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A Longitudinal Study of Children’s Disordered Eating and Muscle Preoccupation

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Abstract

Recent research has demonstrated high levels of dieting, food preoccupation and muscle preoccupation in preadolescent children. In children, these attitudes and behaviours can constitute health risks. The design of appropriate intervention programs relies on empirical identification of the relevant risk factors. The current study was designed to investigate low self-esteem, perceived parental relations, perceived peer relations, negative affect, perfectionism and BMI as predictors of dieting, food preoccupation and muscle preoccupation in 8 to 10 year old children, over a 10 month period. The results demonstrate the importance of perfectionism as a predictor of dieting and muscle preoccupation in preadolescent boys.

Introduction

Children as young as 5 years of age report attitudes and behaviours associated with disordered eating such as dieting and food preoccupation (Davison, Markey, & Birch, 2000). Young children appear to be absorbing and responding to the ubiquitous sociocultural pressures, for females in particular, to achieve a slim body shape (Tiggemann & Wilson-Barrett, 1998). For example, dieting to lose weight has been shown to occur in 20% to 56% of girls and 31% to 39% of boys (McCabe & Ricciardelli, 2003).

Researchers have also begun to investigate the prevalence of preadolescent children’s Muscle Preoccupation, a set of attitudes and behaviours related to increasing muscle size and building bulk, which is more common in males than females (Furnham & Calnan, 1998). The impetus to achieve a brawny, powerful body is thought to derive from the contemporary hypertrophic, mesomorphic male body ideal. The emphasis on this body type for males is thought to reflect current sociocultural prescriptions that men be commanding, potent, influential and strong (Gillet & White, 1992). However, there is also evidence to suggest that for females the sociocultural ideal is evolving from the slim body shape to a muscular, toned body (Guillen & Barr, 1994). Even young children have been found to be sensitive to these influences and muscle preoccupation is quite prevalent in preadolescent children. For instance, exercising to become more muscular is reported by 73% to 84% of boys and 52% to 57% of girls (Holt & Ricciardelli, 2002; McCabe & Ricciardelli, 2003).

Attitudes and behaviours associated with both disordered eating and muscle preoccupation in children may constitute health risks through jeopardising children’s nutritional needs, growth and development (Lask & Bryant-Waugh, 2000). Furthermore, evidence suggests that children’s disordered eating may lead to the development of more pernicious dieting behaviours, body dissatisfaction and clinical eating disorders, such as Anorexia Nervosa and Bulimia Nervosa, during adolescence and adulthood (Kotler, Cohen, Davies, Pine, & Walsh, 2001). Similarly, children’s muscle preoccupation may develop into more severe muscle preoccupation in adolescence, the use of anabolic steroids and at the more severe end of the spectrum, the syndrome known as Reverse Anorexia or Muscle Dysmorphia (Pope, Katz, & Hudson, 1993). Given the short and long-term hazards associated with children’s disordered eating and muscle preoccupation, early intervention is required to prevent their development. However, the design of effective intervention programs relies on the identification of the relevant risk factors, which potentiate children’s disordered eating and muscle preoccupation.

Empirical investigations into the risk factors for children’s disordered eating and muscle preoccupation have generally focussed on those variables, which have been validated as risk factors for adolescents’ and adults’ disordered eating and muscle preoccupation (Ricciardelli & McCabe, 2001). These variables include individual risk factors such as low self-esteem and negative affect. Such factors are regarded as particularly significant for intervention, as these may better explain why some individuals develop eating disorders, whereas others, although exposed to the same sociocultural milieu, are not afflicted (Polivy & Herman, 2002). Past research relating to each of the individual risk factors included in this study, will now be briefly reviewed.

Self-Esteem

Self-esteem has been defined as the degree to which an individual appraises themselves as worthy and valuable
(Blascovich & Tomaka, 1991). Development of adequate self-esteem represents an essential developmental task for children, since self-esteem has been found to have wide-ranging effects on factors such as emotional adjustment, relationships, behavior and psychological health (Berk, 2000).

Findings from the limited research examining low self-esteem and disordered eating in children, are conflicting and hence definitive conclusions cannot be reached (eg, Lawrence & Thelen, 1995; Braet & Whydhooge, 2000). These inconsistent findings may be attributable to the use of different instruments across studies. Furthermore, the muscular body ideal may render dieting a less relevant behavior for boys. The few existing longitudinal studies have generally not found support for low self-esteem as a predictor of children’s disordered eating (Gardner, Stark, Friedman, & Jackson, 2000; Keel, Fulkerson, & Leon, 1997).

The only located study did not find support for an association between low self-esteem and muscle preoccupation in children (McCabe & Ricciardelli, 2003). Studies using a longitudinal research design are now required to investigate low self-esteem as a predictor of children’s muscle preoccupation.

