reflective of the cognitive and emotional developmental processes of maturation.

Chapter 8

Overview

As noted in Chapter One, this thesis had five primary objectives. The first objective was to explore the prevalence of PBID and REB as they relate to sex and age within middle childhood. As reported in Study One, this was achieved through a cross-sectional examination of body image and dieting behaviours amongst a cohort of 349 middle- to upper-primary school aged children recruited from schools across the Melbourne metropolitan area. The second objective was to explore the biopsychosocial correlates and predictors of PBID in a cohort of pre-adolescent children. This objective was achieved through a series of correlational and regression analyses, incorporating physiological, individual difference and contextual socialisation factors assessed at time one. These findings were reported in Study One.

The third objective, to investigate the continuity of PBID and REB across childhood and into early adolescence, was achieved through prospective analysis of these variables over an eighteen-month period. The findings of these analyses were reported in Study Two. The fourth objective, to explore the stability in relationships between identified biopsychosocial predictors and PBID, as well as REB, across childhood and into early adolescence, was achieved by conducting a comparative analysis of children's PE) in relation to these factors at time one with similar analyses of data collected 18 months later. The results of these analyses were reported in Study Two. The fifth objective, to explore the strength and stability of the relationship between PBID and REB in childhood, was achieved through concurrent and prospective analyses of the relationship between these constructs with data collected at times one and two. The findings of these analyses are reported in Studies One and Two.

Primary Findings of the Thesis

The primary findings of this research have supported previous research that has indicated that PBID is a prevalent attitude within childhood. Furthermore the findings of this thesis have confirmed that these attitudes are continuous across middle childhood into early adolescence. Prospective analyses indicated that, as with eating pathology research (e.g., Attie & Brooks-Gunn, 1989), the best predictors of future PBID were previous measures of the same construct. Controlling for this risk (i.e., previous PBID), of those variables assessed, BMI was found to be the best predictor for change in girls' PBID over an 18-month period. For boys, whilst BMI was weakly linked with future PBID, teasing and self-esteem were also found to be significant causal predictors. These findings therefore highlight the objective physiological focus of girls' ongoing attitudes of dissatisfaction in contrast to boys' subjectively premised attitudes.

The results of this thesis indicate that the construct of PBID does not spontaneously appear at some predetermined age just prior to adolescence. Rather children as young as seven years of age indicate that PBID is as much concern for them as do 12 year olds. Importantly, PBID concerns range from perceiving oneself as being too thin through the spectrum to perceiving oneself as too fat. These concerns regarding perceived size appear to be, to a large degree, dependent upon the sex and BMI of the child.

Although the level of PBID was found to be relatively constant for boys, the cognitive dimension of PBID was found to increase in intensity for girls as they developed. However, a review of the actual amount of increase indicated that this was proportionally minimal (i.e., less than .25 of a figure size).

Of particular interest, examination of the biopsychosocial correlates of PBID

indicated that the strength of relationship between predictors (i.e., physiological, individual difference and contextual/socialisation variables), and PBID increased significantly as the children became older. Moreover, the structure of relationships between PBID and identified bio psychosocial variables was found to be very different in childhood to that identified in adolescent females. That is, the expected strength of socialisation/contextual variables in predicting PBID was not found to be evident for young girls, although it was for boys. In contrast, for girls, the individual difference factor, self-esteem, was found to be a stronger associated factor. As such, it would appear from the findings of this work, that the construct of PBID attitudes for children is not the same as it is for adolescents. Indeed, as noted by Davis (1997a), PBID is not the static objective component of one's self-schema covertly implied by previous research. The findings of this research indicate that the construct is one which evolves over time, and is possibly very much dependent on cognitive developmental processes for its manifestation within pre- and early-adolescent populations.

The current findings also provided some validation of children's self-reports, particularly with respect to dieting behaviours, and parental modelling of behaviours. As with PBID, REB amongst young children were also found to be strongly evident in childhood and, particularly for girls, a continuous activity. Moreover, in contrast to popular notions (e.g., Rolland et al., 1997; Thelen et al., 1992), these behaviours were found to be a conscious choice by young children interested in losing weight and/or becoming 'healthier'. Intriguingly, although the literature automatically associates PBID with REB, the current findings indicated that, children's intentional engagement in these behaviours was not simply because they perceived themselves as being too fat. Rather their actions, particularly within the earlier ages appeared to be more motivated by actual physiology and, for girls, role modelling of parental behaviours. However,

over the 18-month interim, it was found that the relationship between these two constructs did alter, with subjective aspects of PBID becoming more pronounced as a unique predictor of boys' REB, and objective aspects of PBID (i.e., primarily associated with physiological weight) being more pronounced for girls. Before interpreting these findings however, attention needs to be directed to a few issues and details that limit the extent to which conclusions based on these findings may be drawn.

Limitations of the study

It is apparent from the studies conducted for this thesis that the measurement of PBID relied upon completion of the children's version of the Figure Rating Scale. Although careful consideration of the psychometric literature available (e.g., Thompson & Dolce, 1989; Tiggemann, 1996), indicated that this instrument was the most suitable instrument for the purposes of this research (see Appendix B), as noted by others (e.g., Cattarin & Thompson, 1994; Ollendick et al., 1989), restriction to one instrument did not enable cross-checking and validation of the data. Although several authors have reported on the psychometric properties of this measure with children (e.g., Collins, 1991; Tiggeman & Wilson-Barret, 1998), further testing of the FRS with children is still needed to further our knowledge about the reliability and validity of the measure.

A further limitation of the current research is that, as discussed in Study Two, although it provides two waves of data, it still does not allow for more than a cautionary prediction of causality (Willet et al., 1998). Furthermore, as noted in Study Two, because of the many factors that were not incorporated into the design, the findings of this current research are as limiting as they are informing. For example, as discussed in Chapter Three, a review of the literature would lead one to assume that pubertal development was possibly a red herring in the search for structural understanding of PBID. However, the present research has indicated that this stage of development is

potentially an important factor which, as obliquely proposed by Attie and Brooks-Gunn (1989), although not pivotal to the genesis of PBID itself, through the associated physiological changes of body mass, contributes to the ongoing evolution of PBID as a chronic concern for girls. Rather than physiology per se, it may also be other developmental changes associated with this stage of maturation that are significant in contributing to the ongoing development of PBID into adolescence. That is, it is potentially this stage of the lifespan where we find the child developing cognitively, from a very concrete to a more formal level of thinking (Scarr, 1992).

Although prospective analysis is potentially more valuable than cross-sectional research (Leon et al., 1995), it also has some conspicuous limitations (Smolak, 1996, Thompson et al., 1995). Importantly, it is not possible to introduce new measures of existing variables or indeed, new variables into the data, between one data collection point and another. That is, in the process of research, where initial findings indicate that other factors may be important to include, they are not then readily integrated into the ongoing design of the project. For example, as noted in Study One, the use of the EPQ as a measure of personality may have been too refined to capture the underlying behavioural or temperamental aspects of children's individual dispositions that may have been related to the manifestation of PBID. Similarly, it was concluded that varying measures of teasing may have also been of benefit. However, due the nature of the project design limitations, it was not then possible to introduce these factors into the subsequent data collection processes.

In retrospect, it is also important to consider the limitations imposed upon this study by the decision to not include the EPQ as a predictive measure in Study Two. At the time of collecting the second wave of date, given the lack of association found between individual difference factors measured by the EPQ in Study One, it was

considered more efficient for data collection purposes, not to include it in the second phase. However, upon reflection, and in light of the findings indicating that the other psychosocial correlates of PBID were more important at phase two, it may well have been more appropriate to include this measure in the second study.

Consideration also needs to be given to the awareness of limitations that arose in relation to the measurement of several constructs within the research project (i.e., teasing, perceived evaluation, family environment). As discussed in Study One, the format of data collection utilised in the current study limited the ability to offer more than cursory interpretation of some of the findings. Specifically, the decision to reduce some data to categorical format, limited the extension of interpretation of any significant relationships uncovered. For example, when considering the relationship between perceived evaluation and PBID, this score was comprised as a composite of mother, father and friends reported evaluation. As such it was not then possible to deduce whether in fact one person above others was more relevant to the child's evolving self- schema.

Perceived Body Image Dissatisfaction

Notwithstanding these limitations, the findings of this thesis do provide some interesting and illuminating insight into the manifestation and development of PBID in childhood. The findings have highlighted that because one can identify a given construct within a particular age group, this does not necessarily mean that the construct is the same, or comparable in intensity as is known for another age-group. As noted by Smolak (1996), a surface similarity does not necessarily imply a deeper structural similarity. Indeed, the results of this current research have highlighted that PBID is not the same for a seven year-old as it has been reported to be for an older adolescent.

What the current research has introduced is the lack of clear age-related changes in the structure of PBID as the children developed, and entered early adolescence. Importantly, the current research has indicated that, as with adolescents, the construct of body image dissatisfaction amongst children is comprised of two separate components (i.e., affective and cognitive). Moreover, the research has indicated that whereas the affective component of PBID is strongly associated with, and predicted by self-esteem, the cognitive component is significantly associated with and predicted by socialisation processes such as teasing and perceived evaluation. Moreover, whereas the relationship between these two components was found to be moderate initially, as expected (e.g., Wilson & Gullone, 1999), the relationship between the two dimensions of PBID was found to have become more strongly aligned over time. Furthermore, there was a high level of stability found in the actual prevalence of PBID over the 18-month period from middle childhood into early adolescence. Interestingly, as discussed in Study One, it appeared that in its earliest stages girls were only just beginning to internalise notions of the "thin" ideal, with only minimal relationship being found between socialisation/contextual factors and PBID. Similarly, PBID as reported by boys at this early age appeared to be only just starting to incorporate a sense of integration of negative social appraisal. However, as was noted in Study Two, 18-months later the nature of relationships between the biopsychosocial factors and PBID had altered to incorporate a much higher level of fluidity, with PBID being more aligned with actual physiology, negative social appraisal and self-esteem for both sexes. Importantly, whereas girls' PBID appeared to become more aligned with their self-esteem, boys' PBID was more strongly aligned with an emotive aspect of perceived and actual social appraisal. These findings serve to reinforce the importance of considering male and female psychosocial development separately. Moreover, as noted by Shapiro (1995), they reinforce the need for researchers and clinicians to remain cognisant of the diversity of developmental differentiation and integration processes as they influence growth along the child/adolescent lifespan.

As noted in Chapter Five, the notion of equality for the sexes remains a fantasy, with the generation of stereotypical ideals regarding stature, intelligence, emotional expression and expected behaviours continually being reinforced through the generations, particularly from parents to children (Hughes et al., 1999; Polcelynch et al., 1998; Tiedman, 2000). These gender differences have been highlighted in the

current research. That is, girls were found to be more introspective in their evaluation of self, whereas boys were found to be more external in their evaluations of self.

As with previous studies (Berschied et al., 1973; Tiggemann, 1992; Wertheim et al., 1992), the current research further contributed to the seeming impossibility of untangling the noted complexity of relationship between PBID and self-esteem. The findings indicated that, contrary to some reports (e.g., Fabian & Thompson, 1989; Silberstein et al., 1988; Tiggemann & Wilson-Barrett, 1998), there is a strong shared relationship evolving between these constructs in childhood. Particularly for girls, 'global' self-esteem was found to be a unique predictor of each dimension of PBID. The strength of predictive relationship between these constructs was also found to clearly increase from time one to two.

As noted throughout the process of the research, the importance of actual physiology (i.e., BMI), was paramount in girls' determination of PBID. Overall, the impact of being either over- or underweight was found to be of prime importance to the manifestation and evolution of PBID across childhood into early adolescence. It is important to remember that not all children who reported PBID were under- or overweight. There were also children who were classified as being of within normal weight for height range who reported perceiving themselves as either too thin or too fat. However, not all children reported high levels of PBID. Furthermore, particularly for boys, the earliest stages of PBID were found to be more closely aligned with the impact of socially motivated factors, such as being teased or perceiving oneself as being seen to be not 'just right' physically, than with actual BMI. These socialisation/ contextual factors were also found to be correlated with self-esteem, which in turn was strongly associated with individual differences such as neuroticism, extroversion and psychoticism. Therefore, as discussed earlier, rather than the findings of this study

indicating any form of straight linear association between weight, socialisation\ contextual or individual difference factors and the onset or progressive development of PBID in childhood, the findings emphasise the highly complex interactive nature of relationship between these factors.

The significant predictive relationship found between socialisation/contextual factors (i.e., teasing, perceived evaluation) and PBID, serves to accentuate the strength of parental inculcation of attitudes and behaviours in their children. Indeed, these above-mentioned findings suggest that children's schematic scripts (Bjoklund, 2000), of themselves are very strongly aligned with their perceptions of themselves as an accepted, and valued progeny. As such, these findings do support the proposal that a parent's concerns about their child's perceived conformity to socially approved norms has a significant effect on their child's psychosocial development. From the overall outcome of this thesis, it is apparent that any preventative or interventionist efforts to stem the development of PBID in childhood, are contingent on clinicians being able to change parental behaviours and cognitions. Behaviours that promote the idealisation of one particular physicality and body form above another, and actively encourage disparagement of those who do not fit the idealised social norm are clearly going to interfere with the success of any intervention effort.

Restricted Eating Behaviours

Notwithstanding the lack of a strong prospective relationship between PBID and REB, the outcomes of this thesis do offer a more extensive understanding of children's dysfunctional eating behaviours. Indeed, the lack of a strong relationship, either concurrently or prospectively, between PBID and REB in this thesis would suggest that, although children do manifest a level of dissatisfaction with their bodies at this younger age, as proposed earlier, they have not as yet developed a consolidated

"thinness schema" (Smolak & Levine, 1994). It appears that it is only in the later years of childhood and early adolescence that the concurrent relationship between PBID and REB develops. Even then, this relationship remains weak. As for self-esteem and PBID, it is difficult to determine the specific nature of such an evolving relationship between PBID and REB. Is one factor caused by the other, or is there a reciprocal relationship between the two, where one is mediated by the other (e.g., Tiggemann, 1997)? Conversely, does this noted evolution of relationship between PBID and REB arise out of the differentiation and integration processes of childhood development as children begin to interact more effectively and consciously with their environment (Shapiro, 1995)? These questions are beyond the scope of the current study, however the current findings suggest that, given the lack of relationship found between self-esteem and REB in childhood/early adolescence, the mediating effect found by Tiggeman (1997), is more particular to adolescents. Furthermore, given the very weak relationships found between these two constructs in the current research, it is more likely at this age that the noted evolving relationship is more heavily based in cognitive developmental processes, than causality and interdependence.

