

**BODY IMAGE AND PREGNANCY: A MATTER OF RESTRAINT?**

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## Abstract

Body image is a significant aspect of the pregnancy experience, and impacts the physical and psychological health of both the mother and baby. Dietary restraint is proposed as a construct by which to understand the change and continuity of women's body image throughout pregnancy and postpartum, contributing to the experience of weight gain and body changes. Published literature is reviewed and analyzed to demonstrate connections between salient physical and psychological aspects of dietary restraint, body image prior to and during pregnancy, and disordered eating. Conclusion suggests the utility of dietary restraint for understanding the body image trajectory of individual women during this life transition.

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## Chapter One: Overview and Introduction

This chapter provides a contextual background for the final project. Rationale for the topic, operational definitions, and information regarding the development of this project are provided.

### *Importance of Body Image During Pregnancy*

Women's relationships with their bodies are often fraught with judgement, insecurity and comparison to unrealistic standards (Groesz, Levine, & Murnen, 2002; Nichter & Nichter, 1991; Wilcox & Laird, 2000; Wiseman, 2002). The complex nature of body image is slowly becoming clearer thanks to intensive research efforts (Fallon & Rozin, 1985; Franzoi & Shields, 1984; Mills, Polivy, Herman, & Tiggemann, 2002; Polivy, Herman, & Howard, 1988). Body image consists of an experience and evaluation of the physical self (Tiggemann & Lynch, 2001). In the current Western society, the focus of body image is on weight and shape (Tiggemann & Lynch), both of which are especially salient for women (Piran, 2001). Body satisfaction among women has been found to be in a state of "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1985, p. 268), whereby the majority of women are dissatisfied with their appearance (Tiggemann & Lynch). Across different groups and individual trajectories, there are both commonalities and differences in body image (Anderson & Park, 2003; Devine, Bove, & Olson, 2000; Tiggemann & Lynch), with women on average desiring to be thinner, while preoccupation with weight, shape and appearance varies based on life stages and events (Anderson & Park).

Researchers are currently exploring the interplay of life transitions with body image. Body changes and weight gain during pregnancy are significant but poorly understood contributors to body image during the transition to motherhood. Pregnancy involves drastic

physical changes, significant re-evaluation of priorities, and changes to personal identity and life satisfaction (Johnson, Burrows, & Williamson, 2004; McCarthy, 2008; Rubin, 1984).

While body image is widely recognized as a salient aspect of experience for non-pregnant women (Cash, Morrow, Hrabosky, & Perry, 2004; Kates, 2008; Tiggemann & Lynch, 2001), the relevance of body image to women during pregnancy has been largely overlooked in research. Rubin (1984) reported that pregnancy has historically been conceptualized as a time of asexual functionality, and that during pregnancy, women regard their own attractiveness as irrelevant. However, body image has been found to be an important component of self-esteem, efficacy and quality of life, especially among women of childbearing age (Kates). Given the importance of body image to women in this age group, exploring the impact of body image during pregnancy is a logical extension. Since Rubin's commentary, researchers have placed increased emphasis on the experience of body image. Although further exploration is still needed, research currently indicates that body image fluctuations in response to pregnancy-related physical changes demonstrate a high level of within-group variability, with individual women responding in divergent ways (Devine et al., 2000; Fox & Yamaguchi, 1997; Rocco et al., 2005; Turton, Hughes, Bolton, & Sedgwick, 1999). While this pattern has been found with consistency, the field is lacking a unifying framework within which to understand the pattern of differing responses. It appears that there is individual consistency in the experience of body image throughout pregnancy— that is, a woman with low body image prior to pregnancy is likely to still have relatively low body image during pregnancy and post partum (Devine et al.; Turton et al.; Walker, 1998).

There is great value in learning more about the factors involved in body satisfaction during pregnancy and postpartum. Many women report dissatisfaction with their bodies

during these periods (Walker, 1998; Walker, Timmerman, Kim, & Sterling, 2002). Women experiencing negative body image are at increased risk for unhealthy lifestyle choices, including disordered eating to alter their body weight and shape (Fairburn & Welch, 1990; Rocco et al., 2005; Turton et al., 1999). Women of childbearing age are the most prevalent demographic for chronic dieting and eating disorders (Boskind-White & White, 2000; Piran, 2001; Stewart, n.d.), both of which are especially unhealthy and risky during pregnancy (Stewart). By developing an understanding of the relationship between body image and pregnancy, possible prevention and intervention opportunities for pregnant women can be recommended and evaluated.

In this paper, I will discuss body image among women with a specific focus on body image experience during pregnancy. Moderating variables and individual differences will be explored as possible contributors to the patterns of body image which occur. Dietary restraint will be explained and proposed as a framework through which to better understand and predict the body image experiences of pregnant women. Finally, I will present implications for counselling practice.

### *Operational Definitions*

Before exploring body image and pregnancy more fully, a list of operational definitions used throughout the paper is provided below. These terms are used with consistency in the related literature.

Body Image – the mental representation of one’s own body resulting from physiological, psychological and social factors. One’s body image is primarily made up of two dimensions: body perception (direct mental experience of the physical appearance of



- the body) and body attitude (attitudes, emotional reactions, and valuation of importance) (Strang & Sullivan, 1983).
- Bulimia - recurrent episodes of binge eating and inappropriate compensatory behavior, as defined by the DSM (American Psychiatric Association [DSM-IV-TR], 2000).
- Diet - the intent to restrict caloric intake of food (Brannon & Feist, 2005).
- Dietary restraint -a pattern of chronic weight and shape preoccupation with accompanying psychological characteristics such higher depressive tendencies (Gendall, Joyce, Sullivan, & Bulik, 1998; Sarafino, 2006). Measured by the dietary restraint scale (Polivy, Herman, & Howard, 1988).
- Disordered eating - eating-disordered behaviors which occur at a frequency or intensity below the range for clinical diagnosis (Sarafino, 2006).
- Life transition - developmental experiences during adulthood, including events such as marriage and parenthood (Keel, Baxter, Heatherton, & Joiner, 2007).
- Mediating variable – a variable related to one or more independent variables, that in turn indirectly affects the value of a dependent variable (Colman, 2001).
- Moderating variable - a variable which indirectly limits the intensity of the effect of an independent variable (*Merriam-Webster's Collegiate Dictionary*, 2001).
- Restraint status -assignment, based on the dietary restraint scale, to either the restrained or unrestrained category (Mills et al., 2002)

### *Project Development*

The concept for this project developed out of a personal interest in the effect of restrained eating on various experiences in life. Pregnancy is a particularly interesting area in which to examine distinctions between restrained and unrestrained eaters, because it is an

experience resulting in significant but temporary changes to body weight and shape. I began to wonder if culturally sanctioned changes associated with pregnancy may have a divergent impact on women based on the degree to which they engage in dietary restraint. In addition to significant physical and dietary changes, pregnancy and the subsequent transition to motherhood result in changes to life roles and personal identity (Jordan, Capdevila, & Johnson, 2005). The parallel physical and psychological changes of pregnancy provide an interesting combination of factors which may impact the perceived importance of weight/shape relative to other contributors to self-esteem and identity.

This paper represents an initial “call to action” for research in the area of body image, disordered eating and the pregnancy experience. Research on dietary restraint, body image, and pregnancy is developing; however, there has not been a formal exploration of the experience of pregnancy and the postpartum period as mediated by dietary restraint theory. Dietary restraint may provide a valuable framework for understanding body image during pregnancy and postpartum. Significant distinctions have been found between the responses of restrained and unrestrained eaters in areas of body image, self-esteem and relative contributors to personal identity among non-pregnant women (Sarafino, 2006). In this paper, I provide an overview of the potential theoretical connections and contributions of dietary restraint for understanding the experiences of individual pregnant women. The purpose of this paper is to highlight logical connections between dietary restraint and the experience of pregnancy and to encourage formal investigation into dietary restraint during pregnancy and postpartum.

The following chapters provide additional support for the exploration of dietary restraint during pregnancy and postpartum. Literature pertaining to body image during

pregnancy, dietary restraint, and eating disorders during pregnancy will be reviewed.

Connections among the findings will be highlighted; these will provide support for the

proposal to investigate dietary restraint during pregnancy and postpartum. Search

methodology used for this paper will be described. Conclusions, strengths and limitations of

the paper will be discussed, along with recommendations for future research.

## Chapter Two: Literature Review

This chapter provides an overview of literature related to body image, pregnancy, and dietary restraint. Patterns of body image, including group change, individual continuity and change, and mediating factors are explored. Dietary restraint is explained in relation to non-pregnant and pregnant women, and the current controversies in the application of the dietary restraint construct are discussed. The relationship between disordered eating and pregnancy is also reviewed. Finally, by making connections in the literature, I propose the use of dietary restraint to structure findings about body image during pregnancy and postpartum, and offer hypotheses about further connections not yet supported by current literature.

### *Body Image and Pregnancy*

While the importance of body image to women's experience of self has been well recognized (Brannon & Feist, 2005; Sarafino, 2006), the relevance of body image to women during pregnancy is currently not well elucidated in the literature. Pregnancy has historically been portrayed as a time of physical functionality during which one's body image is immaterial (Rubin, 1984). In recent years there has been some exploration of body image during pregnancy; however the pattern of continuity and change is far from understood. Given the importance of body image to women's self-identification (Kates, 2008), it makes sense to explore the impact of such a significant developmental experience which directly impacts physical appearance and body perception (Earle, 2003; Jenkin & Tiggemann, 1997; Johnson et al., 2004; McCarthy, 1999). Exploratory research has indicated that the relationship between pregnancy and body image constitutes a significant experience for pregnant women (Chang, Chao, & Kenney, 2006; Earle; Johnson et al.; Strang & Sullivan,

1985), and that it impacts many areas of health and well-being for both mother and child (Foster, Slade & Wilson, 1996; Walker et al., 2008).