**Negative Affect**

Negative affect has been described as the experience of unpleasant emotional states, which include sadness, anger, fear and stress (Joiner, Catanzaro, & Laurent, 1996). Emotions are regarded as fundamental influences on all facets of an individual’s behaviour as well as on their cognitive and social development (Berk, 2000).

Cross-sectional studies generally support a relationship between negative affect and children’s disordered eating (Holt & Ricciardelli 2002). However, the findings of the three located longitudinal studies are conflicting (Gardner, Stark, Friedman & Jackson 2000; Keel et al., 1997; Martin et al., 2000). Clearly, further longitudinal studies are required to elucidate the relationship.

Negative affect has also been found to correlate with muscle preoccupation in children (Holt & Ricciardelli, 2002; McCabe and Ricciardelli, 2003) However, longitudinal studies are necessary to explore the temporal direction of the association between negative affect and children’s muscle preoccupation.

**Perfectionism**

Perfectionistic individuals have been described as striving to attain high, faultless standards, while focussing on flaws and personal failings in the quest to achieve these standards (Hamachek, 1978). Research with adolescent and adult samples has found support for a relationship between perfectionism and both disordered eating and muscle preoccupation, from a cross-sectional (eg, Hewitt, Flett, & Ediger, 1995; McVey, Pepler, Davis, Flett, & Abdell, 2002) and longitudinal (Vincent, 2000; Voils, Bardone, Joiner, Abramson, & Heatherton, 1999) perspective. However, perfectionism has not been investigated in relation to children’s disordered eating or muscle preoccupation.

**Present Study**

The aim of the present study was to investigate whether low self-esteem, high negative affect or perfectionism predicted (over a 10 month period) dieting, food preoccupation or muscle preoccupation in 8 to 10 year old girls and boys. Two additional aspects of self-concept, which are closely related to self-esteem, were also examined in this study. Perceived parental relationships refers to the degree to which a child thinks that they have a good relationship with their parents and perceived peer relations is defined as the child’s conception of their level of popularity with peers (Marsh, 1990).

Apart from the individual factors, two additional independent variables included in the study were BMI and grade level. The effects of BMI were controlled because past research has demonstrated a strong association between BMI and disordered eating in children (eg, Rolland, Farnill, & Griffiths, 1997). Furthermore, past studies have found that older children report higher levels of dieting, compared with younger children (eg, Lawrence & Thelen, 1995). Analyses were conducted separately by gender and children’s scores on time 1 measures of dieting, food preoccupation and muscle preoccupation were controlled for in order to account for temporal stability (Stice, 1998).

The present study further investigated whether interactions between BMI and self-esteem, negative affect or perfectionism predicted children’s disordered eating or muscle preoccupation. The importance of BMI in predicting children’s disordered eating is well established (eg, Rolland et al., 1997). Given the significance of BMI, it is possible that BMI may interact with the individual factors to predict children’s disordered eating and/or muscle preoccupation. More specifically, children who are overweight and have low self-esteem, high levels of negative affect or high levels of perfectionism, may be more likely to demonstrate disordered eating. Similarly, children who are underweight and have low self-esteem, high levels of negative affect or high levels of perfectionism may be more likely to demonstrate muscle preoccupation. These relationships have not been investigated in past studies.

The present study also examined whether interactions between self-esteem, negative affect and perfectionism predicted either children’s disordered eating or muscle preoccupation. Studies have begun to examine and
have found support for interactions between self-esteem and perfectionism as predictors of disordered eating in adult female samples (Vohs et al., 1999). However, these relationships have yet to be explored in children.

Method
At Time 1, 326 children from thirteen primary schools in the South Eastern Metropolitan region of Melbourne, Australia, participated in the study. One hundred and eighteen children (58 girls and 60 boys) were in grade three, one hundred and thirty seven were in grade four (59 girls and 78 boys) and seventy one children (33 girls and 38 boys) were in grade five. At Time 1, the mean age of the girls was 9.14 years (SD = .85; range = 8 to 11) and the mean age of the boys was 9.24 years (SD = .82; range = 8 to 11). At Time 2, the mean age of the girls was 9.92 years (SD=.88; range = 8 to 12) and the mean age of the boys was 10.02 years (SD=.84; range = 8 to 12).

Approximately thirty percent of parents gave permission for their children to participate and these children were invited to complete an anonymous questionnaire which included the scales arranged in the following order: Self-Esteem (the General Self scale of the Self-Description Questionnaire-I, SDQ-I, Marsh, 1990), Negative Affect (the Positive and Negative Affect Schedule for Children, PANAS-C; Joiner et al., 1996), Dieting (four items from the Children’s Eating Attitudes Test, ChEAT; Maloney, McGuire, & Daniels, 1988 and four additional items, McCabe & Ricciardelli, 2003), Food Preoccupation (four of the original ChEAT items), Muscle Preoccupation (the ChEAT was modified to include eight items related to muscle preoccupation, Holt & Ricciardelli, 2002) and Perfectionism (the Child and Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher & Davison, 1992). Full details about any of these measures can be obtained in writing from the authors. The first author, or two trained research assistants were present to read the instructions, examples and all questions aloud to the children. Following completion of the questionnaire, the height and weight of each child was measured, by the author or a research assistant.