Also important to note is that children's REB are not simply an act of mimicry. Rather their eating behaviours appear to be premised upon a conscious realisation of choosing a particular action to achieve a particular result. For a proportion of children this action was associated with the reality of being over-weight.

As discussed in Study One, children did indicate that, for the major part, their behaviours were aligned with what could be called healthy eating practices. However, given the developmental nutritional requirements of this age group, any form of unnecessary or prolonged dietary restraint could become less than innocuous (Hill, 1996; Kreipe & Forbes, 1990). Therefore, whilst the healthy living programs currently

being popularised within our community, particularly those which emphasise severe reduction or elimination of particular food groups, such as fats or excessive carbohydrates, whilst being pertinent to specific adult disease, and possibly well intentioned, need to be kept in context. It is important that educators and clinicians are careful to not overstate their case. This is particularly so when addressing young pre- and adolescent groups who require as high a level of nutritional sustenance, including appropriate levels of fats, protein and carbohydrates, as possible in order to attain maximum potential as a fully grown healthy adult (Prentice et al., 1991).

Theoretical Implications

The outcomes of this thesis have extended the theoretical basis for understanding PBID. Importantly, as noted by others (e.g., Kenny & Adams, 1994), whilst socialisation/contextual variables do have some etiological significance, they alone (and particularly those included in the present work), do not provide a full understanding of the underlying psychosocial processes involved in the development of PBID. Specifically, individual difference factors do not of themselves provide a sufficient explanation. Furthermore, physiological factors such as sex or BMI are not so strongly pronounced as predictive factors to provide any satisfactory understanding of the complete rationale for the development of these attitudes in children.

Moreover, it is evident that as proposed by recent research (e.g., Muth & Cash, 1997), previously primarily untapped areas of concern (i.e., concerns with under weight) are also manifest. Furthermore, the research has indicated that PBID is present from an early age, and evolves in structure from a rather distinctly bi-dimensional to a more strongly integrated construct, as one develops into early adolescence. Of intrigue, whereas previously the research has consistently supported a strong link between PBID with REB within adolescent girls (e.g., Attie & Brooks-Gunn, 1989;

Cattarin & Thompson, 1994; Huon, 1994), the findings of this thesis indicated that this relationship is not the same in childhood. Rather, the association between these two constructs appears to evolve over time, and to be primarily associated with actual physiology (i.e., BMI), in its earlier stages.

In consideration of these issues, the findings of this thesis indicate that, contrary to that proposed at the outset of this thesis, a reliance on an integrated theoretical approach, such as the biopsychosocial model, is also not sufficient to explain the actual genesis and development of PBID. Rather, as the results have shown, there is an indication that cognitive development processes of childhood are also an important aspect of this development in attitudes.

As noted by Scarr (1955), species normal genes, environments and individual variations all combine to affect personality, social and intellectual development. Furthermore, Shapiro (1995), has highlighted how the principles of development (i.e., age-specific competencies, socio-economic context, biological stages, and evolving social interaction), are specific to developing an understanding of the specificity of psychosocial issues. For example, research by Silberg, Rutter and Eaves (2001), further highlights how genetic and environmental influences are differentially associated with depression in girls, dependent on age. Also, Kagan (2001), has argued that cognitive transitions over the first 12 years of life have a strong impact on subsequent presentation of affective states. The findings of this current research would suggest support for a proposal that PBID in childhood is also strongly associated with these processes. As such, rather than proposing a direct biopsychosocial model of understanding for the development and prevalence of PBID in childhood through adolescence, the findings of this thesis would indicate that there are distinct differences between the manifestation of attitudes and behaviours in childhood in comparison to

adolescence. Furthermore, as proposed by Rutter (2000), any attempt to address issues of psychopathology in adolescence by application of intervention programs in childhood would be misguided, unless these were premised on a fuller understanding of both the risk and resilience factors associated with the ongoing development of these factors from one age group to the next.

Future Directions

The findings of the current research indicate that there is little evidence for concern over the suspected relationship between PBID and REB in middle childhood.. However, further research, addressing the limitations identified in the current research, as well as to replicate the findings is required before one can categorically conclude that PBID in childhood is not of concern. Furthermore, as has been found in adolescence (Kostanski & Gullone, 1998), whether there are other, as yet not addressed issues (e.g., anxiety, depression) that are more pertinent to the manifestation of this attitude in children remains to be examined.

Importantly, future research needs to focus on developing a broader understanding of the issues at hand. It is apparent that practices such as deriding another's physical presence on the basis of preconceived stereotypical notions may be detrimental to development of healthy body attitudes in children, particularly boys. Future research, examining the relationship between teasing and children's self-concept is needed. It is also apparent that the development of self-esteem is strongly associated with the development of healthy attitudes in children, particularly girls. Therefore, further research examining the development of this construct in childhood is also required. Moreover, investigation of the interactive relationship between individual difference factors, particularly self-esteem and socialisation/contextual factors, and how this impacts on children's evolving self-schema is required. In particular, the

identification of factors which act as a risk to, or protection from being vulnerable to negative social environmental influences, such as teasing, is required.

Whether any form of comprehensive preventative program to deal with the manifestation of PBID in childhood is warranted, remains unanswered. As noted previously, whilst the current thesis has indicated that these attitudes are not, as expected, strongly associated with REB, it is also possible that these attitudes could be an indication of underlying psychopathology. Moreover, the evolving strength of relationship between identified biopsychosocial factors and PBID, and PBID with REB as the children entered early adolescence, suggests that these attitudes could become more detrimental for children as they age. Therefore, preventative or intervention programs with children may be worthwhile.

However, any form of preventative or interventionist program with children would require attempting a broader form of social reform. Undeniably, any form of social reform is difficult. It is necessary, as has been discovered with issues such as bullying, that rather than focusing on the individual, either 'perpetrator' or 'victim', a broader community based approach be considered (Carney & Merrill, 2001). Importantly, it is also an inherent necessity that any components within an interventionist approach be adapted to suit the particular age group for which it is intended. For example, adult dietary information is not necessarily appropriate for children. Furthermore, adults need to be educated more extensively on the nutritional needs of their growing child. Similarly, parents, children and the broader community need to be made publicly cognisant of the detrimental effects of imposing, even covertly, stereotypical expectations of appearance and behaviour.

However, whether it is possible, or indeed even desirable to completely eradicate some forms of maintaining social compliance and restraint in relation to body

image attitudes and eating behaviours, is not an answer that can be addressed within the limitations of the findings from this thesis. It may indeed be the identified attitudinal discrepancies between self and ideal identified in this study are an indication of the necessary motivational processes of developmental striving (Bjoklund, 2000), associated with healthy psychosocial growth and development. The findings of this thesis lead one to conclude that the manifestation of PBID in childhood is not equivalent to that identified in adolescent populations. Furthermore, whilst further research is required to substantiate the understandings of these attitudes in childhood, particularly in association with REB, there is little indication for the identification of these attitudes to elicit primary clinical concern.

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Appendix A: Details of research cited

Table 1 **Longitudinal studies examining body image as a predictor of dysfunctional eating behaviours**

Authors	Variables	population	instruments	main findings	limitations/critical issues
Attie & Brooks-Gunn, (1989)	puberty body image personality family environment	193 girls and mothers mean age girls time 1 14 years	Tanner SIQYA FES EAT-26	Body image only significant predictor of eating behaviours over 2 year period Those girls who, in early adolescence or pre-adolescence felt most negatively about their bodies that were more likely to develop elevated levels of eating problems. It is the pubertal changes in body image, wherein as girls mature sexually they accumulate large quantities of subcutaneous tissue and experience a "fat spurt", that significantly predicted PBID.	Can attitude time 1 predict behaviour time 2? Assumption of body image dissatisfaction being a concomitant factor of pubertal development was not adequately addressed Constructs already present at time 1, need to go earlier to examine predicates of both
Cattarin & Thonpson, (1994)	maturational status BMI teasing body image eating disturbance psychological wellbeing	87 girls, mean age15.3] years at time 2 (3 year follow-up).	PDS1 PARTS SIQYA EDI-BD/DT/B COOP STAIC CDI	In all instances time 1 level of criterion variable significant level of time 2 level. BMI predicted teasing time 2 and body image (EDI-BD). Teasing body image (SIQYA). EDI-BD predicted EDI-DT. maturational status predicted body image and eating disturbance.	Supports Attie & Brooks-Gunn findings of body image disturbance being a precursor to later eating disturbance. Teasing a developmental antecedant to body image problems. Limited sample size, only small amount of overall variance explained
Killen, et al., (1996).	body image dieting eating pathology temperament BMI alcohol cons. Interview	825 9th grade girls mean age 14.9 years	WC EDI DR E-A-S Self-report of Alcohol consumption SCI	Over 4 years, 4% developed partial syndrome eating disorder. High weight concerns only sign predictor of partial syndrome by age 17 years.	Weight concerns (fear of weight gain/fatness, worry about shape and weight, importance of weight and dieting history) is an important factor to be considered In the development of disordered eating.
Keel, et al., (1997)	body image self-esteem depression puberty BMI	80 girls, 85 boys grades 5 & 6	SIQYA RSI CDI PDS2 EAT-26	Time 1: all independent variables significant predictors of eating behaviours for girls, not for boys. Time 2: only BMI and body image significant predictor of eating behaviours for girls, body image predictive for boys Longitudinally BMI & puberty predictive for girls eating behaviours, body image predictive for boys. Controlling for time 1 eating, no significant predictors for girls, but body image significant predictor still for boys	best predictor of time 2 eating behaviours is previous eating behaviours body image dissatisfaction and dysfunctional eating behaviours occur well before puberty predisposition for boys and girls different need to consider change in determinants of attitudes and behaviour over time Important to identify early risk factors

Table 1 Longitudinal studies examining body image as a predictor of dysfunctional eating behaviours

Authors	Variables	population	instruments	main findings	limitations/critical issues
Leon et al., 1995	eating disorders	852 girls 815 boys	EDI HBS BMI PDS MPQ NSLCS MSF	Stronger predictor of later behaviour is previous engagement in that behaviour. Gender differences. in level of risk Personality remained risk over three data points.	over administration of tests reliance on self-reports, no control for social desirability of responses EDC
Stice, Agras & Hammer, (1999).	eating behaviours BMI Maternal influences	216 newborns & mothers	infant sucking Maternal BMI TFEQ EDI Matern:l report	disturbed eating increased over first five years. maternal factors significant predictor of infant eating behaviours	Not known if these early behaviours are connected to later childhood behaviours or attitudes
Stice, Mazotti, Krebbs, & Martin (1998).	PBID Dieting Binge eating	320 adolescent girls	BMI IBSS PSCP SDBPS BULIT-R DRES DIS	body mass, pressure to be thin, internalisation of. ideal, PBID and binge eating positively correlated with dieting. Body mass, pressure to be thin, PBID, and binge eating predicted increased dieting over time	Reliance on self-reports, non-experimental study, short time lag, non-representativesample.

Table 2: Sex and Gender

Authors	Variables	population	instruments	main findings	limitations
Fallon & Rozin, 1985	sex body image	474 college students	FRS	females: current figure greater than ideal or perceived attractive. Males no differences	analysis focused on linear mean differences
Drewnowski & Yee, 1987	weight satisfaction sex	456 college students, 328 males, 128 females	survey	majority females wished to lose weight (85%) 40% males wished to lose weight, 45% of males wished to gain weight	reliance only on self-reported of weight satisfaction
Kenny & Adams, 1994	sex body image drive for thinness	1,485 students 1,159 female 326 male	EDI subscales	females more dissatisfied than males overweight females most dissatisfied	EDI only measures concerns with fatness
Siever, 1994	gender attractiveness eating behaviours body image	250 university students (53 lesbian, 59 gay men, 63 heterosexual men, 62 hetero women)	BES BSQ FRS EDI EAT	gender a significant factor in predicting body image homosexual men highest, followed by heterosexual women, lesbians and finally heterosexual men	failure to consider curvilinear relationship in assessing body image dissatisfaction
Muth & Cash, 1997	body image sex	277 college students (136 men, 141 women)	MBSQR BIQ SIBID BIAI	Body image dissatisfaction present for both sexes; linear for females, curvilinear for males	need for further understanding of male PBID, age-cohort effects. need for qualitative understanding of PBID for both sexes.
Shapiro et al., 1997	sex fear of fat body esteem dieting behaviour social influences	105 boys, 134 girls, mean age 8 years	POAATO EAT BE	77% girls, 60% boys scared of being fat 23% girls, 18% boys wished to be thinner 41% girls, 29% boys dieted and/or exercised to loose weight. Most influential source of social influence was others relations, nuclear family and media	lack of representativeness of sample
Rolland et al., 1997	body image eating behaviours sex	139girls, 105 boys age range 8-12 years	CFRS ChEAT	more girls (55%) select a thinner ideal figure than boys (33%). higher proportion of girls (14%) diet than boys (8%)	failure to evaluate desire to be larger

Table 3: age and puberty

Authors	Variables	population	instruments	main findings	limitations
Brodie et al., 1994	body image puberty girls	59 pre -41 post BSS VDS	Silhouettes	neither puberty not measurement modality significant indicator of PBID	Perceptual distortion not same as perceived satisfaction
Duncan, et al., 1985	body image school behaviour deviance	5,753 adolescents drawn from a national sample of children and youth across the US.	Tanner self-report behaviours	early maturing girls indicated greater desire to be thinner than late maturers	not necessarily maturation but weight increases associated with such that is the actual catalyst.
Davies & Furnham, 1986	sexual attractiveness body shape and size age	183 adolescent females age range 12-18 years	self-report	dissatisfaction with hips and stomach increased with age, breast size focal point for 16 year olds	only cross-sectional, so cannot determine developmental patterns forced rank order may lead to artefact response. Non generalisable sample
Maloney, et al., 1989	weight satisfaction eating behaviours age	318 children (53% girls, mean age 9.7 years),	ChEAT self report	45% wanted to be thinner, 37% dieted, 7% within anorexia range	concerns about weight and dieting commence well before onset of adolescence desire to loose weight commences around grade three then increase with age
Collins, 1991	age body image race socio-economic status	1,118 children 51% boys, mean age 8 years	CFRS	47% boys 44% girls indicated no figure discrepancy between their self and ideal self, 42% girls selected an ideal self which was thinner compared to 14% who desired an ideal which was heavier. Comparatively, 30% of boys indicated a desire to be thinner, whereas 23% indicated a preference to be heavier.	reliability and validity of CFRS needed no clarity of intrinsic meaning of PBID
Ohtahara et al., 1992	age body image	129 children 126 adolescents aged 6 - 11 years	FRS BMI	41% girls, 25% boys perceived ideal thinner than actual figure. No significant age differences although trend for discrepancy to increase with age for girls	focus only on a linear mean evaluation of body image discrepancy
Thelen et al., 1992	body image eating concerns	191 non-obese children 8 - 12 years	BIEQ	no sex differences on body image or eating concerns for younger children. Older girls more concerned than boys with being or becoming overweight and have a preference for being thinner. Weight concerns begin between grades two and four for girls, however no obvious genesis for boys.	Questionnaire heavily biased towards measurement of fatness only, nor was it psychometrically evaluated for construct validity or reliability

Table 3: age and puberty cont.