#### *Group Patterns of Body Image Change in Relation to Pregnancy*

Several studies have demonstrated a predictable pattern of body image change during pregnancy and postpartum, which differs from pre-pregnancy body satisfaction (Chang et al., 2006; Devine et al., 2000; Jenkin & Tiggemann, 1997, Strang & Sullivan, 1985). For most women, body image during pregnancy was less positive than during pre-pregnancy, and continued to decrease as pregnancy progressed and weight gain increased (Chang et al.; Johnson et al., 2004; Strang & Sullivan). Women tended to be most dissatisfied with their bodies postpartum (Walker, 1998); dissatisfaction peaked between two and four weeks postpartum (Jenkin & Tiggemann; Strang & Sullivan; Walker) and improved slowly over the following nine months as weight decreased (Baker, Carter, Cohen, & Brownell, 1999; Rubin, 1984). This pattern of dissatisfaction was identified by Rocco et al. (2005) as a quadratic pattern, meaning that body satisfaction increased slightly during pregnancy and then decreased significantly as pregnancy and weight gain progressed, reaching the lowest point in the postpartum period (Fairburn & Welch, 1990; Walker et al., 2002). As time passed post-delivery, body satisfaction increased to its previous pre-pregnancy levels by approximately the ninth month postpartum (Rubin).

Fox and Yamaguchi (1997) discovered that while the average trend was for women's body image to decrease during pregnancy, there were group differences between women who were overweight pre-pregnancy as compared to women who were of average weight at the time of conception. This study discovered that while a group of normal weight women did experience a drop in body satisfaction during pregnancy, women who were overweight

before becoming pregnant tended to experience an increase in body satisfaction, which continued to increase as pregnancy progressed (Fox & Yamaguchi). This was likely due to the complex mediating factors at work, whereby typical standards of the thin female ideal were eased temporarily due to a greater emphasis on body functionality (Earle, 2003), and in addition an overall reduction in the importance of body image as a component of self-esteem and self appraisal (Earle; Jordan, Capdevila, & Johnson, 2005). Moderating effects of body image throughout pregnancy are discussed in more detail below.

There was an indication that psychosocial factors mediated the relative importance given to body image during pregnancy as compared to prior to pregnancy (Fox & Yamaguchi, 1997; Jordan et al., 2005), an effect which was strongest for first-time pregnant women (Strang & Sullivan, 1985). In the postpartum period, women's body image tended to be lower than pre-pregnancy or during pregnancy, yet satisfaction with life tended to be high. In addition, the relative impact of body image on overall self image was perceived to be less important than during pre-pregnancy (Johnson et al., 2004; Jordan et al.; Rubin, 1984). This relative decrease in importance placed on shape and weight through the transition to motherhood was also observed among women at other developmental milestones: such as selecting a life partner and establishing a career (Keel et al., 2007). This was likely the result of the development of a variety of sources, in addition to physical appearance, for self-appraisal and determining self-worth (Keel et al.). While overall decreases in body image during pregnancy have been detected, there is evidence that individual women and some subgroups responded in divergent ways.

*Individual Continuity and Change Throughout Pregnancy*

While groups responded differently to the physical changes which occur with pregnancy, evidence suggests that individual women tended to respond to their body and weight throughout pregnancy in the same way as prior to pregnancy (Baker et al., 1999; Devine et al., 2000). This finding suggests that while the physical changes associated with pregnancy can act as a catalyst to influence women's body image, they are unlikely to result in a qualitative shift in feelings about one's body and eating behaviors (Baker et al.; Devine et al.). Continuity among individual women's approaches to weight and diet was also identified by Fairburn and Welch (1990). While the temporary experience of pregnancy did result in a lessening of body satisfaction for individual women's body image scores, overall individual rates remain relatively constant. Repeat dieters on average scored more negatively for body image than did non-dieters, pre-pregnancy, during pregnancy, and following delivery (Baker et al.; Fairburn & Welch). Thus individual differences persisted through varying situational circumstances, suggesting that body image scores reflected some internal characteristic of the individual.

Another related finding was that pregnancy acted as a "time out" from typical beauty standards (Chang et al., 2006), and that after delivery, women reverted to previous ideals and expectations regarding body weight, shape, and attractiveness (Rubin, 1984). In the postpartum period, this resulted in a significant discrepancy between one's ideal and the current state of the body (Rubin). The expectation to return to pre-pregnancy weight and shape (Chang et al; Rubin) often occurred before the physical recovery was possible, resulting in frustration (Rubin; Walker, 1998). Evidence suggested that physical changes from pregnancy and delivery take significant time to dissipate, with the reversal being

roughly equivalent to the progress of pregnancy (Rubin; Walker). Thus for the first several months, the body is significantly larger and less comfortable than pre-pregnancy (Walker), including unusual experiences with balance and body boundaries, in addition to physical changes following delivery such as uterine and abdominal flaccidity and retained weight (Rubin). While significant group changes in body image were detected throughout pregnancy and the postpartum period, the relative experience of body image remained fairly constant among individual women.

#### *Mediating Factors for the Relative Importance of Body Image*

Although women frequently reported that body dissatisfaction increased during pregnancy, body image made a reduced relative contribution to overall self image, life satisfaction and confidence (Johnson et al., 2004). Qualitative and open-ended studies found that women had cognitive schemas surrounding pregnancy and the new role as a mother (Strang & Sullivan, 1985) which moderated the negative effect of the lower body image (Chang et al., 2006; Johnson et al.). For example, pregnant women tended to value physical health over traditional beauty standards of thinness and subsequently equated healthy weight gain with the health of their baby (Chang et al.; Rubin, 1984). This cognitive representation reduced anxiety about weight gain, and non-conformity to the beauty ideal was considered healthy and justified by the pregnancy (Chang et al.; Johnson et al.; Rubin). There were also reported shifts from considering well-being as an individual to well-being as the baby's mother which therefore reduced the relative importance of body image in comparison to other aspects of self, such as maternal identity (Fox & Yamaguchi, 2006).

Rubin (2006) identified body functionality as a mediator of body image during pregnancy. Pregnant women tended to describe their bodies in terms of both appearance and



functionality (Chang et al, 2006; Johnson et al 2004; Rubin), thus decreasing the relative importance which women placed on their own appearance. Rubin found that feelings of body functionality were heightened when fetal health was especially salient; including following ultrasounds and hearing the fetal heart beat. Concerns about the health of the baby have been attributed to reducing the importance placed on thinness during pregnancy (McCarthy, 1999; Rocco et al., 2005). Specifically, gaining weight was experienced as beneficial to the health and development of the baby, and seen as more important than maintaining an ideal body shape (McCarthy), at least temporarily (Earle, 2003). This effect was found to dissipate following delivery, and may partially explain the re-appearance of increases in body dissatisfaction and dietary restriction postpartum.

Maternal identity has been identified as another moderating factor for body image (Fox & Yamaguchi, 1997; Rocco et al. 2005; Rubin, 2006). Evidence suggested that the pregnant woman's view of her role as a mother reduced the emphasis placed on physical appearance (Rocco et al.). Throughout the progression of pregnancy, the role of motherhood became increasingly important and appearance decreased in relative value (Rocco et al.).

Specific physical characteristics of pregnancy, including the "baby bump" and larger breasts were welcomed by many women during pregnancy (Chang et al., 2006; Earle, 2003; Johnson et al., 2004), especially as compared to the first several months of pregnancy when weight gain occurred but pregnancy was not yet apparent to other people. Earle identified that many women reported relief when they began showing, and perceived it as justification for weight gain both in their own opinion and in that of others. Earle also identified that while pregnancy and its physical changes did ameliorate the effect of weight gain on body image, it did not provide a continued protective effect. Specifically, women identified the

relaxation of their beauty standards to be a temporary effect of pregnancy, and expressed eagerness to resume weight control measures after the birth of the child (Earle). The nature of the weight control measures undertaken in the postpartum period was typically similar to methods used before pregnancy. Devine, Bove, and Olson (2000) identified four categories of weight control patterns which were evident prior to pregnancy and postpartum: relaxed maintainers, exercisers, determined, and unhurried. The vast majority of women followed the same weight control pattern as they had prior to pregnancy, with only a few women in the study following a new trajectory postpartum (Devine et al.).

### *Summary*

On average, body image among pregnant women decreased as pregnancy progressed and weight increased; dissatisfaction peaked several weeks after delivery (Jenkin & Tiggemann, 1997; Strang & Sullivan, 1985) and then returned to pre-pregnancy levels over the following nine months (Baker et al., 1999). The presence of numerous mediating factors indicates the complexity of the psychological effects of weight gain throughout pregnancy. Factors that have been found to moderate the effects of weight gain include consideration for the health of the baby, the perception of a temporary reprieve from the thin-ideal beauty standard (Earle, 2003), and a cognitive shift to other characteristics for determining self-worth (Chang et al., 2006; Johnson et al., 2004). Dietary restraint has an interactive relationship with body image and body dissatisfaction and other factors such as eating behaviors; the complex nature of the interaction is described in the following section.

### *Dietary Restraint / Restrained Eating*

Restrained eating is considered a trait characteristic identified by on-going weight concern and restrictive eating (Polivy et al., 1988). Restrained eating is a psychological

characteristic which can be understood as a pattern of chronic dieting, combined with low body satisfaction and a high drive for thinness (Polivy et al.). Unrestrained eaters do not diet for weight control and have a more positive experience of their bodies as compared to restrained eaters (Polivy et al.).

#### *Current Restraint Construct Controversy*

The utility of dietary restraint has come under criticism in recent years, as lead by Stice (Stice, Cooper, Schoeller, Tappe, & Lowe, 2007; Stice, Presnell, Groesz, & Shaw, 2005; Stice, Presnell, Lowe, & Burton, 2006). Stice and his colleagues' main criticism stems from the finding that women who test as restrained eaters on the Dietary Restraint Scale (Polivy et al., 1988) do not consume fewer calories than unrestrained eaters in short-term experimental settings (Stice et al., 2005; Stice et al., 2007). This argument contains several weaknesses and does not effectively disprove the value of dietary restraint as a potential explanatory factor. First, dietary restraint is primarily a psychological trait, which is characterised by body dissatisfaction, high drive for thinness, and a pattern of repeated dieting (restricting intake) to control weight (Polivy et al., 1988). Restrained eaters also have unique characteristics including susceptibility to disinhibition of eating (McFarlane et al., 1998), which results in an intake of calories greater than baseline and occasionally followed by sub-clinical bulimic symptomatology (Kirkley, Burge, & Ammerman, 1988), in which women who have "blown a diet" subsequently restrict intake (Kirkley et al.) or attempt to purge (VanStrien, Engels, VanStaveren, & Herman, 2006). The complex nature of these psychological characteristics cannot be determined based on a short-term experimental setting, such as used by Stice et al. (2005; 2007). It has been suggested that even 24-hour observation periods would not likely catch the nature of restrained eating patterns (VanStrien

et al., 2006). Stice's argument is predicated on the assumption that restrained eaters will demonstrate a consistent pattern of reduced caloric intake; however, the very nature of restrained eating as a psychological trait has demonstrated that this should not be consistently expected among restrained eaters.

