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Body Image Dissatisfaction and Disordered Eating Behaviors in Mothers during Lactation Period

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The present study was conducted to examine the relationship of body image dissatisfaction and disordered eating behaviors among women during lactation period that is, maximum two years after last delivery. The basic aim of the study was to find out whether women in our culture experience body image dissatisfaction during lactating phase that leads towards engaging in disordered eating behaviors. Multidimensional Body Self Relations Questionnaire Scale (Cash, 2002), Disordered Eating Behavior Scale (Muazzam & Khalid, 2011), and a detailed demographic sheet were used for data collection from 100 mothers through convenience and snowball sampling. Results showed that appearance evaluation, overweight preoccupation, and appearance orientation (domains of body image) significantly predicted disordered eating behaviors. However, self-classified weight and body dissatisfaction domains had no predictive role in disordered eating. Results further indicated that pre-pregnancy weight concerns were positively correlated with weight concerns after delivery, while, lactating period had no role in disordered eating behavior. The present study suggested that the trends of body image dissatisfaction existed in mothers of our culture that led them in engaging towards disordered eating behaviors. Therefore, efforts would be needed by psychologists and nutrionists to plan healthy diet plans for mothers and reduce their concerns regarding body image as it might affect health of the child as well as those who is dependent on mother for feeding.

Keywords. Body image, disordered eating behaviors, lactation, pregnancy, weight concerns

Pregnancy is the phase that causes physiological as well as psychological changes among women. Women usually undergo a lot of changes in their body and eating habits during conception,

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pregnancy, and afterwards following child birth that is, in the phase of lactation including breast feeding. Lactation phase is the period in which women try to adjust back to their pre-pregnancy state. For which they experience a lot of social pressures from husband, in-laws, and family who recommend them to take healthy food to meet demands of child rearing and for better health of the child (Polivy & Herman, 2002). At one hand, they are concerned about their child's health and on the other concerned about their figure and weight that effect their eating patterns and body image.

Childbearing is a time of changes in a mother's personal health practices and attitudes due to changes in social systems, health related resources, or concerns (Borgatta & Kapp, 2011),varying expectations for self-image, routine behaviors, weight gain (Horowitz & Goodman, 2004), and dietary behaviors (see Devine, Bove, & Olson, 2000). Changes occurring during the phase of pregnancy following delivery affect later behaviors during lactation period (Institute of Medicine, 1990). Therefore, how women in these phases react and adjust to the multitude of changes in body weight and eating is essential to recognize (Rodin, Silberstein, & Striegel-Moore, 1985).

Following child birth, the apparent physiological changes in body parts that women view during this phase is their body image. Body image is a multidimensional phenomenon (Cash & Pruzinsky, 2002) having two components: Investment (importance) indicating that the amount of delegation and time a women devotes or invests in her appearance in order to look good; and evaluation (body dissatisfaction) indicating as how women view their body if they are satisfied they view and evaluate their body in a positive light and vice versa (see Cash, Melnyk & Hrabosky, 2004).

Body dissatisfaction (BD) is considered to be a sensitive part of body image, and can be defined as a discrepancy between the current body mass and an ideal body (Cash, 2002). According to Stice and Shaw (2002), BD is negative personal assessments of one's physical body including body parts like stomach, weight, hips, and the figure as a whole. BD plays a chief role in acquiring disordered eating (Littleton & Ollendick, 2003). Disordered eating is described as eating behaviors that are troublesome, such as purging, bingeing, or restrictive dieting which occur with less frequency or are less severe as compared to those required to meet the full criteria of an eating disorder (Muazzam & Khalid, 2011). Therefore, after child birth, when women feel trouble in their body image, they eventually engage in disordered eating behaviors to regain their pre-pregnancy shape.

Evidences have shown that BD is much high among mothers following child birth. Walker, Timmerman, Kim, and Sterling (2002) found in African American, Anglo, and Hispanic women within the instant six weeks after delivery that during post-delivery phase, the overall concerns increase regarding weight and body's waist was the foremost area of dissatisfaction. According to Hiser (1987), almost 75% of new moms are concerned about their body weight and 70% are stressed over their capacity to come back to before pregnancy figure during the first few post-delivery weeks.