Authors	Variables	population	instruments	main findings	limitations
Koff & Rierdan, 1993	puberty eating behaviours body image	209 6th grade girls	Tanner Menstrual status BMI BES Appearance	advanced pubertal development associated with eating attitudes and behaviours - especially weight and fat gains. body mass rather than actual menarche identified as problem	non-representative sample
Smolak, et al., 1993	dating school transition puberty body image	79 6th & 8th grade girls	self survey FRS	onset of menarche not sufficient indicator of body image dissatisfaction Combination of events only predictor of future eating behaviours and body attitudes over 2 year span	lack of homogeneity within groups need to consider potential mediators of pubertal influence

Table 4: socialisation processes

Authors	Analysis/Variables	population	instruments	main findings	limitations/ main issues
Media Influences					
Levine, et al., 1994	sociocultural cues in relation to body image & dieting	385 adolescent girls mean age 13 years	FRS ChEAT	the media were reported by the girls to be a valuable source of information regarding attractive and ideal body shapes and provided them with the methodology for how to obtain such. Those girls who received multiple messages regarding the "thin ideal" from parents and peers as well as reading the magazines who were more likely to have higher body dissatisfaction and dietary behaviours. Role of the media may be more one of reinforcing more immediate personal pressures and individual vulnerabilities than of actually creating them.	data did not provide the researchers with any possible means for evaluating causality between reading the magazines and developing body image dissatisfaction
Martin & Gentry, 1997	motivational drives advertising physical attractiveness self-esteem	268 girls (aged 9 - 14 years)	Magazines	Manner in which girls instructed to view advertisements influenced their perceptions of their physical attractiveness. For grade six girls only were there significant effects for motive being linked to perceived body image. Only for fourth graders was motive linked to self-esteem.	Not straight cause and effect, rather motivation that links media to personal attributes
Cusumano & Thompson, 1997	media exposure awareness of ideals internalisation of socio-cultural messages self-esteem body image eating disturbance	EDI-BD EDI-B	PMAT SATAQ EDI-DT RSI	Exposure itself not a predictor of either construct. Rather, awareness of - socio cultural values and norms in relation to appearance and an internalisation of these that were significant correlates and predictors of body image, lower self-esteem and eating disturbance.	Potential desensitisation of participants to images
Wertheim, et al.,1997.	body image dieting	30 adolescent girls, (mean age 15 years)	interviews	Girls believed media portrayal of the thin ideal created a major pressure to be thin However, reinforcement of pressure by peers and family were more influential. Social comparison, "I'm fat talk", mind reading negative appraisals were main influences perceived to lead to body dissatisfaction.	Limitations of sample size and reliance on self-report limit reliability of data. However, findings do indicate that media alone is not a sufficient cause of body image dissatisfaction
Parental Modelling					
Thelen & Cormier, 1995	body image weight control modelling	118 families [70 two parent families, 30 single parent families] 61 girls & 49 boys (9 - 10.5 years)	self-report FRS ChEAT	Parental modelling and body image dissatisfaction not significantly correlated with child's body image concerns nor dieting behaviour. Family type not a significant factor influencing mother-daughter variables. Single-parent sons report less concern weight control than two-parent sons. Parents' direct encouragement significantly correlated with daughter's, not son's, body image and dieting behaviour.	Perceived and/or direct communication from parents influences pre-pubescent females' body image and dieting far more strongly than modelling.

Table 4: socialisation processes cont.

Authors	Analysis/Variables	population	instruments	main findings	limitations/ main issues
Wertheim et al., 1999	eating behaviours body image modelling	396 adolescent girls' and parents (both mother and father).	FRS2 DEBQ-R Abstain PEDLW BMI self-reports	Parental encouragement was a more important predictor of their daughters' dieting behaviours than modelling. Mother's direct encouragement strongest predictor of behaviours even after controlling for daughter's body mass. Encouragement to lose weight was not only a particular towards daughters who are overweight. Importantly, daughters' perceived encouragement to lose weight even stronger predictor of actual behaviour than parents' reported encouragement.*Parental communication and evaluation*	Parents' PBID are a predictor of daughter's behaviours, but not as strong as direct or perceived encouragement.
Smolaket al., 1999	parent attitudes & behaviours child attitudes & behaviours direct comments	72 children and their parents	survey BES	Strong correlations between parents', particularly mother's, direct comments and modelling and the child's attitudes and behaviours. Direct comments have a stronger influence than modelling.	Study limited in its scope to evaluate predictive values given small sample size. Moreover researchers failed to control for body mass. Nevertheless, findings indicative of parents attitudes having an important function in the development of children's subsequent attitudes
Pierce &Wardle, 1993	parents' appraisal BMI (child) self-concept child perceptions	461 parent-child dyads (child age range 9 - 11 years)	survey BMI PHSC	Strong correspondence between children's perception and actual parental evaluations of the child's body size. Children's self-esteem strongly correlated with both actual and perceived parental dissatisfaction with child's body size. Negative appraisals of the child's body size strongly associated with lower self-esteem. Relationship differ by sex and BMI, such that girls appraised as "fat" and boys appraised as "too thin" reported the lowest levels of self-esteem.	These findings support an interactionist perspective when evaluating construct of body image dissatisfaction
Koivisto, et al., 1994	parents' direct communication children's eating	50 families (children aged 3 - 7 years)	record of dietary intake video recordings of mealtimes	Child's energy intake strongly associated with parental recommendation to eat particular foods, and inversely related to negative non-food statements and offers of assistance. These relationships significantly eliminated when controlling for age (i.e., older children tended to eat more and receive fewer and parental interventions). However correlation between negative statements were consistent across age.	Verbal communication a powerful determinant of child's food preference and energy intake behaviours.
Peer Groups Dyer &Tiggemann, 1996	school environment eating behaviours body concerns role concerns	142 adolescent girls (mean age 15 years 6 months).	EDI FRS3 RCS BMI	School environment an important factor in girls identifying ideal and perceived attractive body types. Single sex school girls choose significantly thinner ideal and attractive figure & significantly higher body dissatisfaction and drive for thinness scores than co-ed girls. These findings were still evident after controlling for actual body mass. factor in the determination of girl's body	Study limited in scope of sample and instrument utilised to measure role concerns. Whilst factors involved in determining body image concerns are complex, social environments may be a potentially important attitudes and eating behaviours.
Oliver &Thelen,1996	perceptions of peer influence eating concerns body image	142 children (77 boys, 65 girls, mean age 9.25 years) 122 children (59 boys, 63 girls, mean age 11.25 years).	I-PIEC BIEQ EDI-C	Children's perceptions of peer messages and likability significant predictors of both boys and girls eating behaviours and body image concerns. Specifically, belief that being thin will increase peer likability a significant predictor of Drive for Thinness, Body Image, Diet and Overweight (relationship stronger for girls than for boys). Girls report significantly higher levels of eating concerns than boys, and older children have more concerns with being overweight.	Observed relationships may be result of pre-existing behaviours drawing more attention simply perceiving more influence or indeed some other factor. Furthermore, reliance on child self-reports limit the validity of findings also perceived peer relationships scale only developed within context of the study.

Table 4: socialisation processes cont.

Authors	Analysis/Variables	population	instruments	main findings	limitations/ main issues
Paxton, et al., 1999	body image dieting concerns friendship groups peer influences body mass	523 adolescent girls (mean age 15.5 years)	BAQ DEBQ-R EDI-B survey BMI	Friendship cliques shared similar levels of body image concern and PBID. Controlling for psychological and physical factors, perceived friend's attitudes, behaviour and social comparison significantly predict variance in body image concern and eating behaviours. Girls' friendship circles tended to reflect a communality amongst the individual members in relation to their body image concerns and dietary behaviours.	Whether perceived evaluation of communication amongst friends a consequence of the priority of these constructs within actual conversation or resulting from the individual girl's prioritisation of these constructs was not able to be determined. Similarly, limits to defining friendship cliques. Peer group relations are an important component of the adolescent girl's developmental process
Teasing					
Cash, 1995	teasing body image	111 college women		72% of women experienced appearance-related teasing/criticism throughout middle childhood/early adolescent years, spanning 2 - 6 years. Over 70% recalled this to be moderately (29%) or severely (42%) upsetting. Facial characteristics (41%) and weight (31%) most frequently cited foci. 45% recalled one or more nicknames. Severity of teasing found to be significantly correlated with negative body image evaluations and affect.	Teasing reliance on retrospective recall of events non-generalisable to broader population
Reives & Cash (1996)	appearance-related teasing sibling comparisons maternal modelling body image	152 college women (aged 17 - 35 years)	PARTS ATI SAQ MATPA MBSRQ ASI SIBID	PARTS; ATI; SAQ; MATPA, independently and additively explained variance in current body image. Teasing accounted for 15% of variance in appearance self-evaluation and 16% of appearance schemata. most common attributes subject to teasing: 1. head and face (45%) 2. weight (36%). Perceived modelling and sibling comparison significantly predicted 18% of the variance in weight preoccupation. Appearance related teasing, sibling comparison & perceived maternal Modelling additively explained 23% of variance in body image dysphoria. Peers reported to be the highest perpetrators of teasing/criticism (62%), then family (Mothers 30%; Fathers 24%; Brothers 41%; Sisters 22%).	reliance on retrospective recall correlational study only limited population
Wetheim et al., 1997		year 10 girls	interviews	whilst the girls recognised teasing about their weight from peers as a form of being taunted, frequently they took these taunts literally	limited sample. limited methodology

Table 5: Individual differences

Authors	Analysis/Variables	population	instruments	main findings	limitations/ main issues
Personality					
Davis, 1992	personality factors PBID BMI	99 female athletes 111 non athletic students Dieting behaviours	EDI EPI-N SBS weight preoccupation.	Higher levels of both dieting and PBID amongst athletes compared to non-athletes. Subjective body size independently related to weight and dieting concerns, but not actual BMI. Emotional reactivity predictive of	BMI not adequate for discerning between toned and non toned body weights. Differences in personality between athletic and non athletic females needs to be considered
Davis, 1997b.	Perfectionism Anorexia Bulimia	123 females diagnosed with an Eat Dis.	BES MPS EPQ-N NPQ	Normal perfectionism +ve related to body esteem when neurotic perfectionism is low. PBID elevated when both normal and neurotic perfectionism high.	Specific to clinical population. Only adult females.
Davis et al., 1991	Neuroticism Physical activity PBID	103 non exercising, 88 regular exercising young adult males	EPI PA BD Weight satisfaction % body fat	Emotional reactivity (N) positively associated with body dissatisfaction. N acts as a sensitiser to social expectations for males as for females. Personality factors mediate between exercise and PBID.	Not enough known about men and body image. Limited adult population. Need to consider impact of/ and use of exercise as another method of restrictive behaviour.
Davis et al., 1996.	*gender* Neuroticism	*52 women* 53 men	*BES* EPI-N *PBID* BSRI BMI	*Masculinity related to* [illegible] *ty related to +ve* PBID in men. N acts [illegible] *these relationships* only present when N is	Further consideration of gender-role orientation in relatic *to cultural expectations needed. Limited population.*
Self-esteem					
Abell & Richards, 1996	PBID Self-esteem SES	41 male 43 female undergraduates	CSEI RSI OSIQ FRS HISES	Males sign. more diss. With weight; a [illegible] ier. Both males and females sign. +ve rel. between PBI [illegible] -esteem. Upper class females sing. stronger rel. between body [illegible] pe and self-esteem.	Males who want to be heavier not necessarily want to lo *heavier, but more physically stronger. Small sample. Glo* nature of measure of PBID may be limiting, with particu aspects of PBID being related to self-esteem, for either se
Folk et al., 1993.	Self-concept PBID	47 children 18 girls, 29 boys	BSQ PHSCS BMI	Differences between sexes. Boys increasing rel. between PBID and self-concept with age, not girls. Older boys also lower PBID than younger.	Small specific sample, limited cross-sectional analysis.
Tiggemann, 1992.	Self-esteem PBID	338 undergrads 104 males 234 females	FRS RSE	Females sign. higher PBID than males. Older females sign. greater current figure than younger females. Self-esteem not related to BMI. Increasing gender differences in PBID with age. Older women, self-esteem correlated with PBID, not younger. However, it is older women who have maintained slim figure who have higher self-esteem.	Similar findings to previous research, however reliance on linear evaluation limits findings. Need longitudinal studies to confirm conclusions re: age differences.