#### *Dietary Restraint and Non-Pregnant Women*

Dietary restraint has demonstrated value for interpreting divergent within-group differences in body image responses of non-pregnant women (Mills et al., 2002; Polivy et al.; Rallis, Skouteris, Wertheim, & Paxton, 2007). Restrained eating is a construct which reflects more than simply reduced caloric intake. There is a constellation of personality and behavioral characteristics identified which contribute to the experience of restrained eating (Johnson & Wardle, 2005). For example, restrained eaters placed greater emphasis on the importance of body image within self-evaluation, and anticipate unrealistic benefits of weight loss (Trottier, Polivy, & Herman, 2005). Restrained eaters think more frequently about eating, weight and shape than do unrestrained eaters (Mills et al.). The role of food and weight was more salient to restrained eaters; they subsequently place higher value on thinness (Mills et al.), leading to an increased commitment to diet. Restrained eaters had difficulty maintaining self-imposed caloric restriction due to their susceptibility to disinhibition (Mills et al., 2001; Ruderman, 1986). The disinhibition experienced by restrained eaters resulted from hunger, restricting caloric intake, emotional volatility (positive or negative shifts in mood) and/or having consumed a "forbidden food" (Johnson & Wardle, 2005; Mills et al.; Ruderman; Wade, Martin, & Tiggemann, 1998). Dietary restraint demonstrated features which often differed from consistently reducing caloric intake, which

frequently varied between commitment to reduce intake, disinhibition, and subsequently higher consumption.

Restrained eaters responded to thin media images differently than did unrestrained eaters (Mills et al., 2002), and unique patterns of disinhibition have been found among restrained eaters (McFarlane, Polivy, & Herman, 1998). Specifically, restrained eaters experienced significant changes to scores in perceived body size and goal body size, and experienced disinhibited intake following exposure to thin media images, whereas unrestrained eaters experienced no significant effect in these areas (Mills et al., 2002). These important divergent characteristics between restrained and unrestrained eaters were not identified by group means, because the two trends statistically obscured one another, resulting in no overall detectable effect. Thus, by identifying the construct of restraint, sub-group differences were discovered that had been previously obscured by the use of group means. Effects of exposure to thin media were not significant for women overall; however, identifying and separating restrained eaters provided important results for understanding the different groups (Mills et al.). This mechanism may also be useful for the understanding of body image during pregnancy, as patterns of individual responses differed for reasons yet unknown. Comparing data between groups of restrained and unrestrained eaters during pregnancy may lead to the identification of sub-groups which are divided along characteristics of dietary restraint.

Dietary restraint is thought to represent a point on a continuum between unrestrained eating and clinically disordered eating (Wade et al., 1998), sharing characteristics with bulimia. Restrained eating and bulimia were found to share many risk factors and features, for example: the restriction of dietary intake, avoidance of “forbidden foods”, disinhibition

and re-commitment to restriction (Steiger et al., 2005). This pattern can lead to decreased sensitivity to hunger and satiety cues and a subsequent over-reliance of contextual cues for eating (Johnson & Wardle, 2005). Thus some behavioral features of bulimia are evident among restrained eaters at a sub-clinical level.

Two varying subtypes for bulimia have recently been identified and explored: dietary and dietary-depressive (Stice & Agras, 1999; Stice & Fairburn, 2003). While dietary restriction plays a role in both subtypes, the dietary-depressive subtype experiences more negative affect overall (Stice & Agras). Thus, it is hypothesized that bingeing is an attempt to cope with negative affect (Johnson & Wardle, 2005) and purging follows as a means by which to compensate for the weight gain resulting from the binge behavior (Johnson & Wardle; Steiger et al., 2005; Stice & Agras). For the dietary subtype, restraint-like characteristics of weight control are hypothesized to lead to intended caloric restriction, disinhibition of eating resulting in bingeing, followed by purging to prevent the weight gain which was originally being avoided (Johnson & Wardle; Stice & Agras). There is support for the existence of the two subtypes of bulimia, although the pattern of onset and development of the disorder remain unknown. Restrained eating may have a role to play in both subtypes of bulimia, however there is difficulty in identifying this because of the frequent use of the term “dietary restraint” as synonymous with long-term reduced caloric intake, when restrained eating as identified by Polivy et al. (1988) additionally reflects personality traits and an often ineffective long-term reduction in caloric intake.

#### *Dietary Restraint and Pregnancy*

The continuity discovered in individual patterns of body image prior to, during and after pregnancy suggested that restraint is a trait characteristic. Individual differences and

relative individual positioning tended to remain constant for individual women despite the group shifts (Baker et al., 1999). Therefore, a woman who scored in the high range for body image pre-pregnancy continued to score highly relative to her peers during pregnancy, despite the fact that individual body satisfaction had declined from its previous level. Evidence of consistent individual feelings about body image and weight throughout pregnancy are parallel to findings among non-pregnant women in relation to restraint status.

Many correlates of restrained eating, such as regular efforts to control weight with diet/exercise (Devine et al., 2000), eating disorder symptomatology (Turton et al., 1999), adherence to cultural beauty ideals (Chang et al., 2006), higher pre-pregnancy body mass index (Fox & Yamaguchi, 1997; Walker, 1998), lower pre-pregnancy body image (Rocco et al., 2005), higher self-ideal body size discrepancy (Rallis et al., 2007), and body dissatisfaction (Walker) were correlated with low body image during pregnancy. The similarities suggest that restraint status may be a valuable tool for understanding individual women's patterns of body image in response to pregnancy.

During pregnancy, anxiety about weight gain has been found to lead to attempted dietary restriction among some women (Ward, 2008), which was linked to later overeating and bingeing (Fairburn, Cooper, Doll, & Davies, 2005). This anxiety-induced behavior was more likely to affect restrained eaters who were already experiencing elevated concerns about their weight and shape (Fairburn et al.).

Some women, especially those with high body dissatisfaction and restraint status, compensated for a binge with purging behavior. This occurred with higher frequency among women with existing weight concern, both because of higher body dissatisfaction and a greater rate of disinhibited eating and over consumption (Mills et al., 2002). Consistent with

this, pregnant women who were restrained eaters prior to conception were found to have an increased occurrence of inappropriate weight gain during gestation (Mumford, Siega-Riz, Herring, & Evenson, 2008). Restrained eaters who were underweight prior to pregnancy tended to have weight gains below the recommended range, and restrained eating in overweight women was associated with weight gains above the recommendations (Mumford et al.).

Some women reported difficulty in stabilizing their intake postpartally, initiated by restricting intake in order to lose pregnancy-associated weight quickly (Stein & Fairburn, 1996). The postnatal restriction created a higher risk for a restrict-binge-compensatory purge cycle, especially among women with disordered eating pre-pregnancy (Lai, Tang, & Tse, 2006). Increases in disordered eating behaviors after giving birth were reported by up to 19% of women, as compared to approximately 8% during the prenatal period (Lai et al). During the postnatal period, many women report an emphasis on the baby's health, to the extent of feeling uneducated about their body postpartum (Stein & Fairburn). If pregnant and postpostpartum women were offered information which focuses on the physical experience of new mothers and healthy weight/shape, this may alleviate pressure to reduce weight immediately after delivery and result in healthier weight loss both physically and psychologically.

### *Eating Disorders and Pregnancy*

Eating disorders are most common among women of reproductive age (Morgan, Lacey, & Sedgwick, 1999), and negatively impact the health of both mother and baby. While many women with clinical eating disorders experience reduced fertility and/or amenorrhea (Stewart, n.d.), overall pregnancy rates have been found to be approximately equal to



matched controls (Mitchell-Gielegem, Mittelstaedt, & Bulik, 2002). However, women with eating disorders have been found to have a higher percentage of unplanned pregnancies resulting from incorrect assumptions of infertility based on the lack of menstrual cycles (Morgan et al.; Ward, 2008). Pregnancy had a catalytic effect on pre-existing eating disorders, with most women demonstrating a decrease in symptoms throughout the course of pregnancy (Crow, Agras, Crosby, Halmi, & Mitchell, 2008; Micali, Treasure, & Simonoff, 2006; Morgan et al.; Ward), followed by a resurgence of symptomatic behavior postpartally for some women (Crow et al.; Lai et al., 2006; Micali et al.; Mitchell-Gielegem et al.). For 34% of women with bulimia at the time of conception, pregnancy and the transition to motherhood had a curative effect (Morgan et al.); for 57% it resulted in resumed eating disorder behaviors postpartum (Morgan et al.), and for a small number of women without pre-existing eating disorders, pregnancy and postpartum was a time of vulnerability to the development of disordered eating, especially binge-eating disorder (Bulik et al., 2007; Mitchell-Gielegem). Tsang et al. (2006) found that approximately 8% of women reported disordered eating during pregnancy, compared with 19% postpartally.

Women who are restrained eaters are at a greater risk for developing both sub-clinical disordered eating behaviors and clinical eating disorders (Sarafino, 2006). Pregnancy can act as a catalyst for this development (Mitchel-Gielegem et al., 2002), especially among women with both high body dissatisfaction and high negative affect. This dietary-depressive subgroup is perhaps most likely to go on to develop symptoms of bulimia (Stice & Agras, 1999). Furthermore, women with dietary-depressive bulimia were more likely to have highly persistent symptoms throughout pregnancy and postpartum, and are more likely to

experience negative health consequences (Stice & Agras). There are identified differences between bulimia sub-types, which may correlate with dietary restraint.