Subsequently, after child birth, six months following child birth that is, postpartum, is a crucial period for attaining a healthy weight as well as for preventing future increase of obesity (Baker et al., 2008; Linne, Dye, Barkeling, & Rossner, 2004), and is the time of restoration of muscle tone and connective tissue to the pre-pregnant state (Brown, Posner, & Stewart, 1999). Even though, some women throughout pregnancy consume healthier foods, they may end these healthy practices of eating after giving birth (Fowles & Walker, 2006; Gina et al., 2012). A majority of women in the early postpartum phase are having more weight than their pre-pregnancy weight and may attribute gaining weight no longer to positive features and in turn acquire disordered eating (Olson, Strawderman, Hinton, & Pearson, 2003).

For mother's and infant's physical as well as psychological well-being, body image disturbance leading towards disordered eating during postpartum has significant implications (Carter, Wood Baker, & Brownell, 2000; Rallis, Skouteris, Wertheim, & Paxton, 2007). Women usually weigh more after giving birth to the baby than they did before pregnancy (Carter et al., 2000) and are not prepared for the changes in body, and if such women hold pre-pregnancy hopes about the bodily figure afterwards, they are at increased risk for disturbances in body image during the postpartum months and restrict their intake of food to get in proper shape (Rallis et al., 2007).

In the light of the consequences of body image dissatisfaction leading towards disordered eating, literature has provided the negative affect of such behaviors. During the postpartum period, eating disturbances as well as mother's body image have been associated with energy deficiency, impaired production of milk, and feeding issues of infant (Wendy & Tiggemann, 1997), additionally, can also have distressing and even harmful life-threatening consequences (American Psychological Association, 2000) and can also result in the development of mental illnesses (Sullivan, 2002). Another factor leading towards disordered eating is the presence of 'Pica' (Holm-Denoma & Hankin, 2010; Nolen-Hoeksema, Stice, Wade, &Bohon,

2007). Pica or the urgent admission of nonnutritive substances has been connected with iron inadequacy throughout pregnancy (Doerr, 2001). Certain behaviors during pregnancy are continued by women even during the lactation phase.

Most of the studies have been conducted to examine the effect of body dissatisfaction and disordered eating among mothers during the postpartum period that is, six months following child delivery (e.g., see Carter, Wood Baker, & Brownell, 2000; Rallis, Skouteris, Wertheim & Paxton, 2007; Walker et al., 2002). Little attention is given to study such phenomena during the lactating phase. However, the present study is conducted to explore the relationship between body dissatisfaction and disordered eating behaviors in women during the lactation phase which includes time period after delivery till 2 years. In this phase, mothers' breast feed their babies for which nutritional value is very important. The primary function of lactation after birth is to provide immune protection and nutrition to the baby (Sultana, Rahman, & Manjula, 2013). The significance of breastfeeding during lactating phase cannot be denied. Exclusive breastfeeding for the first 6 months of an infant's life is recommended by the World Health Organization (2001) followed by supplemented breastfeeding by other suitable food up till the age of 2 years. Science has proven that breast feeding is greatly beneficial for both child and mother.

In addition, the literature provided above is mostly from the western culture because in Pakistan, most studies on body image and eating disorders in conducted on the sample of teenage girls and their results showed that in our culture as well, body image disturbances exists that are leading towards eating disorders among adolescent girls (e.g. see Kaiser, Syed, & Qazi, 2007; Rehman et al., 2003; Safdar, 2006). During the last decade in Pakistan, some information and awareness related to eating disorder has been significantly developed, but the concept of disordered eating is still unsolved and ignored. Study conducted in Pakistan showed the factors contributing to disordered eating behaviors during the period of pregnancy and findings revealed that among pregnant women, the existence of disordered eating behavior prevails for which severe level of stress exist among them which can either be psychological or physical in nature(Sohail & Muazzam, 2012).