Table 5: Individual differences cont.

Authors	Analysis/Variables	population	instruments	main findings	limitations/ main issues
Tiggemann, 1997.	Dietary restraint PBID Psych wellbeing	215 undergrads 159 females, 56 males	BMI Weight diss. RRS RSI RDAS	Females sign higher restraint than males. Males sign higher psych well-Being. Regression analysis indicated that restrain acted as a mediator as well as moderator of relationship between self-esteem and PBID.	Needs to be longitudinal, rather than cross-sectional Path analysis limited to identified rel. not causality. Challenges current assumptions, but not conclusive in determining rel. between self-esteem and PBID
Tiggemann & Wilson-Barrett, 1998	PBID self-esteem stereotyping gender BMI	140 children (7 – 12 years)	FRS-C CFSEI-C	Girls significantly smaller ideal than current figure. Not so for boys. Girls ideal significantly smaller than boys attractive – replication of previous adult findings. Both sexes provided stereotypical negative attitudes to obese figure, however only boys PBID sign correlated with these attitudes. Boys self-esteem also sign correlated with PBID, not girls, indicating normative discontent in girls.	Lack of understanding of what influences development c PBID, although assumed socio-cultural influences potent root cause. Only one measure of PBID, linear evaluatior

Legend:

Abstain: Food Abstention Scale; Benedikt et al., 1998.
ASI: Appearance Schemas Inventory; Cash & Labarge, 1996.
ATI: Appearance Teasing Inventory; Cash, 1995.

BAQ: Body Attitudes Questionnaire; Ben-Tovim & Walker, 1991b.
BCDS-PA: Bulimia Cognitive Distortions Scale- Physical Appearance Subscale; Schulman, Kinder, Powers, Prange & Cleghorn, 1986.
BD: modified Body Cathexis Scale; Secourd & Jourard, 1953.
BE: Body-Esteem Scale; Mendelson & White, 1982.
BES: Body Esteem Scale; Mendelson & White, 1993; Franzoi & Sheilds, 1984.
BIA: Body-Image Affect Inventory; Syzmanski & Cash, 1995
BIAI: Body-Image Affect Inventory; Syzmanski & Cash, 1995.
BIA2: Body Image Assessment; Williamson, Davis, Bennett, Goreczny & Gleaves, 1989
BIAQ: Body Image Avoidance Questionnaire; Rosen, Srebnik, Saltzberg & Wendt, 1991
BIATQ-PS: Body Image Automatic Thoughts Questionnaire - Positive Statements subscale; Brown, Johnson, Bergeron, Keeton & Cash, 1988;
BIEQ: Body Image and Eating Questionnaire for children; Thelen et al., 1992.
BIS: Body Image Survey, Berscheid, Walster & Borhnstead, 1972.
BIQ: Body-Image Ideals Questionnaire; Cash & Szymanski, 1995.
BMI: Body Mass Index (w/h^2); Garrow & Webster, 1985; Keys, et al., 1972.
BULIT-R: Bulimia Test Revised; Thelen, Farmer, Wonderlich & Smith, 1991.
BSRI: Bem Sex-Role Inventory; Bem, 1981.
BSS: Slade, Dewey, Newton, Brodie & Kiemle, 1990.
BSQ: Body Shape Questionnaire; Cooper, Taylor, Cooper & Fairburn, 1987.

CDI: Children's Depression Inventory; Kovacs, 1985.
CFRS: Children's Figure Rating Scale; Collins, 1991.
CFSEI: Culture Free Self-Esteem Inventory; Battle, 1976.
ChEAT: Children's version of the Eating Attitudes Test; Maloney et al., 1989.
COOP: Coopersmith Self-esteem Inventory; Coopersmith, 1981.

DEBQ-R: Dutch Eating Behaviour subscale measuring Restraint; Van Strein, Fritjers, Bergers & Defares, 1986.
DIS: Dietary Restraint Scale; Stice et al., 1998.
DR: Dietary Restraint; Herman, Polivy, Pliner & Threlkeld, 1978.
DRES: dietary Restraint Scale; van Strien et al., 1986.

EAT: Eating Attitudes Test; Garner & Garfinkel, 1979.
EAT-26: Eating Attitudes Test- revised; Garner & Garfinkel, 1979.
EDI: Eating Disorders Inventory; Garner & Olmstead, 1984.
EDI-BD/DT/B: Eating Disorders Inventory subscales body dissatisfaction, thinness and bulimia; Garner et al., 1983;
EDI-BD: Eating Disorder Inventory - Body Dissatisfaction Scale; Garner, Olmstead & Polivy, 1983.
EDI-C: Eating Disorder Inventory for Children; Garner, 1984.
EDI-1: Eating Disorder Inventory - Second Edition; Garner, 1991.
EPI-N: Eysenck Personality Inventory – Neuroticism; Eysenck & Eysenck, 1968.
EPQ-N: Eysenck Personality Questionnaire – Neuroticism; Eysenck & Eysenck, 1991.

FES: Family Environment Scale; Moos, 1974.
FRS: Figure Rating Scale; Cohn et al., 1987.
FRS2: Figure Rating Scale: Fallon & Rozin, 1985.
FRS3:Figure Rating Scale: Stunkard et al., 1983.
FRSC: Figure Rating Scale for children; Tiggemann & Wilson-Barrett, 1998.
Silhouettes: Button, Fransella & Slade, 1977.

HISES: Hollingshead Index of Socioeconomic Status; Hollingshead, 1957.

IBSS: Idal-Body Stereotype Scale; Stice, et al., 1996.
I-PIEC: Peer Influence on Eating Concerns; Oliver & Thelen, 1996.

MATPA: Maternal Attitudes towards Physical Appearance; adapted from the MBSRQ
MBSRQ: Multidimensional Body-self relations Questionnaire; Cash, Winstead & Janda, 1986.
MBSRQ-AE; Multidimensional Body Self-Relations Questionnaire - Appearance Evaluation scale; Brown, Cash & Mikulka, 1990
MPS: Multidimensional perfectionism Scale; Hewitt & Flett, 1989.

NPQ: Neurotic Perfectionism Scale; Mitzman, Slade & Dewey, 1994.

OSIQ: Offer Self-Image Questionnaire; Offer, Ostrav & Howard, 1982.

PA: Physical Activity; Davis et al., 1991.
PARTS: Physical Appearance Related Teasing Scale; Thompson, et al., 1991.
PASTAS: Physical Appearance State and Trait Anxiety Scale; Reed, Thompson, Brannick & Sacco, 1991.
PDS1: Pubertal Development Scale; Brooks-Gunn, et al., 1987.
PDS2: Pubertal Development Scale; Petersen, Crockett, Richards & Baker, 1985.
PEDLW: Parent Encouragement of Daughter to Lose Weight (Benedikt et al., 1998.
PHSC: Piers-Harris Self-Concept Scale; Piers-Harris, 1984.
PMAT: Participant Magazine Assessment Tool; Cusumano & Thompson, 1997.
POAATO: perceived Origins of Attitudes About thinness and Obesity; Thelen et al., 1992;
PSCP: Perceived Socio-cultural Pressure Scale; Stice et al., 1996.

RCS: Role concerns survey; Silverstein & Perdue, 1988.
RDAS: Rosenberg Depressed Affect Scale; Rosenberg, 1965.
RRS: Revised Restraint Scale; Herman & Polivy, 1980.
RSI: Rosenberg Self-Esteem Scale; Rosenberg, 1965.

SATAQ: Sociocultural Attitudes Towards Appearance Questionnaire; Heinberg, Thompson & Stormer, 1995.
SAQ: Sibling Appearance Questionnaire; Rieves & Cash, 1996.
SBS: Subjective body shape; Myers et al., 1985.
SCI: Structured Clinical Interview - adapted from the EDE; Cooper, Cooper & Fairburn, 1989.
SDBPS: Satisfaction and Dissatisfaction with Body parts Scale; Berschied et al., 1973.
SIBID: Situational Inventory of body-Image Dysphoria: Cash, 1994.
SIQYA: Self Image Questionnaire for Young Adolescents; Pettersen, Schulenberg, Abramowitz, Offer & Jarcho, 1984.
STAIC: State-Trait Anxiety inventory for Children; Spielberger, 1973.

Tanner breast and pubic hair growth stage: Tanner, 1962.
TFEQ: Three Factor Eating Questionnaire; Stunkard & Messick, 1985.

VDS: visual distortion task; Brodie & Slade, 1988.

WC: weight concerns; Killen et al., 1994.

Appendix B: Psychometric properties of instruments used to measure PBID

Measurement issues involved in evaluating body image.

The research indicates that there has been a plethora of instruments developed to purportedly measure the construct of PBID. Indeed, Thompson (1995) reported that, as identified within the literature, there are close to 100 assessment measures currently under use. However, an important issue that arises in considering the appropriateness of this plethora is the considerable diversity in conceptual definition applied to the various instruments (i.e., Muth & Cash, 1997; Thompson et al., 1990). For example, Thompson et al. (1990), noted that the measures varied greatly in their specificity, depending on the subjective component one wished to evaluate (i.e., overall satisfaction, cognitions, anxiety, dysphoria, esteem or appearance related components). Furthermore, through empirical evaluation of the various instruments, Cash (1994a) found that the construct of appearance related body image was, both conceptually and empirically, comprised of three-distinct components (i.e., evaluation, affective and cognitive/behavioral investment). The evaluative component was identified as the level of satisfaction-dissatisfaction, or attitudes and beliefs one holds about their appearance in relation to an idealised norm (Straumen & Glenberg, 1994; Strauman, Vookles, Berenstein, Chaiken & Higgins, 1991). The affective component, whilst closely related to evaluation is, Cash believed, a separate component which referred to emotional experiences, such as dysphoria and anxiety, arising from these self evaluations within specific situational contexts (Cash, 1994b). In contrast, the cognitive-behavioural investment was considered to be distinct from the other two components and measure the importance of self-focused behaviours associated with the maintenance or enhancement of one's appearance (Cash, 1990, 1994b). Others (i.e., Muth & Cash, 1997; Thompson, Altabe, Johnson & Stormer, 1994; Williamson, Barker, Bertman & Gleaves,

1997) have reported similar findings in their analyses, although for the majority they do not distinguish between the affective and evaluative components. Rather they identify one strong affective component and one much weaker cognitive/behavioral component.

Within this diverse set of instruments, by far the most enduring and popular instrument used to date is the Figure Rating Scale [FRS: Stunkard et al., 1983]. In contrast to many of the other instruments, the FRS has been extensively evaluated psychometrically. This evaluation of the FRS (Altabe & Thompson, 1992; Thompson & Psalitis, 1988; Tiggemann, 1996) has indicated that it is both a valid and reliable instrument by which to measure global body image dissatisfaction as it relates to weight concerns, dieting and psychological well-being. Importantly, research has indicated that the FRS measures both of the identified components of appearance related body image dissatisfaction (Altabe & Thompson, 1992; Thompson & Dolce, 1989; Thompson & Psalitis, 1988; Tiggemann, 1996).

For example, Thompson and Psalitis (1988) found that the response from participants in scoring the FRS was variable by instructional format. That is, when participants were asked to chose a schematic figure based on how they 'felt' rather than how they 'thought' they currently looked, there was a marked difference in their discrepancy scores. Thompson and Dolce (1989) identified these two distinct components of body image as being a cognitive/rational and an affective/emotional rating. A finding that was confirmed by Altabe and Thompson (1992). Moreover, Tiggemann (1996) found that both the affective and cognitive ratings were discrete independent factors. She concluded that both figure ratings provided important and valuable information in relation to overall global body image dissatisfaction, with the affective component (feel) being 'of

considerable more significance than just being overweight and thinking one is overweight" (p. 24).

In consideration of these empirical issues, the assessment of body image within this current study will be premised on the evaluation of global body image dissatisfaction as measured by a children's version of the FRS (Collins, 1991). Furthermore, in order to incorporate the curvilinear structure of PBID (Muth & Cash, 1997), statistical analyses, incorporating the use of absolute FRS discrepancy scores will be used where required. The terminology employed will be demarcated accordingly. That is, within the current study, PBID will denote the *absolute* degree of incongruence between one's thoughts or feelings about their body size and shape in relation to an idealised norm. Further, appropriate distinctions between the variance in dissatisfaction (i.e., thinner as distinct from fatter, smaller as distinct from larger) will be noted as such.

Appendix C: Body image, Dieting Behaviour and Attitudes Scale

Name:..... Boy[ ] Girl[ ]

Age:..... **Birthday:** ...../...../..19.....

Height: ..... ***Weight:***.....

I think I am too fat [ ], just right [ ], too thin[ ]

I feel I am too fat [ ], just right [ ], too thin[ ]

My *mother* thinks I am too fat [ ], just right [ ], too thin[ ]

My *father* thinks I am too fat [ ], just right [ ], too thin[ ]

My *friends* think I am too fat [ ], just right [ ], too thin[ ]

My friends tease me about my weight.....Yes[ ] No[ ] They call me.....

My father teases me about me weight.....Yes[ ] No [ ] He calls me.....

My mother teases me about my weight...Yes[ ] No[ ] She calls me.....

In my family we eat anything we like.....True[ ] Not true[ ]

In my family we are careful with what we eat.....True[ ] Not true[ ]

We eat pizza, chips and hamburgers.....never[ ]..sometimes[ ]..often[ ].. always[ ]

We eat chocolate and lollies in our family.....never[ ]..sometimes[ ]..often[ ].. always[ ]

We eat our meals together..... never[ ]..sometimes[ ]..often[ ].. always[ ]

We watch T.V. when we eat ..... never[ ]..sometimes[ ]..often[ ].. always[ ]

We sit at the table when we eat..... never[ ]..sometimes[ ]..often[ ].. always[ ]

Dieting means.....