Women with anorexia nervosa typically experience more negative responses to pregnancy than do women with bulimia. While women with bulimia have reported satisfaction and comfort from knowing that they were carrying a baby (Morgan et al., 1999), many women with anorexia have reported feelings of disgust during pregnancy and postpartum, frustration due to a lack of control over their bodies, and resentment that their eating behaviors could cause harm (Morgan et al.). This finding may highlight important group differences between women with anorexia and bulimia, and the impact which the disorders can have on the progression of the disorder throughout pregnancy and postpartum. For example, a woman with bulimic symptoms who perceives great importance in her role of nurturing the health of the developing baby may be more willing and able to reduce symptomatic behavior, and/or experience an underlying cognitive shift which reduces the pattern of the disorder. On the other hand, a woman with anorexia who ceases symptomatic behavior in pregnancy may resume disordered eating postpartum with renewed commitment to compensate for the weight gain of pregnancy and to regain the lost control over weight and shape.

### *Summary*

Dietary restraint may offer an organizing framework within which to understand patterns of body image and the effect of moderating variables. Together, the results of studies in the field suggest that exploring restraint status among pregnant women may enhance understanding of the complex responses to pregnancy-related weight gain.

*Hypothesized Relationships Between Pregnancy and Dietary Restraint*

Many correlates for low body image during pregnancy are also associated with body dissatisfaction in non-pregnant women. Among non-pregnant women, dietary restraint has been found to provide a framework for understanding the experience of body image (Brannon & Feist, 2005; Sarafino, 2006). Based on the similar correlates for body image among pregnant and non-pregnant women, dietary restraint may also be a valuable framework for understanding body image during the process of pregnancy. For example, variations in objective weight gain during pregnancy have been found to correlate with dietary restraint scores independent of body image (Mumford et al., 2008). Other patterns of findings may be attributed to the effects of dietary restraint. For example, the relatively higher body satisfaction during pregnancy among women with higher BMIs (Fox & Yamaguchi, 1997) may be attributed to the higher percentage of restrained eaters in the high BMI group. Overall, the pattern of body image findings among pregnant women indicate that potential relationships exist with dietary restraint, and that further exploration is needed. Table 1 summarizes current findings and hypothesizes on the potential contribution of restraint status to understanding women's experiences of body image during pregnancy.

Table 1

Hypotheses, Current Findings and Areas of Potential Contribution by Investigating Restrained Eating in Pregnancy

Hypotheses based on current popular knowledge	Current findings	Potential contribution of restraint
'Showing' during pregnancy ameliorates body image concerns.	Correlated with BMI (Earle, 2003).	Correlated with restrained eating?

Dietary-depressive bulimia reflects greater weight concern than does the dietary subtype.	Bulimia has 2 subtypes (dietary and dietary-depressive) (Stice & Agras, 1999).	Dietary-depressive subtype positively correlated with degree of restraint score?
Dietary-depressive bulimia is more likely to persist during pregnancy than the dietary subtype.	Dietary-depressive subtype is more resistant to treatment in women overall (Stice & Agras, 1999).	Does dietary restraint score correlate with persistence of symptoms during pregnancy?
Women respond differently to weight gain in pregnancy.	Pre-pregnancy BMI correlated with body satisfaction during pregnancy (Fox & Yamaguchi, 1997).	Do restrained eaters experience a reprieve from their standards?
Health is more salient than weight during pregnancy.	Sometimes: Highest salience of health following situational relevance e.g. hearing baby's heart beat (Rubin, 1984).	Is relative importance of health negatively correlated with restraint score?

### *“Showing” Ameliorates Body Image Concerns During Pregnancy*

While body dissatisfaction increased during pregnancy as a group trend (Strang & Sullivan, 1985), an effect has been found around the time that the woman begins “showing” and demonstrating a typical pregnant shape (Earle, 2003). In one study, several women expressed relief that “people would know I’m not just getting fat” (Earle, p. 249). It has also been found that on-target weight gain and anticipated shape changes played a significant role in the perceived health of the baby and efficacy as a mother (Earle). This effect has been found to have an interaction with BMI such that women who are heavier before pregnancy report the greatest relief when they begin showing (Earle; Fox & Yamaguchi, 1985). It is hypothesized that this effect would be strongest among restrained eaters, because of a sense of reprieve from the strict beauty/thinness standards (Rocco et al., 2005).

### *Dietary-Depressive Subtype Bulimia*

As discussed previously, Stice and Agras (1999) identified two types of bulimia, dietary and dietary-depressive. There were several identified differences, including that the

dietary-depressive subtype was more strongly associated with body image and appearance concerns, and also more resistant to treatment than the dietary subtype (Stice & Agras). I hypothesize that the dietary-depressive subtype is more similar to dietary restraint, sharing psychological characteristics such as high body dissatisfaction, body weight and shape preoccupation, and susceptibility to disinhibition (Gendall et al., 1998). Dietary restraint may account for the different subtypes of bulimia which have been identified.

Additionally, I hypothesize that women with dietary-depressive bulimia would experience an increased likelihood of symptoms persisting during pregnancy based on this subtype's resistance to treatment among non-pregnant women (Stice & Fairburn, 2003). The same persistence of symptoms in non-pregnant women is hypothesized to maintain cognitions and behaviors during pregnancy. Consistently, it has been found that higher levels of disordered eating pre-pregnancy are more likely to result in symptoms which persist throughout pregnancy (Micali et al., 2006; Morgan et al., 1999). The identification of two bulimia subtypes provides information about how different women respond in divergent ways. Dietary restraint may be useful for understanding the distinction between the subtypes, and subsequently provide additional information about the persistence of eating disorder symptomatology during pregnancy.

#### *Pregnancy and Disinhibition*

Weight gain during pregnancy has been found to be higher in restrained eaters than in unrestrained eaters, even when controlled for other factors such as BMI (Mumford et al., 2008). I hypothesize that during pregnancy restrained eaters may feel a reprieve from their physical beauty standards and therefore be disinhibited in their eating behavior.

### *Perceived Salience of Fetal Health*

Pregnant women's perceived salience of fetal health has been found to vary during pregnancy, and was highest after receiving an ultrasound test or hearing the fetal heartbeat (Rubin, 2006). Based on this situational variance, I hypothesize that the perceived salience of fetal health will vary with restraint score and appearance-related situational cues. I anticipate that restrained eaters would place greater personal relevance of weight and shape compared to fetal health, when appearance-related situational cues are present.

### *Summary*

Dietary restraint may provide a valuable framework within which to explore women's experience of body image during pregnancy and postpartum. As with non-pregnant women, dietary restraint may provide an explanation for divergent results among individual women. Hypothesized connections with dietary restraint are particularly evident in areas such as: relief when the pregnant woman is publicly showing, the role of dietary-depressive subtype bulimia, pregnancy and disinhibited eating, and the perceived salience of fetal health.

### *Importance of Body Image During Pregnancy*

There are several outcomes for mother and infant health which are correlated with the mother's body image, both during pregnancy and in the postpartum period. These factors highlight the importance of understanding the patterns of body image with the goal of developing relevant prevention and support programs.

Body image during pregnancy has been correlated with breastfeeding, finding that women with more positive body image during pregnancy were more committed to breastfeeding before the baby's birth and had a higher actual rate of breastfeeding following birth, than did women with lower body image (Foster et al., 1996). This is a significant

finding, because breastfeeding is correlated with many additional factors impacting the child's health and development (Foster et al.) and maternal weight loss postpartum (Ly, Simondon, & Simondon, 2006).

Depression has been found to correlate with body image of new mothers at six weeks postpartum, in a multicultural group of women (Walker et al., 2002). This effect was most significant for Caucasian women, but also significant among African-American and Hispanic groups (Walker et al.). Women with clinical eating disorders have an elevated risk of postpartum depression, with approximately 30% of an eating disorder population seeking treatment for postpartum depression, compared with a normal population rate of 3-12% (Franko & Spurrell, 2000). This is likely due to the additional stresses related to body image concerns, in addition to the typical adjustment to the role of motherhood (Franko & Spurrell; Ward, 2008).

Individuation between the body of the mother and that of the baby plays a role in the development of the woman's body image postpartally (Rubin, 1984; Schmied & Lupton, 2001). This is a process which typically occurs over a period of up to six weeks (Rubin), which also coincides with the lowest point of body satisfaction. Perhaps this idea of the shared body during pregnancy, and the transition following birth to the original self of the mother, is responsible for the protective pattern of body image throughout pregnancy and the subsequent drop in satisfaction following delivery. This may be a protective factor resulting in the decrease in dietary restraint during pregnancy.

Body image during and after pregnancy has a significant impact on many areas of the woman's experience, including health of the baby. This is an important topic to address through research in order to better understand the patterns of body image change and

continuity, patterns of eating disorder symptomology, the divergent responses of subgroups, and the impact of these factors on maternal and fetal health. I propose that dietary restraint may provide a useful framework for further exploration.



### Chapter Three: Method

This chapter contains an overview of the search methodology for the final project. Search terms, databases and the method for project completion are described in relation to the final product, which is a manuscript ready for submission to a peer-reviewed journal.

To develop the manuscript, I began with an extensive literature review. The eating disorder issues I explored for this project were body image, dietary restraint, bulimia and anorexia. There is a vast amount of information on the Internet, and in newspapers, magazines, books, and scholarly publications on eating disorders, body image, and pregnancy, so I decided to focus on academic sources to compile the theoretical basis for this project.

To begin, I searched the most current versions of academic databases such as psycINFO, OVID, Academic Search Complete, Eric, Medline, and Psychology and Behavioural Sciences Collection. Keywords I used in various combinations included body image, dietary restraint, pregnancy, postpartum, life transition, disordered eating, eating disorder, anorexia, bulimia. From my initial searches I identified several literature reviews and book chapters on the topic, and undertook further searching based on the sources cited in these reviews. Articles were selected with the search criteria of English-only, and publication dates of 1980 to present, with older articles included if they were primary sources.

The project outline was created by exploring literature on pregnancy and disordered eating. From there, I identified body image as an important underlying construct. Body image literature was explored, and comparisons made between the experiences of pregnant and non-pregnant women. Many of the correlations described in the existing research were familiar to me within the domain of non-pregnant women because of my familiarity with dietary

restraint resulting from my undergraduate thesis. Noticing the correlations focused my curiosity on how dietary restraint impacted the experience of weight gain and physical changes during pregnancy and postpartum.