Evidences lack for studying eating patterns and body concerns in mothers during lactation, and particularly no such study has been conducted in Pakistan to examine this phenomenon among lactation mothers. Even globally very limited literature exists to examine eating behaviors and body image during lactation. Body image concerns is

major factor that contribute to disordered eating behaviors and related practices (see Cash, Melnyk, & Hrabosky, 2004; Cooley & Toray, 2001; Shroff & Thompson, 2006; Stice, 2001).High body image dissatisfaction may contribute towards eating problems in daily life that needs to be explored among women in lactation phase. Therefore, the present study could help childbearing women to develop insight about how their body image disturbances would make them vulnerable towards mental illnesses that might be manifested in the form of engaging in disordered eating behaviors that could ultimately affect their child's health. Present study aim is also to determine the relationship as well as predictive role of body image concerns in disordered eating behaviors; in addition, the role of various demographic in relation to associated variables were also explored. Following hypotheses were phrased:

1. Body image dissatisfaction leads towards disordered eating behavior.
2. There is a positive relationship of weight related concerns before and after pregnancy among women with weight related concerns in lactation period.
3. The presence of disordered eating behaviors and body image dissatisfaction is high during the first six months (i.e., postpartum phase) as compared to those between 7-12, 13-18, and 19-24 months.

Method

Sample

The sample in the present study consisted of 100 women in lactating phase with age range 20-39 years (M = 28.04, SD = 3.79), and having minimum education of graduation. Only those women were selected who had their new born till or less than two years of age and none of the participants were pregnant again. The sample was collected through convenience as well as snowball sampling. Along with approaching sample in home setting, data were also collected from OPD (Out Patients Department) of pediatric and gynecology departments of different hospitals as well as from the general population.

In present study, majority of women has income within 31-60 thousand rupees, non-working, marriage duration within 1-5 years, having 1-2 children, using both feeding methods (breast-feeding and bottle-feed) for their new born, and BMI lying within the range of 18-34. BMI was calculated by the formula using weight in kilograms / height in meters square. Along lactation phase, data is almost equally

dispersed. However, BMI of less than 18 is regarded as underweight and may indicate malnutrition, an eating disorder, or other health problems, and above 30 is considered overweight or obese (World Health Organization, 2006).

Measures

Demographic sheet. A detailed demographic sheet was developed consisting of questions including age, education, family's income, marital status, duration of marriage, occupation, BMI, number of children, ages of children, age of new born, date of delivery, type of delivery, the new born is on breast feed or bottle feed, duration of breast feeding, reason for not breastfeeding, exercise, weight related concerns, figure related concerns after delivery. Open ended questions were also included based on the main social factors that affect present eating habits; taking any supplements; food preferences after delivery; changes in the eating habits and figure after delivery; persistent eating of nonnutritive and nonfood substances over a period of at least 1 month and related questions; cravings of food during pregnancy and after delivery. The demographic sheet was administered in an interview format that is, by asking the open ended questions. A few relevant findings based on this demographic sheet are reported in the present study.

Multidimensional Body Self Relations Questionnaire (MBSRQ). It was developed by Cash (2002) and adapted by Muneer (2006).This scale was used because it measures various domains of body image, therefore, gave a reasonable idea of women's body image in a broader perspective. MBSRQ consisted of 34-item having response category from 1(*definitely disagree*) to 5(*definitely agree*) on a 5-point Likert scale and consisted of 5 subscales Appearance Evaluation (7 items), Appearance Orientation (12 items), Overweight Preoccupation (4 items), Self-Classified Weight (2 items), and the Body Area Satisfaction Scale (2 items). The scale has 6 reverse score items.

The score corresponding to 50^{th} percentile was taken as cut-off score. The score above 50^{th} percentile indicates positive body image and score below 50^{th} percentile indicates negative body image. There was no composite score of the scale and that each subscale was considered as a separate construct. According to Cash (2002), the scale has an internal consistency for all subscales from .75 to .91. The alpha reliability of subscales; for Appearance Orientation = .34, Appearance Evaluation = .38, Overweight Preoccupation = .69, Body Satisfaction = .74, and Self-classified Weight = .74 in the present

sample. The reliability of the subscales Appearance Orientation and Appearance Evaluation is low and the reason is the cultural context. Studies conducted in Pakistan (see Muazzam & Khalid, 2011) also indicated low reliabilities on these two subscales. The reason is that these two subscales contain items that are not culturally relevant or have difficulty to comprehend the actual meaning. Secondly, the number of items in these subscales are also less that might have affected the reliability. Therefore, in future when using these subscales modifications or scale adaptation should be made. This scale is used in various researches conducted in Pakistan (e.g. see Bughio, 2010; Lewis & Devaraj, 2010).