.....

My mother diets..... never[ ] .....sometimes[ ] ..... always[ ].

My father diets..... never[ ] .....sometimes[ ] .....always[ ].

I go on a diet..... never[ ] .....sometimes[ ] .....always[ ].

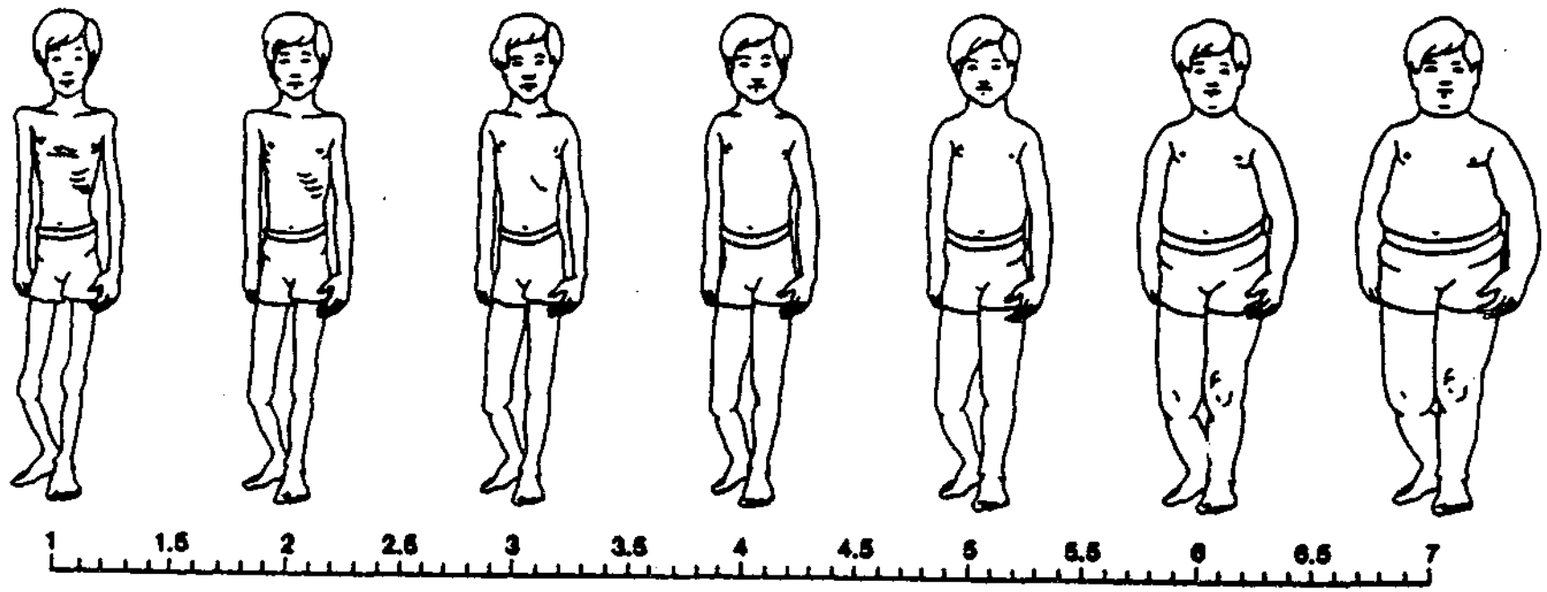
When I diet I .....

.....

Appendix D: Figure Rating Scale

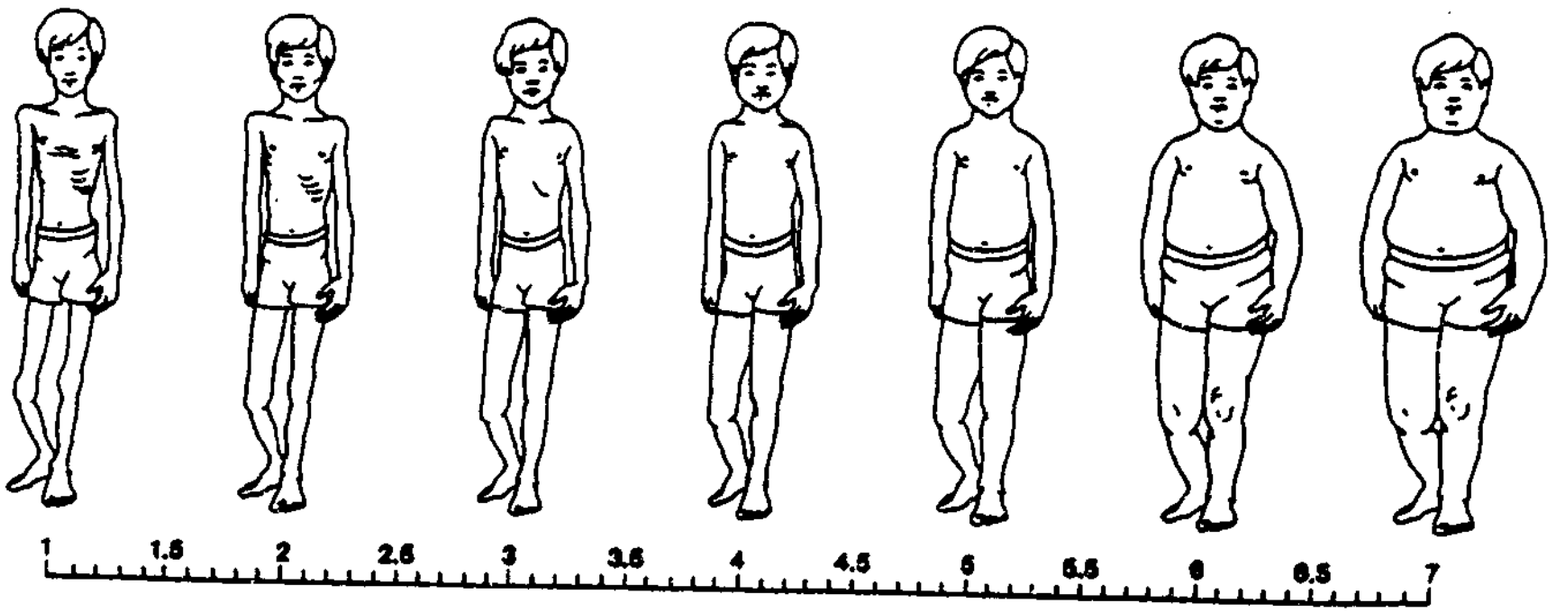
Below are some pictures of young children.

Choose the one which you think looks most like **you now**.



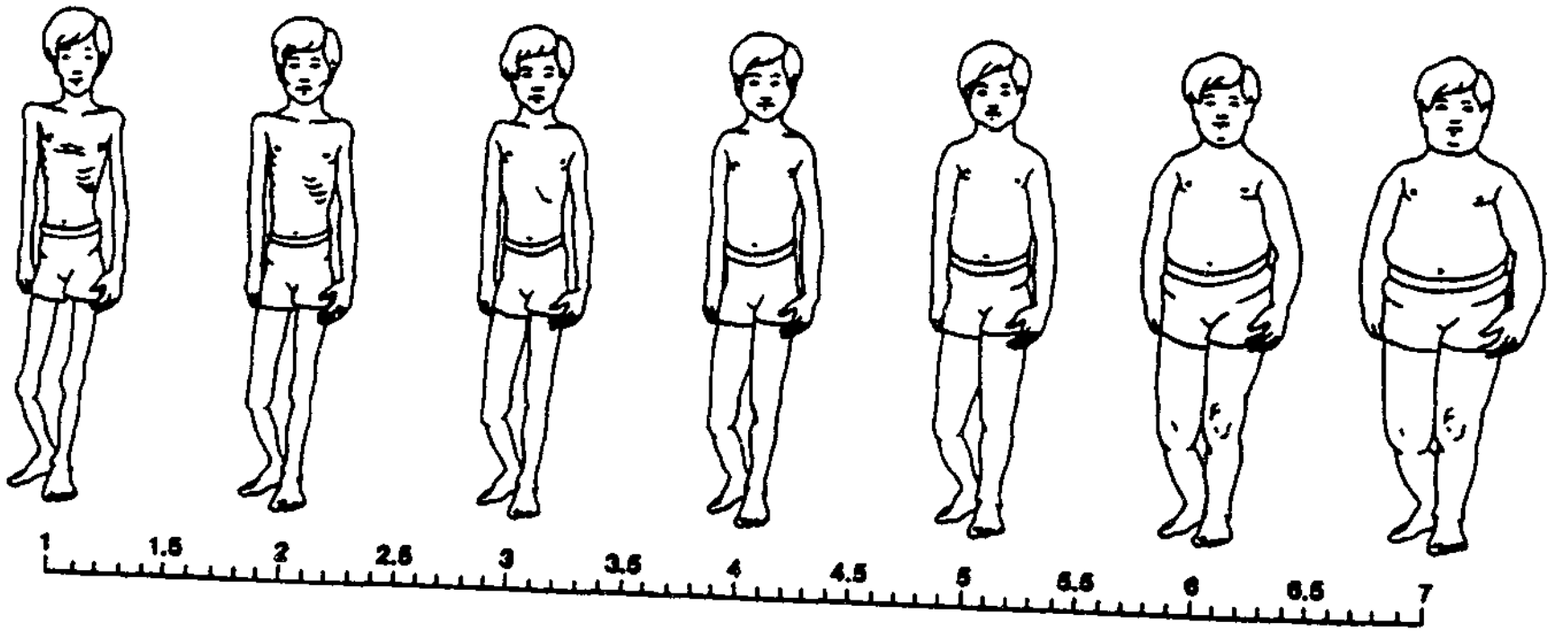
Below are some pictures of young children.

Choose the one that looks most **<u>like you feel</u>**.



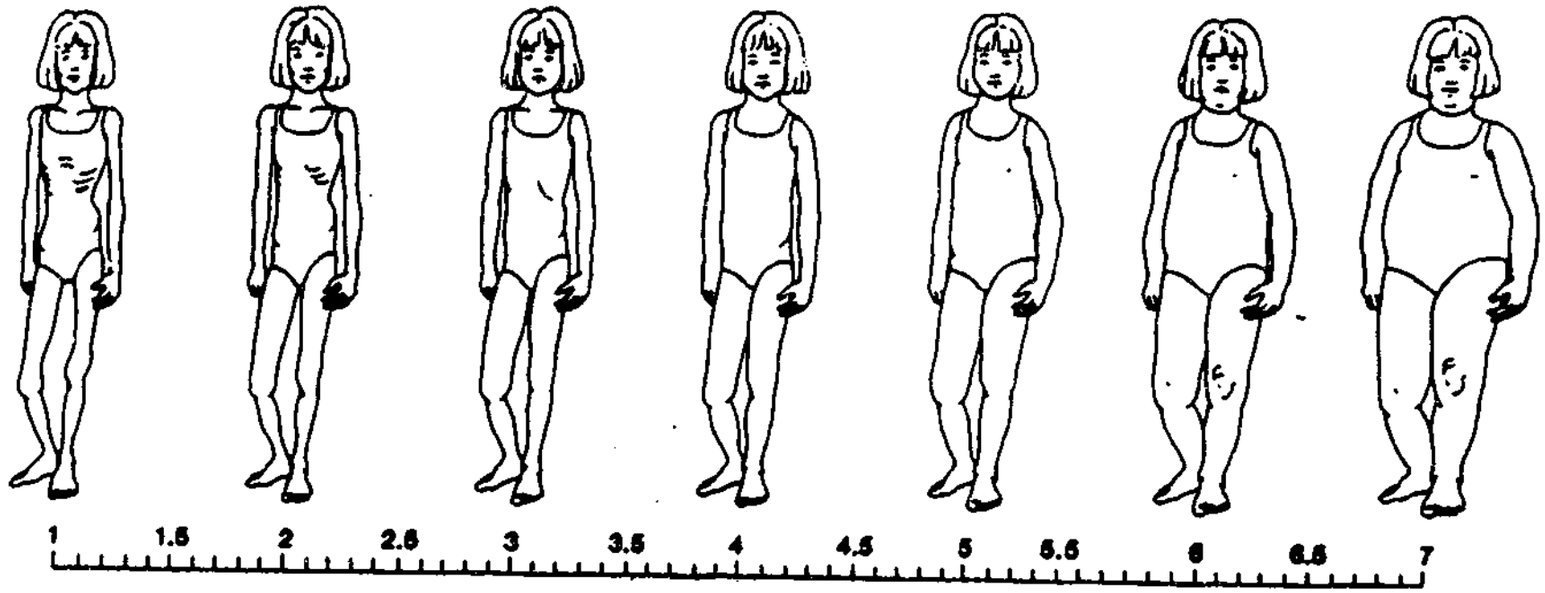
Below are some pictures of young children.