Through a thorough review of the literature on body image and eating disorders, I selected the most relevant and current information. I then critically analyzed the material and compiled the theoretical foundations for this project as developed in the Literature Review. Based on this information, I identified the areas of focus for the content of the manuscript. Pertinent information was summarized and written in a straightforward style with the target journal in mind.

## Chapter Four: Synopsis

This chapter demonstrates the importance of exploring the role of dietary restraint in body image during pregnancy and postpartum. Strengths, cautions, and future research directions are discussed.

### *Importance of Understanding Body Image During Pregnancy and Postpartum*

Understanding body image during pregnancy is critically important because women's body image in combination with self-perceived health during pregnancy can impact health and well-being of both mother and baby (Jenkin & Tiggemann, 1997). For example, McCarthy (1999) found that pregnant women's body image scores were correlated with the length of delivery, presence of labour/delivery complications and the infants' Apgar scores (standardized rating of infant health at one and five minutes after delivery). Body image during pregnancy is correlated with rates of breastfeeding, and body image both during pregnancy and after delivery with postpartum depression.

The discovery that pregnancy has a catalytic effect on pre-existing eating disorders warrants further exploration in order to better understand the patterns of change. Regardless of the variations in response by individual women, there are significant group differences for women with eating disorders during pregnancy (Crow et al., 2008; Micali et al., 2006; Mitchell-Gielegghem et al., 2002). Most women with bulimia at the time of conception experience a significant decrease of symptomatic thoughts and behavior during pregnancy (Crow et al., 2008; Micali et al.; Mitchell-Gielegghem et al., 2002). Postpartum, there is a split effect whereby some women experience a resurgence in symptoms (Crow et al.) while others maintain improvements made during pregnancy (Tsang et al., 2006). Some new cases of bulimia develop in women who previously did not have the disorder (Mitchell-Gielegghem et

al.). The complexity of the pregnancy experience could provide valuable understanding into the operation of eating disorders among both pregnant and non-pregnant women, perhaps leading to the identification of contributing factors and subsequently prevention and treatment programs.

### *Strengths*

This paper provides theoretical support for hypothesized connections between dietary restraint and the experience of body image during pregnancy and postpartum. Novel synthesis of existing research is provided in a way which unifies existing research and provides direction. This paper provides a comprehensive approach to framing body image during pregnancy within the larger organizing construct of dietary restraint. This perspective is advantageous because it attempts to provide structure and understanding to a field which is currently faced with divergent and complex results.

This area of exploration is of great importance. Many women report that their pregnancy elicits significant feelings about their body weight and shape, and that it is not addressed in their health care. The prevalence of body dissatisfaction during pregnancy highlights the relevance of the interaction for many women. This prevalence, combined with the potential impact of body image on the health and well-being of both mother and baby, makes it a valuable area to understand more accurately.

Exploring dietary restraint as a relevant framework provides an especially valuable contribution to the area of research in pregnancy, as it has to the research on body image and disordered eating among non-pregnant women. Dietary restraint may provide the key to understanding the diverse and complex pattern of results currently characterize the research in the area.

### *Limitations*

Significant further research is needed to substantiate the potential link between dietary restraint and body image during pregnancy. The connections proposed in this project have been formulated primarily on the basis of extension of concepts from non-pregnant women into the experience of pregnancy and postpartum. While dietary restraint currently seems like a logical fit for the patterns of body image during pregnancy and postpartum, care must be taken to thoroughly explore the nature of the relationship. Further research is needed to determine whether there is support for the dietary restraint framework throughout the experience of pregnancy.

The scope of this project was necessarily limited due to a dearth of published literature on the topic. The framework which has been proposed is a suggestion for further exploration and will require consistent evidence before preventative programs can be developed. The following section will delineate suggestions for such research.

### *Future Directions*

Research on body image during pregnancy and postpartum is a newly developing and highly relevant area of exploration. Current research is just beginning to approach the essential components of the subject, and the findings have not yet been organized. This is the ideal time to explore potential frameworks for the material being studied. A well-suited framework can provide valuable contributions to the field, by organizing and explaining current divergent results, and suggesting directions for further investigation.

I have identified and described the potential relationship between body image during pregnancy and dietary restraint. I propose that formal investigation be conducted, in order to explore the nature of this possible interaction and to determine whether dietary restraint

reflects a component of body image throughout the pregnancy experience. This will likely involve many layers of study. Initially, the construct of dietary restraint will need to be explored in order to determine its validity for use as a means of evaluating body image and eating behavior during pregnancy. For example, the individual consistency of restraint scores, and the relevance and accuracy of the restraint scale will need to be tested and explored for use during pregnancy.

Once restraint has been supported as a useful construct for investigating body image during pregnancy, studies could be conducted to determine the effects of different aspects of experience on body image among pregnant women whose eating patterns can be described as restrained or unrestrained. An investigation of mediating factors for body image (such as fetal health, etc.) which includes group comparisons will help to better understand how mediating factors interact with pre-existing cognitions to produce behavior among individual women. This will be particularly useful for exploring the origins of disordered eating behaviors, and will pave the way for prevention and intervention programs that support and protect the health of mothers and their babies.

Of particular interest and benefit would be an investigation which compares restrained eaters' cognitions about body image prior to, during, and following pregnancy. This could enhance understanding of the nature and effect of mediating factors. By comparison, this investigation could also be used to better understand the cognitions of non-pregnant restrained women. Highly relevant insights could also result from study of the shifts experienced by individual women, as demonstrated by the changes in patterns of disordered eating behavior during pregnancy.

This is an exciting and burgeoning area of study that would greatly benefit from the exploration of a possible organizing and guiding framework. Dietary restraint should be explored for its utility in the area and applied to provide order to currently divergent findings.

### *Conclusions*

Numerous correlates of body dissatisfaction during pregnancy are associated with dietary restraint status. Evidence gathered thus far suggests that there is an important relationship between dietary restraint status and body image responses throughout the experience of pregnancy. Dietary restraint may be a framework which can organize and explain the pattern of continuity and change in body image throughout pregnancy and postpartum. Not only are the patterns of correlates consistent with restraint status, but the construct of dietary restraint could prove to be a useful way to explain and conceptualize the patterns of body image in response to pregnancy, and also allow predictive ability which would benefit future research in this area.

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## Appendix

Article Manuscript for Health Psychology Review



### Abstract

Body image is a significant aspect of the pregnancy experience, and impacts the physical and psychological health of both the mother and baby. Dietary restraint is proposed as a construct by which to understand the change and continuity of women's body image throughout pregnancy and postpartum, contributing to the experience of weight gain and body changes. Published literature is reviewed and analyzed to demonstrate connections between salient physical and psychological aspects of dietary restraint, body image prior to and during pregnancy, and disordered eating. Conclusion suggests the utility of dietary restraint for understanding the body image trajectory of individual women during this life transition.

Keywords: Body image, dietary restraint, eating disorder, postpartum, pregnancy, weight-gain

### *Introduction*

Women's relationships with their bodies are often fraught with judgement, insecurity and comparison to unrealistic standards (Groesz, Levine, & Murnen, 2002; Nichter & Nichter, 1991; Wilcox & Laird, 2000; Wiseman, 2002). The complex nature of body image is slowly becoming clearer thanks to intensive research efforts (Fallon & Rozin, 1985; Franzoi & Shields, 1984; Mills, Polivy, Herman, & Tiggemann, 2002; Polivy, Herman, & Howard, 1988). Body image consists of an experience and evaluation of the physical self (Tiggemann & Lynch, 2001). In the current Western society, the focus of body image is on weight and shape (Tiggemann & Lynch), both of which are especially salient for women (Piran, 2001). Body satisfaction among women has been found to be in a state of "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1985, p. 268), whereby the majority of women are dissatisfied with their appearance (Tiggemann & Lynch). Across different groups and individual trajectories, there are both commonalities and differences in body image (Anderson & Park, 2003; Devine, Bove, & Olson, 2000; Tiggemann & Lynch), with women on average desiring to be thinner, while preoccupation with weight, shape and appearance varies based on life stages and events (Anderson & Park).

Researchers are currently exploring the interplay of life transitions with body image. Body changes and weight gain during pregnancy are significant but poorly understood contributors to body image during the transition to motherhood. Pregnancy involves drastic physical changes, significant re-evaluation of priorities, and changes to personal identity and life satisfaction (Johnson, Burrows, & Williamson, 2004; McCarthy, 2008; Rubin, 1984).

While body image is widely recognized as a salient aspect of experience for non-pregnant women (Cash, Morrow, Hrabosky, & Perry, 2004; Kates, 2008; Tiggemann &

Lynch, 2001), the relevance of body image to women during pregnancy has been largely overlooked in research. Rubin (1984) reported that pregnancy has historically been conceptualized as a time of asexual functionality, and that during pregnancy, women regard their own attractiveness as irrelevant. However, body image has been found to be an important component of self-esteem, efficacy and quality of life, especially among women of childbearing age (Kates). Given the importance of body image to women in this age group, exploring the impact of body image during pregnancy is a logical extension. Since Rubin's commentary, researchers have placed increased emphasis on the experience of body image. Although further exploration is still needed, research currently indicates that body image fluctuations in response to pregnancy-related physical changes demonstrate a high level of within-group variability, with individual women responding in divergent ways (Devine et al., 2000; Fox & Yamaguchi, 1997; Rocco et al., 2005; Turton, Hughes, Bolton, & Sedgwick, 1999). While this pattern has been found with consistency, the field is lacking a unifying framework within which to understand the pattern of differing responses. It appears that there is individual consistency in the experience of body image throughout pregnancy— that is, a woman with low body image prior to pregnancy is likely to still have relatively low body image during pregnancy and post partum (Devine et al.; Turton et al.; Walker, 1998).