At Time 2, all children who participated at Time 1 were invited to participate, an average of 10 months after Time 1 data were obtained. At Time 2, 119 of the original 157 girls (79%) and 157 of the original 176 boys (89%) participated in the study. The remaining children had either relocated to a new school (n=44), were away from school on the day of testing (n=7) or refused to participate (n=1). Time 1 and Time 2 data were matched using numerical codes assigned to participants. The results of a multivariate analysis of variance revealed that there was no selective attrition.

Results
Hierarchical multiple regression analyses revealed that girls’ Dieting was predicted by BMI (R²=.50, p<.001, β=.36, p<.001). In contrast, both Perfectionism (β = .18, p < 0.01) and BMI (β=.30, p<0.01) predicted (R²=.42, p<0.01) boys’ Dieting. Food Preoccupation in both girls and boys was not predicted by any of the variables in this study, except for Time 1 scores on Food Preoccupation, (β=.47, p<.001) and (β=.44, p<.001) respectively. However, girls’ Muscle Preoccupation was predicted (R²=.34, p<0.01) by low Self-Esteem (β = -.19, p<.05), high Peer Relations (β=.33, p<.01), Negative Affect (β=.16, p<.05) and BMI (β = .31, p<.01). Grade level significantly predicted boys’ Muscle Preoccupation (R²=.18, p<.001, β=.17, p < .01) and there was a trend for perfectionism to predict boys’ Muscle Preoccupation (β = .20, p < .05). In no case were the interactions at either Step 3 (BMI x Self-Esteem, BMI x Negative Affect, BMI x Perfectionism) or Step 4 (Self-Esteem x Negative Affect, Negative Affect x Perfectionism, Self-Esteem x Perfectionism) significant. Therefore these results will not be discussed further.

Discussion
The findings of the present study highlight the importance of perfectionism in predicting boys’ disordered eating and muscle preoccupation. This is the first study to have examined perfectionism in relation to disordered eating or muscle preoccupation in children. However, past studies support a relationship between perfectionism and disordered eating in adolescent and adult males (Joiner, Katz, & Heatherton, 2000; Keel, Klump, Leon, & Fulkerson, 1998). It is generally maintained that the relationship between perfectionism and disordered eating arises when individuals strive to meet their own excessive standards for physical appearance or the standards of their parents, peers, or society in general (Hewitt et al., 1995). A similar relationship is thought to exist between perfectionism and muscle preoccupation (Vincent, 2000).

The development of perfectionism in children has not been extensively investigated. Various theorists, including Rice and Preusser (2002) have suggested that perfectionism develops in the family of origin. For instance, it has been proposed that perfectionism may emerge where the family environment demands superior performance from the child, but where approval is not forthcoming or is inconsistent (Hamachek, 1978). It has also been suggested that perfectionism is biological in origin and is attributable to the role of neurotransmitters such as serotonin (Kaye, 1997). Empirical studies are required to investigate these theoretical perspectives.
The present study found no evidence to support low self-esteem as a predictor of children's disordered eating. This is consistent with past longitudinal studies with children (Gardner et al., 2000; Keel et al., 1997). These negative findings may be a result of the developmental stage of children in these age ranges. During the middle elementary school years, children's self-esteem is still in the process of development and is being formed on the basis of specific self-concepts such as physical appearance (Berk, 2000). As self-esteem continues to develop and strengthen into adolescence (Berk, 2000) it may become more important in predicting disordered eating.

In the present study, negative affect predicted children's food preoccupation in the cross-sectional, but not in the longitudinal analysis. This finding is consistent with that of Martin et al. (2000) who did not find evidence to support negative affect as a longitudinal predictor of bulimic symptoms in children. However, they found that negative affect was cross-sectionally related to bulimic symptoms in children. They concluded that this pattern of results suggests that negative affect is not a long-term risk factor for children's disordered eating. However, there may be a short-term relationship between negative affect and food preoccupation/bingeing which is only evident in cross-sectional analyses or in prospective analyses, with shorter follow-up periods.

There are other factors that may account for the lack of evidence, in the present study, for a relationship between either self-esteem or negative affect and disordered eating. Controlling for the temporal stability of the Time 1 variables may have left little additional variance to be accounted for (Keel et al., 1997). Furthermore, the relationships between disordered eating and both self-esteem and negative affect, are likely to be weak in children, as they are only beginning to emerge, whereas they are well established in adolescents (Gardner et al., 2000). However, it is important that potential risk factors for disordered eating continue to be studied in children. This will facilitate the understanding and detection of eating disturbance in children. In addition, childhood is clearly a significant period to begin studying disordered eating and muscle preoccupation. Early assessments can then be used as a baseline for measuring changes in the effects of different risk factors, as children grow older.

References