Choose the one which looks most like the size you would **like to be.**



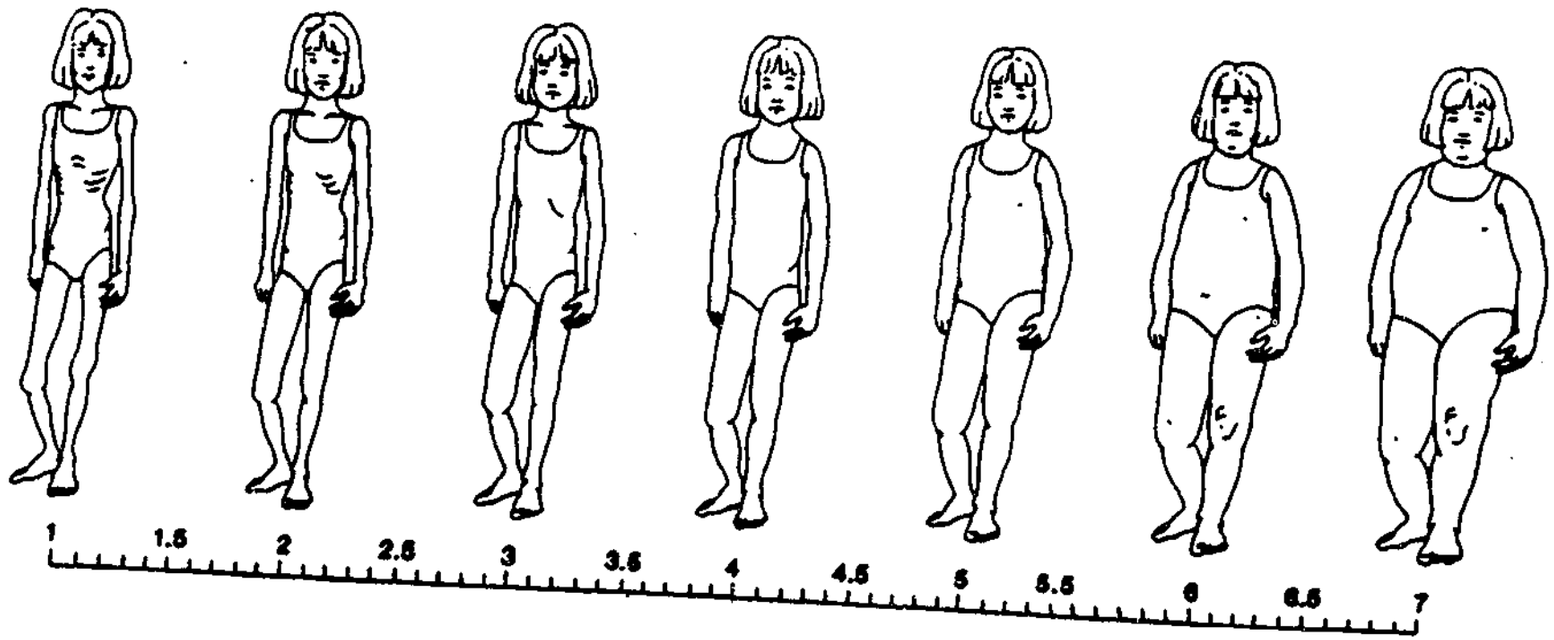
Below are some pictures of young children.

Choose the one which you think looks most like **you now**.



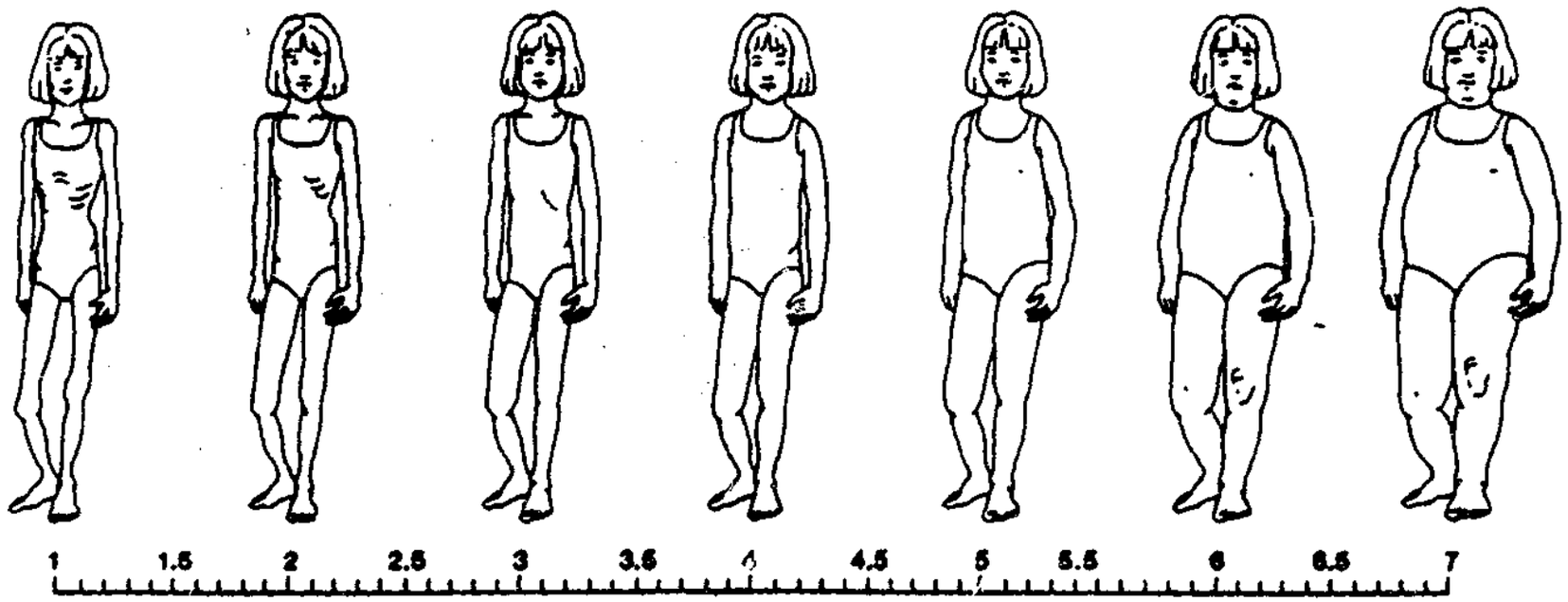
Below are some pictures of young children.

Choose the one that looks most **<u>like you feel</u>**.



Below are some pictures of young children.

Choose the one which looks most like the size you would **like to be.**



Appendix E: Coopersmith Self-Esteem Scale: school short form

Like Me	Unlike Me	
☐	☐	1. Things usually don't bother me.
☐	☐	2. I find it very hard to talk in front of the class.
☐	☐	3. There are lots of things about myself I'd change if I could.
☐	☐	4. I can make up my mind without too much trouble.
☐	☐	5. I'm a lot of fun to be with.
☐	☐	6. I get upset easily at home.
☐	☐	7. It takes me a long time to get used to anything new.
☐	☐	8. I'm popular with kids my own age.
☐	☐	9. My parents usually consider my feelings.
☐	☐	10. I give in very easily.
☐	☐	11. My parents expect too much of me.
☐	☐	12. It's pretty tough to be me.
☐	☐	13. Things are all mixed up in my life.
☐	☐	14. Kids usually follow my ideas.
☐	☐	15. I have a low opinion of myself.
☐	☐	16. There are many times when I'd like to leave home.
☐	☐	17. I often feel upset in school.
☐	☐	18. I'm not as nice looking as most people.
☐	☐	19. If I have something to say, I usually say it.
☐	☐	20. My parents understand me.
☐	☐	21. Most people are better liked than I am.
☐	☐	22. I usually feel as if my parents are pushing me.
☐	☐	23. I often get discouraged at school.
☐	☐	24. I often wish I were someone else.
☐	☐	25. I can't be depended on.
☐	☐	26. I never worry about anything.
☐	☐	27. I'm pretty sure of myself.
☐	☐	28. I'm easy to like.
☐	☐	29. My parents and I have a lot of fun together.

Short ☐

Appendix F: Eysenck Personality Questionnaire - Junior Form

E.P.Q. (Junior)

Age.....Sex .....

INSTRUCTIONS Please answer each question by putting a circle around the "YES" or the "NO" following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

REMEMBER TO ANSWER EACH QUESTION

Do you like plenty of excitement going on around you?	YES	NO
Are you moody?	YES	NO
Do you enjoy hurting people you like?	YES	NO
Were you ever greedy by helping yourself to more than your share of anything?	YES	NO
Do you nearly always have a quick answer when people talk to you?	YES	NO
Do you very easily feel bored?	YES	NO
Would you enjoy practical jokes that could sometimes really hurt people?	YES	NO
Do you always do as you are told at once?	YES	NO
Would you rather be alone instead of meeting other children?	YES	NO
Do ideas run through your head so that you cannot sleep?	YES	NO
Have you ever broken any rules at school?	YES	NO
Would you like other children to be afraid of you?	YES	NO
Are you rather lively?	YES	NO
Do lots of things annoy you?	YES	NO
Would you enjoy cutting up animals in Science class?	YES	NO
Did you ever take anything (even a pin or button) that belonged to someone else?	YES	NO
Have you got lots of friends?	YES	NO
Do you ever feel "just miserable" for no good reason?	YES	NO
Do you sometimes like teasing animals?	YES	NO
Did you ever pretend you did not hear when someone was calling you?	YES	NO

1	Would you like to explore an old haunted castle?	YES	NO
2	Do you often feel life is very dull?	YES	NO
3	Do you seem to get into more quarrels and scraps than most children?	YES	NO
4	Do you always finish your homework before you play?	YES	NO
5	Do you like doing things where you have to act quickly?	YES	NO
6	Do you worry about awful things that might happen?	YES	NO
7	When you hear children using bad language do you try to stop them?	YES	NO
8	Can you get a party going?	YES	NO
9	Are you easily hurt when people find things wrong with you or the work you do?	YES	NO
10	Would it upset you a lot to see a dog that has just been run over?	YES	NO
11	Do you always say you are sorry when you have been rude?	YES	NO
12	Is there someone who is trying to get their own back for what they think you did to them?	YES	NO
13	Do you think water ski-ing would be fun?	YES	NO
14	Do you often feel tired for no reason?	YES	NO
15	Do you rather enjoy teasing other children?	YES	NO
16	Are you always quiet when older people are talking?	YES	NO
17	When you make new friends do you usually make the first move?	YES	NO
18	Are you touchy about some things?	YES	NO
19	Do you seem to get into a lot of fights?	YES	NO
20	Have you ever said anything bad or nasty about anyone?	YES	NO
21	Do you like telling jokes or funny stories to your friends?	YES	NO
22	Are you in more trouble at school than most children?	YES	NO
23	Do you generally pick up papers and rubbish others throw on the classroom floor?	YES	NO
24	Have you many different hobbies and interests?	YES	NO
25	Are your feelings rather easily hurt?	YES	NO
26	Do you like playing pranks on others?	YES	NO
27	Do you always wash before a meal?	YES	NO
28	Would you rather sit and watch than play at parties?	YES	NO
29	Do you often feel "fed-up"?	YES	NO
30	Is it sometimes rather fun to watch a gang tease or bully a small child?	YES	NO
31	Are you always quiet in class, even when the teacher is out of the room?	YES	NO
32	Do you like doing things that are a bit frightening?	YES	NO
33	Do you sometimes get so restless that you cannot sit still in a chair for long?	YES	NO

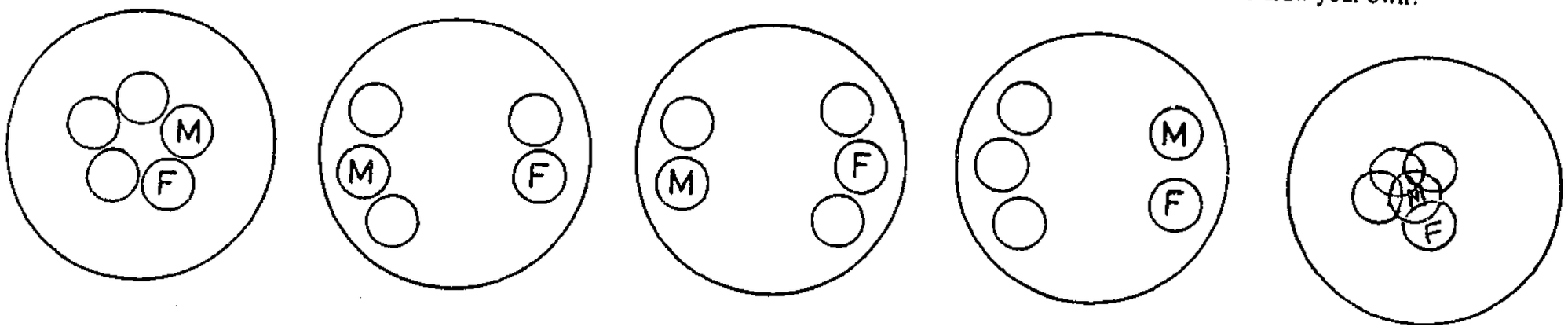
Would you like to go to the moon on your own?	YES	NO
At prayers or assembly, do you always sing when the others are singing?	YES	NO
Do you like mixing with other children?	YES	NO
Are your parents far too strict with you?	YES	NO
Would you like parachute jumping?	YES	NO
Do you worry for a long while if you feel you have made a fool of yourself?	YES	NO
Do you always eat everything you are given at meals?	YES	NO
Can you let yourself go and enjoy yourself a lot at a lively party?	YES	NO
Do you sometimes feel life is just not worth living?	YES	NO
Would you feel very sorry for an animal caught in a trap?	YES	NO
Have you ever been cheeky to your parents?	YES	NO
Do you often make up your mind to do things suddenly?	YES	NO
Does your mind often wander off when you are doing some work?	YES	NO
Do you enjoy diving or jumping into the sea or a pool?	YES	NO
Do you find it hard to get to sleep at night because you are worrying about things?	YES	NO
Did you ever write or scribble in a school or library book?	YES	NO
Do other people think of you as being very lively?	YES	NO
Do you often feel lonely?	YES	NO
Are you always specially careful with other people's things?	YES	NO
Do you always share all the sweets you have?	YES	NO
Do you like going out a lot?	YES	NO
Have you ever cheated at a game?	YES	NO
Do you find it hard to really enjoy yourself at a lively party?	YES	NO
Do you sometimes feel specially cheerful and at other times sad without any good reason?	YES	NO
Do you throw waste paper on the floor when there is no waste paper basket handy?	YES	NO
Would you call yourself happy-go-lucky?	YES	NO
Do you often need kind friends to cheer you up?	YES	NO
Would you like to drive or ride on a fast motor bike?	YES	NO

PLEASE MAKE SURE YOU HAVE ANSWERED ALL THE QUESTIONS

Appendix G: Family Cohesion Scale

My Family

Below are some drawings of different types of families. Choose the one you think is like your family? Maybe you would like to draw your own?