There is great value in learning more about the factors involved in body satisfaction during pregnancy and postpartum. Many women report dissatisfaction with their bodies during these periods (Walker, 1998; Walker, Timmerman, Kim, & Sterling, 2002). Women experiencing negative body image are at increased risk for unhealthy lifestyle choices, including disordered eating to alter their body weight and shape (Fairburn & Welch, 1990; Rocco et al., 2005; Turton et al., 1999). Women of childbearing age are the most prevalent

demographic for chronic dieting and eating disorders (Boskind-White & White, 2000; Piran, 2001; Stewart, n.d.), both of which are especially unhealthy and risky during pregnancy (Stewart). By developing an understanding of the relationship between body image and pregnancy, possible prevention and intervention opportunities for pregnant women can be recommended and evaluated. The purpose of this paper is to summarize current findings on body image and pregnancy, and to propose that dietary restraint may be a beneficial framework for understanding individual women's patterns of body image in response to pregnancy. Current research in the areas of body image and pregnancy, group and individual patterns of change and continuity, and mediating factors for body image will be summarized. Dietary restraint will be explored for its relevance to pregnancy-related weight gain, and hypotheses about potential contributions of dietary restraint to the area of body image and pregnancy are presented.

### *Body Image and Pregnancy*

While the importance of body image to women's experience of self has been well recognized (Brannon & Feist, 2005; Sarafino, 2006), the relevance of body image to women during pregnancy is currently not well elucidated in the literature. Pregnancy has historically been portrayed as a time of physical functionality during which one's body image is immaterial (Rubin, 1984). In recent years there has been some exploration of body image during pregnancy; however the pattern of continuity and change is far from understood. Given the importance of body image to women's self-identification (Kates, 2008), it makes sense to explore the impact of such a significant developmental experience which directly impacts physical appearance and body perception (Earle, 2003; Jenkin & Tiggemann, 1997; Johnson et al., 2004; McCarthy, 1999). Exploratory research has indicated that the

relationship between pregnancy and body image constitutes a significant experience for pregnant women (Chang, Chao, & Kenney, 2006; Earle; Johnson et al.; Strang & Sullivan, 1985), and that it impacts many areas of health and well-being for both mother and child (Foster, Slade & Wilson, 1996; Walker et al., 2008).

#### *Group Patterns of Body Image Change in Relation to Pregnancy*

Several studies have demonstrated a predictable pattern of body image change during pregnancy and postpartum, which differs from pre-pregnancy body satisfaction (Chang et al., 2006; Devine et al., 2000; Jenkin & Tiggemann, 1997, Strang & Sullivan, 1985). For most women, body image during pregnancy was less positive than during pre-pregnancy, and continued to decrease as pregnancy progressed and weight gain increased (Chang et al.; Johnson et al., 2004; Strang & Sullivan). Women tended to be most dissatisfied with their bodies postpartum (Walker, 1998); dissatisfaction peaked between two and four weeks postpartum (Jenkin & Tiggemann; Strang & Sullivan; Walker) and improved slowly over the following nine months as weight decreased (Baker, Carter, Cohen, & Brownell, 1999; Rubin, 1984). This pattern of dissatisfaction was identified by Rocco et al. (2005) as a quadratic pattern, meaning that body satisfaction increased slightly during pregnancy and then decreased significantly as pregnancy and weight gain progressed, reaching the lowest point in the postpartum period (Fairburn & Welch, 1990; Walker et al., 2002). As time passed post-delivery, body satisfaction increased to its previous pre-pregnancy levels by approximately the ninth month postpartum (Rubin).

Fox and Yamaguchi (1997) discovered that while the average trend was for women's body image to decrease during pregnancy, there were group differences between women who were overweight pre-pregnancy as compared to women who were of average weight at the

time of conception. This study discovered that while a group of normal weight women did experience a drop in body satisfaction during pregnancy, women who were overweight before becoming pregnant tended to experience an increase in body satisfaction, which continued to increase as pregnancy progressed (Fox & Yamaguchi). This was likely due to the complex mediating factors at work, whereby typical standards of the thin female ideal were eased temporarily due to a greater emphasis on body functionality (Earle, 2003), and in addition an overall reduction in the importance of body image as a component of self-esteem and self appraisal (Earle; Jordan, Capdevila, & Johnson, 2005). Moderating effects of body image throughout pregnancy are discussed in more detail below.

There was an indication that psychosocial factors mediated the relative importance given to body image during pregnancy as compared to prior to pregnancy (Fox & Yamaguchi, 1997; Jordan et al., 2005), an effect which was strongest for first-time pregnant women (Strang & Sullivan, 1985). In the postpartum period, women's body image tended to be lower than pre-pregnancy or during pregnancy, yet satisfaction with life tended to be high. In addition, the relative impact of body image on overall self image was perceived to be less important than during pre-pregnancy (Johnson et al., 2004; Jordan et al.; Rubin, 1984). This relative decrease in importance placed on shape and weight through the transition to motherhood was also observed among women at other developmental milestones: such as selecting a life partner and establishing a career (Keel et al., 2007). This was likely the result of the development of a variety of sources, in addition to physical appearance, for self-appraisal and determining self-worth (Keel et al.). While overall decreases in body image during pregnancy have been detected, there is evidence that individual women and some subgroups responded in divergent ways.

*Individual Continuity and Change Throughout Pregnancy*

While groups responded differently to the physical changes which occur with pregnancy, evidence suggests that individual women tended to respond to their body and weight throughout pregnancy in the same way as prior to pregnancy (Baker et al., 1999; Devine et al., 2000). This finding suggests that while the physical changes associated with pregnancy can act as a catalyst to influence women's body image, they are unlikely to result in a qualitative shift in feelings about one's body and eating behaviors (Baker et al.; Devine et al.). Continuity among individual women's approaches to weight and diet was also identified by Fairburn and Welch (1990). While the temporary experience of pregnancy did result in a lessening of body satisfaction for individual women's body image scores, overall individual rates remain relatively constant. Repeat dieters on average scored more negatively for body image than did non-dieters, pre-pregnancy, during pregnancy, and following delivery (Baker et al.; Fairburn & Welch). Thus individual differences persisted through varying situational circumstances, suggesting that body image scores reflected some internal characteristic of the individual.

Another related finding was that pregnancy acted as a "time out" from typical beauty standards (Chang et al., 2006), and that after delivery, women reverted to previous ideals and expectations regarding body weight, shape, and attractiveness (Rubin, 1984). In the postpartum period, this resulted in a significant discrepancy between one's ideal and the current state of the body (Rubin). The expectation to return to pre-pregnancy weight and shape (Chang et al; Rubin) often occurred before the physical recovery was possible, resulting in frustration (Rubin; Walker, 1998). Evidence suggested that physical changes from pregnancy and delivery take significant time to dissipate, with the reversal being

roughly equivalent to the progress of pregnancy (Rubin; Walker). Thus for the first several months, the body is significantly larger and less comfortable than pre-pregnancy (Walker), including unusual experiences with balance and body boundaries, in addition to physical changes following delivery such as uterine and abdominal flaccidity and retained weight (Rubin). While significant group changes in body image were detected throughout pregnancy and the postpartum period, the relative experience of body image remained fairly constant among individual women.

#### *Mediating Factors for the Relative Importance of Body Image*

Although women frequently reported that body dissatisfaction increased during pregnancy, body image made a reduced relative contribution to overall self image, life satisfaction and confidence (Johnson et al., 2004). Qualitative and open-ended studies found that women had cognitive schemas surrounding pregnancy and the new role as a mother (Strang & Sullivan, 1985) which moderated the negative effect of the lower body image (Chang et al., 2006; Johnson et al.). For example, pregnant women tended to value physical health over traditional beauty standards of thinness and subsequently equated healthy weight gain with the health of their baby (Chang et al.; Rubin, 1984). This cognitive representation reduced anxiety about weight gain, and non-conformity to the beauty ideal was considered healthy and justified by the pregnancy (Chang et al.; Johnson et al.; Rubin). There were also reported shifts from considering well-being as an individual to well-being as the baby's mother which therefore reduced the relative importance of body image in comparison to other aspects of self, such as maternal identity (Fox & Yamaguchi, 2006).

Rubin (2006) identified body functionality as a mediator of body image during pregnancy. Pregnant women tended to describe their bodies in terms of both appearance and



functionality (Chang et al, 2006; Johnson et al 2004; Rubin), thus decreasing the relative importance which women placed on their own appearance. Rubin found that feelings of body functionality were heightened when fetal health was especially salient; including following ultrasounds and hearing the fetal heart beat. Concerns about the health of the baby have been attributed to reducing the importance placed on thinness during pregnancy (McCarthy, 1999; Rocco et al., 2005). Specifically, gaining weight was experienced as beneficial to the health and development of the baby, and seen as more important than maintaining an ideal body shape (McCarthy), at least temporarily (Earle, 2003). This effect was found to dissipate following delivery, and may partially explain the re-appearance of increases in body dissatisfaction and dietary restriction postpartum.

Maternal identity has been identified as another moderating factor for body image (Fox & Yamaguchi, 1997; Rocco et al. 2005; Rubin, 2006). Evidence suggested that the pregnant woman's view of her role as a mother reduced the emphasis placed on physical appearance (Rocco et al.). Throughout the progression of pregnancy, the role of motherhood became increasingly important and appearance decreased in relative value (Rocco et al.).

Specific physical characteristics of pregnancy, including the "baby bump" and larger breasts were welcomed by many women during pregnancy (Chang et al., 2006; Earle, 2003; Johnson et al., 2004), especially as compared to the first several months of pregnancy when weight gain occurred but pregnancy was not yet apparent to other people. Earle identified that many women reported relief when they began showing, and perceived it as justification for weight gain both in their own opinion and in that of others. Earle also identified that while pregnancy and its physical changes did ameliorate the effect of weight gain on body image, it did not provide a continued protective effect. Specifically, women identified the

relaxation of their beauty standards to be a temporary effect of pregnancy, and expressed eagerness to resume weight control measures after the birth of the child (Earle). The nature of the weight control measures undertaken in the postpartum period was typically similar to methods used before pregnancy. Devine, Bove, and Olson (2000) identified four categories of weight control patterns which were evident prior to pregnancy and postpartum: relaxed maintainers, exercisers, determined, and unhurried. The vast majority of women followed the same weight control pattern as they had prior to pregnancy, with only a few women in the study following a new trajectory postpartum (Devine et al.).