Disordered Eating Behavior Scale (DEBS). It's a 26-itemindigenously developed self-report measure for disordered eating patterns and behaviors(Muazzam & Khalid, 2011).Respondents use a 5-point scale, ranging from 0(*never)* to 4(*always),* to indicate the extent to which each item described them. The higher the score, the more an individual prone towards disordered eating behaviors. There are four subscales of DEBS including Social Pressure (6 items), Eating Choices and Habits (5 items), Eating Withdrawal (8 items), and Overeating (7 items). High score represents that the individual in more prone towards disordered eating behavior. The alpha coefficient for subscales were .94, .95, .84, and .83 for Social Pressure, Eating Choices and Habits, Eating Withdrawal, and Overeating respectively. However, according to Muazzam and Khalid (2011), the alpha coefficient of .86 was obtained for the DEBS. The overall alpha coefficient of .63 of the scale was determined in the present sample that is rather low due to small sample size. Secondly in our culture mothers had the difficulty in comprehending certain words as some even did not knew the exact meaning of dieting. These difficulties affected the overall reliability of the scales.

Procedure

Permission was taken from the hospitals and clinic authority in order to carry out data collection in the OPD's of pediatric and gynecology wards. In the general population, people were approached via snowball and convenient sampling by consulting the relatives and friends who knew such mothers. The participants were told about the purpose of the study. In order to ensure the willingness of the participants, informed consent in written format was sought. Participants were ensured about the confidentiality of personal information. The demographic sheet was administered in interview

format. Collecting data in the OPD of general hospitals as well as private clinics was a difficult task because mothers were facing difficulties in handling their young ones in the waiting area of OPDs while responding to the questionnaire, therefore, much of the data were collected in structured interview format that was time consuming (almost 25-30 minutes). Noisy environment, high temperature, and fatigue in participants was obvious in the OPD area. In such an uncomfortable environment, the cooperation of all the participants was highly appreciated. Therefore, all of them were thanked after completing the questionnaire.

Results

Pearson Product Moment correlation was computed to determine the relationship between variables. Further for predictive role, linear regression was used to test the hypothesis. Similarly, percentages and frequencies were also computed to study prevalence of various practices along demographic variables (e.g. BMI, number of children, ages of children, age of new born, date of delivery, type of delivery, the new born is on breast feed or bottle feed, duration of breast feeding, reason for not breastfeeding, exercise, weight related concerns, figure related concerns after delivery, etc.)

Descriptives on MBSRQ, DEBS, and Their Subscales

Transformed scores are used for comparing the scores on each scale and subscale as number of items differed for each subscale. According to the transformed scores on the subscales of MBSRQ, highest mean is observed for self-classified weight (M = 3.38; SD = .69) and lowest mean is observed for overweight preoccupation (M = 2.45; SD = .95) that also has highest variability in response among all subscales score of MBSRQ. It shows that women over-evaluate their own weight, more than average concern, but less occupied by this concern. General trend shows that on all subscales except for one they have dissatisfaction or negative evaluation of their body. For DEBS, highest mean is observed for facing Social Pressure (M = 1.17, SD = .68) and lowest for their Eating Choices and Habits (M = .86, SD = .49). Variability in responses is highest for withdrawal from eating. This shows that women consider social pressure as the most important component in promoting disordered eating behaviors. Nevertheless, for all subscales means are less than average, hence, show less disordered eating pattern overall among women in lactating phase.