Appendix H: Children's Version of the Eating Attitudes Test

Eating Behaviours

1. I am scared about being overweight

Always	Very Often	Often	Sometimes	Rarely	Never

2. I am aware of the energy (calorie) content in foods that I eat

Always	Very Often	Often	Sometimes	Rarely	Never

3. I try to stay away from foods such as breads, potatoes, and rice

Always	Very Often	Often	Sometimes	Rarely	Never

4. I feel very guilty after eating

Always	Very Often	Often	Sometimes	Rarely	Never

5. I think a lot about wanting to be thinner

Always	Very Often	Often	Sometimes	Rarely	Never

6. I think about burning up energy (calories) when I exercise

Always	Very Often	Often	Sometimes	Rarely	Never

7. I think a lot about having fat on my body

Always	Very Often	Often	Sometimes	Rarely	Never

8. I stay away from foods with sugar in them

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

9. I eat diet foods

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

10. I feel uncomfortable after eating sweets

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

11. I have been dieting

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

12. I like my stomach to be empty

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

13. I enjoy trying new rich foods

Always	Very Often	Often	Sometimes	Rarely	Never
I	I	I	I	I	I

Consent Form

I,.....,

give permission for my child

....., to

participate in the survey of dieting, eating behaviours and personality development, being conducted by Ms. Marion Kostanski at their school.

I have read the attached explanatory statement and understand the requirements of participation in research. I understand that this research will be conducted in accordance with the National Health and Medical Research Council guidelines. I also understand that my child will be free to withdraw from the study at any time, and that all information he or she supplies will remain strictly confidential.

Signed:.....(mother/father/guardian)

Date:.....

I am/am not interested in participating in the family survey.

My mailing address for the survey schedule is:.....

.....

postcode.....

(The request for your telephone number is so that I can call you to answer any questions you may have and assist with completing the survey)

telephone: ( ) _____

Appendix L: Teasing nomenclature

Frequency of use of names used to tease children about their weight.

Name	n	Name	n	Name	n
chicken legs	2	chubba/y	3	pumba	1
toothpick	1	fat/ty	13	fatty boomba	1
skinny	13	fat boy	3	fatso	6
skinny minny	5	fat mumma	1	pumpkin	1
boney bottom	1	dodo	2	(big) pig	3
(you're) too thin	5	(you're)too fat	2	plech	1
skinny bones	3	big boy/man	2	chucki	1
little skinny	1	fat girl	1	fat pet	1
spaghetti sticks	1	wombat	1	fat man	1
Total n	32		28		16

Note: Frequency of teasing is marginally higher than total teasing reported due to some children reporting two or more names being used.

Appendix M: Publication re: REB validity

The Journal of Genetic Psychology, 1999, *160*(4), 488–499

Dieting and Body Image in the Child's World: Conceptualization and Behavior

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ABSTRACT. The authors examined children's (N = 431, aged 7 years to 10 years 9 months) understanding of and reasons for dieting, to validate recent research indicating that perceived body-image dissatisfaction and restrictive eating behaviors occur in preadolescent populations. Scores on 2 sentence-completion tasks confirmed that the children do have a clear understanding of what *dieting* means in terms of intent and behavior (defined, in this study, as intentional restrictive eating behaviors). The results indicated that children as young as 7 years of age report dissatisfaction with their current body size and deliberately engage in restrictive eating behaviors. These findings provide validation of previous research and emphasize children's capacity to engage in deleterious health behaviors. Given that extreme dieting behaviors are harmful to a child's physical and psychological well-being, the authors concluded that research exploring (a) the genesis of these attitudes and behaviors and (b) their continuity or discontinuity across childhood is required.

ALTHOUGH THE MANIFESTATION of extreme body-image dissatisfaction was previously believed to be associated with the onset of adolescence and pubertal development (Fabian & Thompson, 1989; Shore & Porter, 1990) current literature indicates that children as young as 8 to 9 years of age have extremely negative views of being overweight and report high levels of body-image dissatisfaction (Hill, 1993; Koff & Reirdan, 1991; Rolland, Farnhill, & Griffiths, 1997). Of concern is the fact that some children indicate that they engage in *dieting* (intentional restrictive eating behaviors) associated with their dissatisfaction. Children have less total body fat than adults and so are at risk of becoming emaciated far more quickly (Irwin, 1981). They are also at risk of developing other serious eating disorder sequelae such as convulsions, renal failure, cardiac arrhythmia, perimolysis (dental erosion), and gastric rupture (Childress, Brewerton, Hodges, & Jarrell, 1993). In girls, excessive dieting can also disrupt the onset of menarche, seriously and permanently stunt physical growth, and retard breast development (Russell, 1985). Moreover, nutritional deprivation can inhibit cognitive functioning and retard intellectual development.

If, as the literature indicates, the desire to be thin does exist at such young ages and results in dysfunctional eating behaviors, not only is such a desire likely to be of immediate concern in threatening the nutritional status of the child, but it may also be an indicator of potential future psychopathology (Hsu, 1990; Killen et al., 1994; Thelen, Powell, Lawrence, & Kunhert, 1992; Wood, Becker, & Thompson, 1996). Perhaps the most important research to be published in this area is the work of Maloney, McGuire, Daniels, and Specker (1989), who conducted one of the first cross-sectional studies into the dietary behaviors and eating attitudes of preadolescent children. Their study indicated that of 318 upper primary-aged children ranging in age from 7 to 13 years (53.1% girls; mean age 9.7 years), 45% wanted to be thinner and 37% had tried to lose weight. Moreover, on the children's version of the Eating Attitudes Test (ChEAT; Maloney et al., 1989), 6.9% of the sample scored within the anorexia range. Maloney et al. concluded that the preoccupation with dieting, found to be so high in adolescence, may actually begin in primary school. Notably, their study indicated that concerns about body fat and dieting are prevalent in preadolescent children, with the desire to lose weight and engage in weight control behaviors beginning around Grade 3, then increasing with age. However, one reservation that Maloney et al. held regarding their study was the possibility that third-grade children may not have understood all of the simplified version of the ChEAT, because their responses yielded significantly higher scores than those of older children. On the other hand, the authors noted that both the test–retest and internal reliability measures for the scale were high.

Over the past 6 years, several other researchers have published findings that indicate a similar trend in preadolescents' development of perceived body-image dissatisfaction and restrictive dietary behaviors (Ohtahara, Ohzeki, Hanaki, Motozumi, & Shiraki, 1992; Rhyne-Winkler, 1994; Rolland et al., 1997; Thelen et al., 1992). For example, a study by Thelen et al. (1992) of eating and body-image concerns among 191 non-obese children (74 in second grade, mean age 8.2 years; 54 in fourth grade, mean age 10.4 years; 63 in sixth grade, mean age 12.4 years) indicated that young girls begin to be concerned about weight between second and fourth grades, concurring with the proposal by Maloney et al. (1989) that the genesis is around Grade 3. Specifically, the study by Thelen et al. showed that, compared with second-grade girls, fourth- and sixth-grade girls indicated a significantly higher concern with being or becoming overweight and a preference to be thinner than they currently were. There were no grade differences recorded for boys. These findings led researchers to conclude that if eating-related prob-

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lems arise from family, peer, and social pressures to be thin, such pressures commence at a very early age.

Thelen et al. (1992) also found that although there were some eating-related problems that seemed to appear between the second and fourth grades for girls, there was not a consistent increase in the report of dieting (27.5% in second grade, 33.3% in fourth grade, 34.5% in sixth grade). However, these authors also noted that the meaning that children applied to the term *diet* was not known.

Similarly, in their study of body figure perceptions and eating attitudes among Australian schoolchildren, Rolland et al. (1997) provided support for the finding of a high prevalence of body dissatisfaction and dieting behaviors among children. In their study, in which the sample was 8 to 12 years old, 50% of the girls and 33% of the boys wanted to be thinner, and over 40% of the girls and 24% of the boys had attempted to lose weight. As with previous research, Rolland et al. found that third-grade children reported significantly higher scores on the ChEAT than did fourth-, fifth-, and sixth-grade children. Again, these researchers queried the validity of their findings in relation to the younger children, and they questioned the children's levels of cognitive development in understanding the concept of dieting. Thus, the conceptualization that preadolescents, in particular younger, middle primary-aged children, have of dieting behavior and their reasons for engaging in restrictive eating behaviors have not yet been addressed.

One of the complexities of creating a self-report questionnaire is embedded in the questioning format. For example, the issues of suggestibility and use of leading questions have been highlighted as important factors to be considered when engaging in any form of evaluative process (Loftus & Davies, 1984; Moston, 1990). In particular, research has indicated that young children are susceptible to the effects of leading questions and feel compelled to offer a perceived desired response, particularly when they are unsure or do not fully understand the questions (Dent & Stephenson, 1979; Moston, 1990). To counteract this effect, Schwartz, Strack, Hippler, and Bishop (1991) suggested that allowing for an *I don't know* response significantly reduces the child's vulnerability to perceiving that there is a "right" answer. Furthermore, Huon, Godden, and Brown (1997) found that many young children use an *I don't know* response option when it is provided. In relation to dieting, these authors argued that we cannot easily know, and must not take at face value, every report about children's dieting until these response issues are addressed.

Our purpose in the present study was to investigate the relationship between perceived body-image dissatisfaction, reported restrictive eating behaviors, and dieting knowledge within a comparative group of middle primary-aged schoolchildren. To address issues of measurement, we extended previous work by using the same empirical measures as those used in previous studies, in conjunction with an additional measure examining children's diet-related beliefs and behaviors in an open-ended way. It is only by inquiring into the cognitive beliefs and

actual behaviors that children associate with the phenomenon of dieting that the meaning of this behavior to the child, as distinct from adult conceptions, will begin to be understood.

Method

Participants

A sample of 431 children in Grades 2, 3, and 4 from primary schools across Melbourne, a large city in Australia, were invited to participate in a self-report survey of dietary behaviors, attitudes, and body-image dissatisfaction. The sample consisted of 199 boys and 232 girls, with an age range of 7 years to 10 years 9 months (7 years, $n = 87$; 8 years, $n = 165$; 9 years, $n = 114$; 10 years, $n = 65$; mean age = 8.8 years). Chi-square analyses indicated no significant differences in the age distribution of children by sex.

Body Mass Index

Mean body mass index (BMI; weight/height^2) was calculated to be 16.7 ($SD = 2.3$) for boys and 16.5 ($SD = 2.3$) for girls. On the basis of current Australian norms for children (Harvey & Althaus, 1993), 19.3% of the boys and 23.7% of the girls were overweight; 20.8% of the boys and 27.7% of the girls were underweight. Chi-square analysis indicated that there was no significant relationship between sex and body mass distribution or between age and body mass distribution.

Instruments

Sentence-completion tasks. The first author developed a brief self-report inventory, which consisted of questions related to knowledge about dieting and dietary behaviors. Dieting behavior was scored on a 3-point Likert-type scale ("I diet . . . " *always, sometimes,* or *never*). Space was allowed for a qualitative response to two sentence-completion items ("Dieting means . . ." "When I diet, I . . ."). In consideration of the potential impact of questioning bias, such that young children are believed to feel compelled to offer a perceived desired response, *I don't know* was an option as an answer to one sentence-completion item ("Dieting means . . ."). Similarly, for the sentence "When I diet, I . . .", *I don't diet* was offered as an acceptable response.

Figure Rating Scale. The Figure Rating Scale (Collins, 1991) consists of a set of seven drawings of preadolescent figures ranging from very thin to obese, scored from 1 to 7, respectively. The participants were asked to choose the figure they thought looked most like them currently (actual cognitive), which figure looked most like what they would like to be (ideal), and which figure looked most like

the way they felt (actual affective). The discrepancies between the actual and ideal measures provide an indication of level of perceived body-image dissatisfaction. Collins (1991) reported 3-day test–retest correlation coefficients of .71 for actual current self and .59 for ideal self. Criterion-related validity through comparison of cognitive figure selections with the child's actual weight and BMI was found to be .36 and .37, respectively.

Children's version of the Eating Attitudes Test. The ChEAT (Maloney et al., 1989) is a modified version of the Eating Attitudes Test (EAT-26) developed by Garner and Garfinkel (1979) to measure dieting behaviors, food preoccupation, bulimia, and weight concerns. The ChEAT is a 26-item self-report inventory based on a 6-point Likert-type scale ranging from *always* to *never.* "I have been dieting . . ." and "I am scared about being overweight . . ." are examples of items. The most extreme responses (*always, very often, often*) are scored from 3 to 1, respectively, and the other three responses (*sometimes, rarely, never*) are scored as 0. The ChEAT has been reported to have high internal reliability ($\alpha = .76$) and test–retest reliability ($r = .81$; Maloney, McGuire, & Daniels, 1988). For this study, the Dieting subscale (as identified by Garner, Olmstead, Bohr, & Garfinkel, 1982) was used. This subscale has been reported to be extremely reliable ($\alpha = .90$) and to be correlated highly with the total EAT–26 scale ($r = .93$; Garner et al., 1982).

Procedure

After we received ethical approval from the Directorate of School Education and the university, we approached school principals and sought parental consent. An outline of the study, accompanied by a clear statement that included a proviso of confidentiality, was distributed to all children in classes nominated by the school principal. The children were required to take these forms home to their parents or guardians for consent. Those children who received consent and indicated a desire to participate were administered the questionnaires in small groups in a classroom provided by the school.

For children in Grade 2, two sessions of approximately 30 min each, with a short break in between, were required to complete the questionnaire set. The children in Grades 3 and 4 required one session of approximately 50 min. Height and weight were also measured. Children removed their shoes and overjackets or coats for this exercise.

Results

For the analysis, the participants were divided into four age groups (quartile ranges: less than 8 years; 8 years to 8 years 8 months; 8 years 9 months to 9 years 8 months; over 9 years 8 months) and three BMI groups (underweight, normal weight, overweight). Inferential statistical methods, including Pearson's chi-

covariance (ANCOVAs) were conducted to evaluate the relationships between participant characteristics, perceived body-image dissatisfaction, and reported dieting behavior.