### *Summary*

On average, body image among pregnant women decreased as pregnancy progressed and weight increased; dissatisfaction peaked several weeks after delivery (Jenkin & Tiggemann, 1997; Strang & Sullivan, 1985) and then returned to pre-pregnancy levels over the following nine months (Baker et al., 1999). The presence of numerous mediating factors indicates the complexity of the psychological effects of weight gain throughout pregnancy. Factors that have been found to moderate the effects of weight gain include consideration for the health of the baby, the perception of a temporary reprieve from the thin-ideal beauty standard (Earle, 2003), and a cognitive shift to other characteristics for determining self-worth (Chang et al., 2006; Johnson et al., 2004). Dietary restraint has an interactive relationship with body image and body dissatisfaction and other factors such as eating behaviors; the complex nature of the interaction is described in the following section.

### *Dietary Restraint / Restrained Eating*

Restrained eating is considered a trait characteristic identified by on-going weight concern and restrictive eating (Polivy et al., 1988). Restrained eating is a psychological

characteristic which can be understood as a pattern of chronic dieting, combined with low body satisfaction and a high drive for thinness (Polivy et al.). Unrestrained eaters do not diet for weight control and have a more positive experience of their bodies as compared to restrained eaters (Polivy et al.).

#### *Current Restraint Construct Controversy*

The utility of dietary restraint has come under criticism in recent years, as lead by Stice (Stice, Cooper, Schoeller, Tappe, & Lowe, 2007; Stice, Presnell, Groesz, & Shaw, 2005; Stice, Presnell, Lowe, & Burton, 2006). Stice and his colleagues' main criticism stems from the finding that women who test as restrained eaters on the Dietary Restraint Scale (Polivy et al., 1988) do not consume fewer calories than unrestrained eaters in short-term experimental settings (Stice et al., 2005; Stice et al., 2007). This argument contains several weaknesses and does not effectively disprove the value of dietary restraint as a potential explanatory factor. First, dietary restraint is primarily a psychological trait, which is characterised by body dissatisfaction, high drive for thinness, and a pattern of repeated dieting (restricting intake) to control weight (Polivy et al., 1988). Restrained eaters also have unique characteristics including susceptibility to disinhibition of eating (McFarlane et al., 1998), which results in an intake of calories greater than baseline and occasionally followed by sub-clinical bulimic symptomatology (Kirkley, Burge, & Ammerman, 1988), in which women who have "blown a diet" subsequently restrict intake (Kirkley et al.) or attempt to purge (VanStrien, Engels, VanStaveren, & Herman, 2006). The complex nature of these psychological characteristics cannot be determined based on a short-term experimental setting, such as used by Stice et al. (2005; 2007). It has been suggested that even 24-hour observation periods would not likely catch the nature of restrained eating patterns (VanStrien

et al., 2006). Stice's argument is predicated on the assumption that restrained eaters will demonstrate a consistent pattern of reduced caloric intake; however, the very nature of restrained eating as a psychological trait has demonstrated that this should not be consistently expected among restrained eaters.

#### *Dietary Restraint and Non-Pregnant Women*

Dietary restraint has demonstrated value for interpreting divergent within-group differences in body image responses of non-pregnant women (Mills et al., 2002; Polivy et al.; Rallis, Skouteris, Wertheim, & Paxton, 2007). Restrained eating is a construct which reflects more than simply reduced caloric intake. There is a constellation of personality and behavioral characteristics identified which contribute to the experience of restrained eating (Johnson & Wardle, 2005). For example, restrained eaters placed greater emphasis on the importance of body image within self-evaluation, and anticipate unrealistic benefits of weight loss (Trottier, Polivy, & Herman, 2005). Restrained eaters think more frequently about eating, weight and shape than do unrestrained eaters (Mills et al.). The role of food and weight was more salient to restrained eaters; they subsequently place higher value on thinness (Mills et al.), leading to an increased commitment to diet. Restrained eaters had difficulty maintaining self-imposed caloric restriction due to their susceptibility to disinhibition (Mills et al., 2001; Ruderman, 1986). The disinhibition experienced by restrained eaters resulted from hunger, restricting caloric intake, emotional volatility (positive or negative shifts in mood) and/or having consumed a "forbidden food" (Johnson & Wardle, 2005; Mills et al.; Ruderman; Wade, Martin, & Tiggemann, 1998). Dietary restraint demonstrated features which often differed from consistently reducing caloric intake, which

frequently varied between commitment to reduce intake, disinhibition, and subsequently higher consumption.

Restrained eaters responded to thin media images differently than did unrestrained eaters (Mills et al., 2002), and unique patterns of disinhibition have been found among restrained eaters (McFarlane, Polivy, & Herman, 1998). Specifically, restrained eaters experienced significant changes to scores in perceived body size and goal body size, and experienced disinhibited intake following exposure to thin media images, whereas unrestrained eaters experienced no significant effect in these areas (Mills et al., 2002). These important divergent characteristics between restrained and unrestrained eaters were not identified by overall group means, because the two trends statistically obscured one another, resulting in no overall detectable effect until restraint status was explored. Thus, by identifying the construct of restraint, sub-group differences were discovered that had been previously obscured by the use of group means. Effects of exposure to thin media were not significant for women overall; however, identifying and separating restrained eaters provided important results for understanding the different groups (Mills et al.). This mechanism may also be useful for the understanding of body image during pregnancy, as patterns of individual responses differed for reasons yet unknown. Comparing data between groups of restrained and unrestrained eaters during pregnancy may lead to the identification of sub-groups which are divided along characteristics of dietary restraint.

Dietary restraint is thought to represent a point on a continuum between unrestrained eating and clinically disordered eating (Wade et al., 1998), sharing characteristics with bulimia. Restrained eating and bulimia were found to share many risk factors and features, for example: the restriction of dietary intake, avoidance of “forbidden foods”, disinhibition

and re-commitment to restriction (Steiger et al., 2005). This pattern can lead to decreased sensitivity to hunger and satiety cues and a subsequent over-reliance of contextual cues for eating (Johnson & Wardle, 2005). Thus some behavioral features of bulimia are evident among restrained eaters at a sub-clinical level.

Two varying subtypes for bulimia have recently been identified and explored: dietary and dietary-depressive (Stice & Agras, 1999; Stice & Fairburn, 2003). While dietary restriction plays a role in both subtypes, the dietary-depressive subtype experiences more negative affect overall (Stice & Agras). Thus, it is hypothesized that bingeing is an attempt to cope with negative affect (Johnson & Wardle, 2005) and purging follows as a means by which to compensate for the weight gain resulting from the binge behavior (Johnson & Wardle; Steiger et al., 2005; Stice & Agras). For the dietary subtype, restraint-like characteristics of weight control are hypothesized to lead to intended caloric restriction, disinhibition of eating resulting in bingeing, followed by purging to prevent the weight gain which was originally being avoided (Johnson & Wardle; Stice & Agras). There is support for the existence of the two subtypes of bulimia, although the pattern of onset and development of the disorder remain unknown. Restrained eating may have a role to play in both subtypes of bulimia, however there is difficulty in identifying this because of the frequent use of the term “dietary restraint” as synonymous with long-term reduced caloric intake, when restrained eating as identified by Polivy et al. (1988) additionally reflects personality traits and an often ineffective long-term reduction in caloric intake.

#### *Dietary Restraint and Pregnancy*

The continuity discovered in individual patterns of body image prior to, during and after pregnancy suggested that restraint is a trait characteristic. Individual differences and

relative individual positioning tended to remain constant for individual women despite the group shifts (Baker et al., 1999). Therefore, a woman who scored in the high range for body image pre-pregnancy continued to score highly relative to her peers during pregnancy, despite the fact that individual body satisfaction had declined from its previous level. Evidence of consistent individual feelings about body image and weight throughout pregnancy are parallel to findings among non-pregnant women in relation to restraint status.

Many correlates of restrained eating, such as regular efforts to control weight with diet/exercise (Devine et al., 2000), eating disorder symptomatology (Turton et al., 1999), adherence to cultural beauty ideals (Chang et al., 2006), higher pre-pregnancy body mass index (Fox & Yamaguchi, 1997; Walker, 1998), lower pre-pregnancy body image (Rocco et al., 2005), higher self-ideal body size discrepancy (Rallis et al., 2007), and body dissatisfaction (Walker) were correlated with low body image during pregnancy. The similarities suggest that restraint status may be a valuable tool for understanding individual women's patterns of body image in response to pregnancy.

During pregnancy, anxiety about weight gain has been found to lead to attempted dietary restriction among some women (Ward, 2008), which was linked to later overeating and bingeing (Fairburn, Cooper, Doll, & Davies, 2005). This anxiety-induced behavior was more likely to affect restrained eaters who were already experiencing elevated concerns about their weight and shape (Fairburn et al.).

Some women, especially those with high body dissatisfaction and restraint status, compensated for a binge with purging behavior. This occurred with higher frequency among women with existing weight concern, both because of higher body dissatisfaction and a greater rate of disinhibited eating and over consumption (Mills et al., 2002). Consistent with

this, pregnant women who were restrained eaters prior to conception were found to have an increased occurrence of inappropriate weight gain during gestation (Mumford, Siega-Riz, Herring, & Evenson, 2008). Restrained eaters who were underweight prior to pregnancy tended to have weight gains below the recommended range, and restrained eating in overweight women was associated with weight gains above the recommendations (Mumford et al.).

Some women reported difficulty in stabilizing their intake postpartally, initiated by restricting intake in order to lose pregnancy-associated weight quickly (Stein & Fairburn, 1996). The postnatal restriction created a higher risk for a restrict-binge-compensatory purge cycle, especially among women with disordered eating pre-pregnancy (Lai, Tang, & Tse, 2006). Increases in disordered eating behaviors after giving birth were reported by up to 19% of women, as compared to approximately 8% during the prenatal period (Lai et al). During the postnatal period, many women report an emphasis on the baby's health, to the extent of feeling uneducated about their body postpartum (Stein & Fairburn). If pregnant and postpartum women were offered information which focuses on the physical experience of new mothers and healthy weight/shape, this may alleviate pressure to reduce weight immediately after delivery and result in healthier weight loss both physically and psychologically.