Body-Image Dissatisfaction

The Figure Rating Scale provided a rating of each child's perceived current figure size (i.e., actual cognitive), felt figure size (i.e., actual affective), and ideal figure size. The mean perceived current figure was 4.02 ($SD = 0.74$) for boys and 4.03 ($SD = 0.80$) for girls. For felt sizes, boys recorded a mean score of 4.10 ($SD = 1.10$) and girls a mean of 4.05 ($SD = 1.13$). The mean ideal size for boys was 3.85 ($SD = 0.76$); it was 3.73 ($SD = 0.75$) for girls. Paired samples t tests indicated that there was a significant difference between the means for current and ideal figure sizes for both sexes: girls, $t(231) = 4.64$, $p < .001$; boys, $t(197) = 3.16$, $p < .01$; and for felt and ideal figure sizes for both sexes: girls, $t(231) = 5.99$, $p < .001$; boys, $t(197) = 3.12$, $p < .01$.

Affective dissatisfaction (the reported discrepancy between the child's felt figure size and his or her ideal size) ranged from –6.00 to +4.00, with 40% of the children indicating a discrepancy of at least one size between their felt and ideal sizes. This finding indicated that 15% of the children (18% of the boys, 13% of the girls) felt smaller than their ideal and 33% (30% of the boys, 34% of the girls) felt larger than their ideal. Cognitive dissatisfaction (the measure of discrepancy between the child's perceived current figure size and ideal size) was found to range from –4.00 to +4.00, with 13.2% of the children (17.1% of the boys, 9.9% of the girls) indicating that they thought they looked smaller than their ideal size, and 29.5% (25.1% of the boys, 33.2% of the girls) thought they looked larger. (See Table 1 for scores for mean affective and cognitive body-image dissatisfaction for boys and girls, by BMI.)

A 2 (sex) × 4 (age) MANCOVA with BMI as the covariate was conducted with cognitive and affective body-image dissatisfaction as the dependent variables. BMI was found to be a significant covariate: cognitive, $F(1, 414) = 88.16$, $p < .001$; affective, $F(1, 414) = 32.31$, $p < .001$. The results also indicated a significant main effect for sex in level of reported cognitive dissatisfaction, $F(1, 414) = 5.72$, $p < .05$, with girls reporting higher levels of dissatisfaction than boys. No interaction or other significant main effects were noted.

Children's Understanding of Dieting

The meaning of dieting. Completion of the sentence "Dieting means . . ." indicated that clear social beliefs and attitudes toward restrictive eating practices were held by the majority of the children in this sample. Although a moderate proportion (28%) indicated they did not know what dieting meant, 15% wrote it meant losing weight by eating "better," "healthy," or "good" food.

TABLE 1
Mean Cognitive and Affective Body Image Dissatisfaction, by Gender and BMI

	BMI							
	Under		Normal		Over		Total	
Body image	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Affective								
Boys	−.36	1.2	.38	1.1	.60	1.1	.26	1.1
Girls	−.08	1.0	.41	0.9	.72	1.2	.33	1.1
Cognitive								
Boys	−.19	0.7	.17	0.7	.54	0.8	.17	0.8
Girls	−.08	0.7	.23	0.6	.96	1.0	.32	0.8

Note. BMI = body mass index.

Another 16% wrote it meant eating "special" or "healthy" food, and 9% indicated it meant cutting out or reducing the amount of "junk" or "bad" food. Specific restraints such as not eating chocolate, sweets, or lollipops (9%), eating fewer fatty foods (7%), or including lots of vegetables and fruits (4.5%) were also identified as dieting. Watching what one eats or reducing food intake with the aim of losing weight (14%) and eating "good" food in conjunction with increasing exercise (5%) were the other behaviors cited. The notion that dieting means excessive restraint, such as not eating or feeling sick after meals, was recorded by 2% of the children.

Children's reported dieting behaviors. Completion of the sentence "When I diet, I . . ." indicated that the children who reported dieting did deliberately participate in identifiable restrictive eating behaviors. For the majority of the children who reported deliberately dieting (see Table 2), this meant either actively reducing their intake of specific foods ("no pizza," "no chips," "no sweets"), reducing their overall intake ("I cut down on what I eat"), or eating healthy foods ("eat fruit and vegetables and drink lots of water"). Increased exercise alone ("I train harder . . . I jump on my trampoline for 10 minutes morning and night") was also reported as a dietary behavior for a portion of the children, with a combination of exercise and eating healthful foods being popular ("I run a lot and eat healthy foods"). A small number of dieters indicated they engaged in total restriction of food intake ("I don't eat . . . I eat nothing"). One child reported purging ("I spew up"). Two underweight children indicated they actually attempted to increase their food intake ("I do the opposite, I eat more").

Prevalence of Dieting

Self-reported dieting. Over 76% of the children indicated that they never dieted;

TABLE 2
Specific Dieting Behaviors Reported by Those Children Who Diet

Behavior	*n*	% of children who diet
Cut out item of food[a]	23	19.5
Eliminate junk foods[b]	21	17.8
Eat healthful foods[c]	35	29.7
Exercise and eat healthful foods	8	6.8
Increase exercise	6	5.1
Reduce overall food intake	10	8.5
Stop eating	7	5.9
Lose weight	7	5.9
Purge	1	0.8
Total	118	100.0

[a]For example, chocolates, lollipops, sweets, fats. [b]For example, pizza, chips, McDonald's. [c]For example, apples, fruit, vegetables, milk.

analysis indicated that the frequency of reported dieting for girls was significantly higher than for boys, $\chi^2(2, N = 99) = 7.45$, $p < .05$. An exploration of dieting within normal BMI range indicated that 22% of the girls and 16% of the boys who were within the normal body mass range reported dieting.

Dieting as measured with the ChEAT. Reported dieting behaviors as measured with the ChEAT indicated that the scores for restrictive eating behaviors ranged from 0 to 26 ($M = 5.52$, $SD = 5.21$, $N = 431$), the maximum possible score being 39. Five percent of the sample scored more than two standard deviations above the mean ($n = 22$), with 3% scoring outside the total normative range ($n = 13$). However, a separate analysis of this group of children did not indicate any significant sex, age, or body mass index differences between them and the total sample.

Pearson's correlation coefficients indicated that there was a strong correlation between cognitive and affective body dissatisfaction ($r = .057$, $p < .01$). There was also a significant correlation recorded between body dissatisfaction and ChEAT scores (cognitive, $r = .26$, $p < .05$; affective, $r = .12$, $p < .01$).

A 2 (sex) × 4 (age) × 3 (body dissatisfaction) ANCOVA controlling for BMI, with the ChEAT scores as the dependent variable, indicated that BMI was a significant covariate, $F(1, 414) = 33.02$, $p < .001$, with heavier children reporting higher ChEAT scores than normal and underweight children (underweight, $M = 4.16$, $SD = 4.11$; normal weight, $M = 5.07$, $SD = 4.8$; overweight, $M = 7.94$, $SD = 6.1$). A main effect was also recorded for cognitive body-image dissatisfaction, $F(2, 413) = 9.12$, $p < .001$, with children who perceived themselves as too large reporting the highest levels of restrictive eating behaviors (too large, $M = 7.73$,

$SD = 6.02$, $n = 128$; normal, $M = 4.46$, $SD = 4.48$, $n = 245$; too thin, $M = 5.09$, $SD = 4.67$, $n = 58$). There were no significant main effects for age or sex (boys, $M = 5.14$, $SD = 4.9$, $n = 198$; girls, $M = 5.86$, $SD = 5.4$, $n = 232$).

Discussion

In response to previous researchers' reservations regarding young children's understanding of dieting (Maloney et al., 1989; Rolland et al., 1997; Thelen et al., 1992), we investigated children's social knowledge of the concept. Our findings indicate that children of all age groups sampled (7 years to 10 years 9 months) have a wide and mature (for their age) knowledge of what the construct means in terms of intent and action. Furthermore, by reporting on young children's understanding of and behavior regarding the concept of dieting (the self-reported dieting behaviors obtained in the present study), we add validity to earlier reports of restrictive eating behaviors as measured by the ChEAT.

As predicted by Huon et al. (1997), the response option of not knowing an answer was an important factor for over one quarter of the children in this study. However, the 23% of children who did report that they had dieted or were dieting held mature notions of its meaning, and apart from two underweight children who reported intentionally increasing their food intake, children reported engaging in a broad spectrum of restrictive eating practices. Although many of the behaviors appear to be premised on principles of healthful eating, the expressed desire by children to lose weight at an age when they are pre-maturational and still physically developing is not consoling.

It may be that social and educational pressures to focus on eating behaviors and increased awareness of nutritional standards and expectations have heightened children's propensity to restrict their food intake, especially of identified bad or junk foods. Similarly, it may be that parental role modeling of dieting and media representation of ideal or attractive body types are potent factors in directing children's eating habits.

Children's reported preferences for mesomorph figures in evaluating stereotypes of attractiveness are well known. For example, children aged 5 to 8 years have been found to describe the mesomorph or "normal" figure as being the most liked (Cavior & Lombardi, 1973). Moreover, the mesomorph figure is perceived as being friendly, kind, happy, polite, and so on, whereas the "fat" figure is described as being lazy, lying, cheating, and the least preferred (Feldman, Feldman, & Goodman, 1988). Similarly, social standards portray the ideal male figure as strong, solid, and muscular, whereas the ideal female figure is portrayed as being lean and willowy (Muth & Cash, 1997; Siever, 1994). The outcomes of this study indicate that children as young as 7 years old are not immune to the impact of these social messages.

As predicted, and consistent with previous research (e.g., Maloney et al., 1989; Rolland et al., 1997; Thelen et al., 1992), perceived body image dissatisfaction does occur in children as young as 7 years old. Interestingly, although previous studies have suggested that expressed dissatisfaction and dieting are possibly undeveloped until the age of 8 to 9 years, there was no indication in this study that children younger than this age were less dissatisfied. Indeed, as reported by Collins (1991), the children in Grade 2 (7 years old) reported indications of dissatisfaction just as frequent and strong as those in Grade 4 (10 years 9 months old).

As expected, we found a significant relationship between body-image dissatisfaction and dieting. However, the overall low correlation between these two constructs suggests that body-image dissatisfaction and dieting remain largely disparate concepts; that is, body-image dissatisfaction represents an internalization of negative cognitions about the self, whereas restrictive eating behaviors are associated with the adoption of socially sanctioned lifestyle behaviors. How the reported high interrelationship between the two evolves in adolescence is not known.

Several limitations of the present investigation need to be addressed. First, previous research examining participation rates has suggested that there may be significant differences between those children who receive parental permission to participate in research and those who do not (Maude, Wertheim, Paxton, Gibbons, & Smukler, 1993; Noll, Zeller, Vannatta, Bukowski, & Davies, 1997). The response rate for children who did receive consent in relation to the total class population in this study was not available to us; however, anecdotal teacher reports indicated that those children who did not receive permission were characteristically unlikely to return notices in general and that lack of consent was not necessarily indicative of a reaction to the topic being investigated. Nonetheless, none of the children who did receive permission declined to participate.

Second, although studies incorporating cross-sectional research provide valuable indicators of correlates within the field of interest, the data are limited in the conclusions they allow to be drawn. To derive a fuller understanding of body-image dissatisfaction and its association with restrictive eating behaviors, researchers should examine these behaviors in a prospective investigation.

Notwithstanding these limitations, this study confirms that body-image dissatisfaction and restrictive eating behaviors are both intrinsic aspects of the lives of a significant portion of younger children. Importantly, these findings confirm that conceptualization of dietary behaviors is embedded into the child's lifestyle at a very early age rather than becoming manifest in adolescence. Younger children indicate accurate knowledge and behaviors of dieting reflecting those of the adult world. However, it is not known whether body-image dissatisfaction or dieting remains stable into adolescence or if these behaviors predict pathology. It is apparent that at this young age, only a small minority of the children reported engaging in what could be identified as excessive restrictive eating behaviors (5%); however, the continuity or discontinuity of this behavior across childhood can be determined only through longitudinal research.

Given the growing prevalence of pathological eating disorders being reported among preadolescents and the known physical and psychological implications of nutritional deprivation at these young ages, it is important that future researchers investigate the chronicity of restrictive eating behavior within preadolescent years, as it is clearly an intentional behavior that is being adopted. Similarly, the pervasiveness of body-image dissatisfaction reported among young children requires further address. Future studies need also to investigate the psychosocial aspects of child development in relation to these phenomena, given that factors such as low self-esteem and parental role modeling have been found to be significant correlates of body-image dissatisfaction and dysfunctional eating behaviors in older populations.

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Appendix N: Second letter and consent form

M O N A S H U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGY

AUSTRALIA

Dear Parents,

I am writing to remind you of a study I began approx 14 months ago, which involved your child participating in a brief self-report survey. At the time I indicated that I would like to return to collect the same information from the children after a two-year break. However, given the change in data collection dates for the first study, I now find it necessary to return slightly earlier than that so as not to miss those children who may be completing their final year of primary study soon.

A copy of the survey material is available at the school for your perusal if required. Also any questions you may have, please do not hesitate to ring me (03) 9216 8005. If you are happy for your child to participate in this second part of the study, please sign the attached consent form and return it in the envelope provided to their classroom teacher by the end of this week.

Thank you

Marion Kostanski
PhD student
Dept Psychology

E. Gullone
Senior Lecturer
Dept. Psychology

I,....., give permission for my child,.....
to participate in the proposed follow-up study.
I have read the attached explanatory letter, I have had any questions or concerns I had clarified, and understand that my child is free to withdraw from the study at any time. I also understand than any information supplied by my child will remain strictly confidential.
Signed:.....(mother/father/guardian)

Should you have any complaint concerning the manner in which this research is conducted, please contact The Standing Committee on Ethics in Research on Humans at the following address:

The Secretary
The Standing Committee on Ethics in Research in Humans
Monash University, Wellington Road, Clayton, Victoria, 3168.
Telephone: (03) 905 2052 Fax: (03) 5342