### *Eating Disorders and Pregnancy*

Eating disorders are most common among women of reproductive age (Morgan, Lacey, & Sedgwick, 1999), and negatively impact the health of both mother and baby. While many women with clinical eating disorders experience reduced fertility and/or amenorrhea (Stewart, n.d.), overall pregnancy rates have been found to be approximately equal to



matched controls (Mitchell-Gielegem, Mittelstaedt, & Bulik, 2002). However, women with eating disorders have been found to have a higher percentage of unplanned pregnancies resulting from incorrect assumptions of infertility based on the lack of menstrual cycles (Morgan et al.; Ward, 2008). Pregnancy had a catalytic effect on pre-existing eating disorders, with most women demonstrating a decrease in symptoms throughout the course of pregnancy (Crow, Agras, Crosby, Halmi, & Mitchell, 2008; Micali, Treasure, & Simonoff, 2006; Morgan et al.; Ward), followed by a resurgence of symptomatic behavior postpartally for some women (Crow et al.; Lai et al., 2006; Micali et al.; Mitchell-Gielegem et al.). For 34% of women with bulimia at the time of conception, pregnancy and the transition to motherhood had a curative effect (Morgan et al.); for 57% it resulted in resumed eating disorder behaviors postpartum (Morgan et al.), and for a small number of women without pre-existing eating disorders, pregnancy and postpartum was a time of vulnerability to the development of disordered eating, especially binge-eating disorder (Bulik et al., 2007; Mitchell-Gielegem). Tsang et al. (2006) found that approximately 8% of women reported disordered eating during pregnancy, compared with 19% postpartally.

Women who are restrained eaters are at a greater risk for developing both sub-clinical disordered eating behaviors and clinical eating disorders (Sarafino, 2006). Pregnancy can act as a catalyst for this development (Mitchel-Gielegem et al., 2002), especially among women with both high body dissatisfaction and high negative affect. This dietary-depressive subgroup is perhaps most likely to go on to develop symptoms of bulimia (Stice & Agras, 1999). Furthermore, women with dietary-depressive bulimia were more likely to have highly persistent symptoms throughout pregnancy and postpartum, and are more likely to

experience negative health consequences (Stice & Agras). There are identified differences between bulimia sub-types, which may correlate with dietary restraint.

Women with anorexia nervosa typically experience more negative responses to pregnancy than do women with bulimia. While women with bulimia have reported satisfaction and comfort from knowing that they were carrying a baby (Morgan et al., 1999), many women with anorexia have reported feelings of disgust during pregnancy and postpartum, frustration due to a lack of control over their bodies, and resentment that their eating behaviors could cause harm (Morgan et al.). This finding may highlight important group differences between women with anorexia and bulimia, and the impact which the disorders can have on the progression of the disorder throughout pregnancy and postpartum. For example, a woman with bulimic symptoms who perceives great importance in her role of nurturing the health of the developing baby may be more willing and able to reduce symptomatic behavior, and/or experience an underlying cognitive shift which reduces the pattern of the disorder. On the other hand, a woman with anorexia who ceases symptomatic behavior in pregnancy may resume disordered eating postpartum with renewed commitment to compensate for the weight gain of pregnancy and to regain the lost control over weight and shape.

### *Summary*

Dietary restraint may offer an organizing framework within which to understand patterns of body image and the effect of moderating variables. Together, the results of studies in the field suggest that exploring restraint status among pregnant women may enhance understanding of the complex responses to pregnancy-related weight gain.

*Proposal: Pregnancy and Dietary Restraint*

Many correlates for low body image during pregnancy are also associated with body dissatisfaction in non-pregnant women. Among non-pregnant women, dietary restraint has been found to provide a framework for understanding the experience of body image (Brannon & Feist, 2005; Sarafino, 2006). Based on the similar correlates for body image among pregnant and non-pregnant women, dietary restraint may also be a valuable framework for understanding body image during the process of pregnancy. For example, variations in objective weight gain during pregnancy have been found to correlate with dietary restraint scores independent of body image (Mumford et al., 2008). Other patterns of findings may be attributed to the effects of dietary restraint. For example, the relatively higher body satisfaction during pregnancy among women with higher BMIs (Fox & Yamaguchi, 1997) may be attributed to the higher percentage of restrained eaters in the high BMI group. Overall, the pattern of body image findings among pregnant women indicate that potential relationships exist with dietary restraint, and that further exploration is needed. Table 1 summarizes current findings and hypothesizes on the potential contribution of restraint status to understanding women's experiences of body image during pregnancy.

*"Showing" Ameliorates Body Image Concerns During Pregnancy*

While body dissatisfaction increased during pregnancy as a group trend (Strang & Sullivan, 1985), an effect has been found around the time that the woman begins "showing" and demonstrating a typical pregnant shape (Earle, 2003). In one study, several women expressed relief that "people would know I'm not just getting fat" (Earle, p. 249). It has also been found that on-target weight gain and anticipated shape changes played a significant role in the perceived health of the baby and efficacy as a mother (Earle). This effect has been

found to have an interaction with BMI such that women who are heavier before pregnancy report the greatest relief when they begin showing (Earle; Fox & Yamaguchi, 1985). It is hypothesized that this effect would be strongest among restrained eaters, because of a sense of reprieve from the strict beauty/thinness standards (Rocco et al., 2005).

#### *Dietary-Depressive Subtype Bulimia*

As discussed previously, Stice and Agras (1999) identified two types of bulimia, dietary and dietary-depressive. There were several identified differences, including that the dietary-depressive subtype was more strongly associated with body image and appearance concerns, and also more resistant to treatment than the dietary subtype (Stice & Agras). I hypothesize that the dietary-depressive subtype is more similar to dietary restraint, sharing psychological characteristics such as high body dissatisfaction, body weight and shape preoccupation, and susceptibility to disinhibition (Gendall et al., 1998). Dietary restraint may account for the different subtypes of bulimia which have been identified.

Additionally, I hypothesize that women with dietary-depressive bulimia would experience an increased likelihood of symptoms persisting during pregnancy based on this subtype's resistance to treatment among non-pregnant women (Stice & Fairburn, 2003). The same persistence of symptoms in non-pregnant women is hypothesized to maintain cognitions and behaviors during pregnancy. Consistently, it has been found that higher levels of disordered eating pre-pregnancy are more likely to result in symptoms which persist throughout pregnancy (Micali et al., 2006; Morgan et al., 1999). The identification of two bulimia subtypes provides information about how different women respond in divergent ways. Dietary restraint may be useful for understanding the distinction between the subtypes,

and subsequently provide additional information about the persistence of eating disorder symptomatology during pregnancy.

### *Pregnancy and Disinhibition*

Weight gain during pregnancy has been found to be higher in restrained eaters than in unrestrained eaters, even when controlled for other factors such as BMI (Mumford et al., 2008). I hypothesize that during pregnancy restrained eaters may feel a reprieve from their physical beauty standards and therefore be disinhibited in their eating behavior.

### *Perceived Salience of Fetal Health*

Pregnant women's perceived salience of fetal health has been found to vary during pregnancy, and was highest after receiving an ultrasound test or hearing the fetal heartbeat (Rubin, 2006). Based on this situational variance, I hypothesize that the perceived salience of fetal health will vary with restraint score and appearance-related situational cues. I anticipate that restrained eaters would place greater personal relevance of weight and shape compared to fetal health, when appearance-related situational cues are present.

### *Summary*

Dietary restraint may provide a valuable framework within which to explore women's experience of body image during pregnancy and postpartum. As with non-pregnant women, dietary restraint may provide an explanation for divergent results among individual women. Hypothesized connections with dietary restraint are particularly evident in areas such as: relief when the pregnant woman is publicly showing, the role of dietary-depressive subtype bulimia, pregnancy and disinhibited eating, and the perceived salience of fetal health.

### *Future Directions for Research*

Research on body image during pregnancy and postpartum is a newly developing and highly relevant area of exploration. Current research is just beginning to approach the essential components of the subject, and the findings have not yet been organized. This is the ideal time to explore potential frameworks for the material being studied. A well-suited framework can provide valuable contributions to the field, by organizing and explaining current divergent results, and suggesting directions for further investigation.

I have identified and described the potential relationship between body image during pregnancy and dietary restraint. I propose that formal investigation be conducted, in order to explore the nature of this possible interaction and to determine whether dietary restraint reflects a component of body image throughout the pregnancy experience. This will likely involve many layers of study. Initially, the construct of dietary restraint will need to be explored in order to determine its validity for use as a means of evaluating body image and eating behavior during pregnancy. For example, the individual consistency of restraint scores, and the relevance and accuracy of the restraint scale will need to be tested and explored for use during pregnancy.

Once restraint has been supported as a useful construct for investigating body image during pregnancy, studies could be conducted to determine the effects of different aspects of experience on body image among pregnant women whose eating patterns can be described as restrained or unrestrained. An investigation of mediating factors for body image (such as fetal health, etc.) which includes group comparisons will help to better understand how mediating factors interact with pre-existing cognitions to produce behavior among individual women. This will be particularly useful for exploring the origins of disordered eating

behaviors, and will pave the way for prevention and intervention programs that support and protect the health of mothers and their babies.

Of particular interest and benefit would be an investigation which compares restrained eaters' cognitions about body image prior to, during, and following pregnancy. This could enhance understanding of the nature and effect of mediating factors. By comparison, this investigation could also be used to better understand the cognitions of non-pregnant restrained women. Highly relevant insights could also result from study of the shifts experienced by individual women, as demonstrated by the changes in patterns of disordered eating behavior during pregnancy.

#### *Conclusions*

Numerous correlates of body dissatisfaction during pregnancy are associated with dietary restraint status. Evidence gathered thus far suggests that there is an important relationship between dietary restraint status and body image responses throughout the experience of pregnancy. Dietary restraint may be a framework which can organize and explain the pattern of continuity and change in body image throughout pregnancy and postpartum. Not only are the patterns of correlates consistent with restraint status, but the construct of dietary restraint could prove to be a useful way to explain and conceptualize the patterns of body image in response to pregnancy, and also allow predictive ability which would benefit future research in this area.