Relationship between Disordered Eating Behavior and Body Image

Pearson Product Moment correlation was computed to study relationship between DEBS and MBSRQ and their subscales (see Table 1). Results show that disordered eating behavior is significantly negatively associated with appearance evaluation and significantly positively associated with overweight preoccupation and appearance orientation. This indicates that as appearance evaluation increases (i.e. the individual evaluates himself/herself as positive), disordered eating behavior decreases; and with an increase in overweight preoccupation and investment in appearance, disordered eating behavior also increases.

Table 1

Pearson Product Moment Correlation (r) Matrix of DEBS, MBSRQ, and Their Domains (N = 100)

	Variables	1	2	3	4	5	6	7	8	9	10
1	**DEBS**	-	.76**	.53**	.44**	.54**	.10	-.22*	.40**	.22*	-.10
2	EW		-	.08	.03	.31**	.13	-.12	.50**	.18	-.17
3	OE			-	.24*	-.02	-.06	-.07	.11	.12	.03
4	ECH				-	.11	-.21*	-.13	-.02	.09	.15
5	SP					-	.33**	-.22*	.15	.10	-.17
	MBSRQ										
6	SCW						-	-.07	.01	-.24*	-.52**
7	AE							-	-.10	-.04	.30**
8	OP								-	.35**	-.06
9	AO									-	.34**
10	BS										-

Note. DEBS = disordered eating behavior scale; EW = eating withdrawal; OE = overeating; ECH = eating choices and habits; SP = social pressure; MBSRQ = multidimensional body-self relations questionnaire; SCW = self-classified weight; BIAE = body image appearance evaluation; OP = overweight preoccupation; AO = appearance orientation; BS = body satisfaction.
*$p < .05$. **$p < .01$.

Therefore, the results in Table 1 show that body image dissatisfaction has relationship with disordered eating behaviors among mothers during lactation phase, because three components of body image, that is, appearance evaluation, overweight preoccupation,

and appearance orientation (investment in appearance) shows significant relationship with disordered eating behavior, while two components i.e. self-classified weight and body satisfaction shows nonsignificant relationship with overall disordered eating behavior.

Along each domain of DEBS, results in Table 1 show that eating withdrawal is significantly positively associated with overweight preoccupation, as one becomes overly concerned with weight, person indulges in taking less food. Eating choices and habits is significantly negatively associated with self-classified weight (evaluating themselves as either underweight or overweight), that is, if women classify their weight as underweight, then they will be more interested in making the eating choices and will me more inclined in making their eating habits more healthy. Social pressure is positively associated with self-classified weight and negatively with appearance evaluation, that is, women classify their weight as overweight when they face more social pressure related to eating, and may evaluate themselves more negatively for their appearance. Hence, these findings provide support for the first hypothesis.

Correlation within subscales of DEBS in Table 1 shows that eating withdrawal is positively associated with social pressure, that is, as social pressure related to eating habits increases, eating withdrawal also increases. Overeating is positively associated with eating choices and habits, that is, as overeating among women increases, their eating choices and habits regarding intake of food also increases.

Similarly, within subscales correlation of MBSRQ scale showed that self-classified weight is negatively associated with appearance orientation and body satisfaction, that is, with increased classifying weight as being overweight, investment in appearance (appearance orientation) and body satisfaction decrease. Appearance evaluation is positively associated with body satisfaction, that is, as women evaluate their appearance positively, their body satisfaction increases. Overweight preoccupation is positively associated with appearance orientation, that is, as fat anxiety increases women's investment in appearance also increases. Appearance orientation is positively associated with body satisfaction, that is, as women's investment is appearance increases, body satisfaction also increases.

Predictors of Disordered Eating Behavior

Multiple regression analysis by Enter method was used in order to examine the role of Overweight Preoccupation, Appearance Orientation, and Appearance Evaluation in disordered eating behavior.

Table 2

Hierarchical Multiple Regression Showing the Effect of Overweight Preoccupation, Appearance Orientation, and Body Image Appearance Evaluation on Disordered Eating Behavior (N = 100)

	Model 1 *B*	Model 2 *B*	Model 3 *β*
Block 1			
Overweight Preoccupation	.40**	.37**	.35**
Block 2			
Appearance Orientation		.09	.09
Block 3			
Appearance Evaluation			-.18*
R^2	.16	.17	.20
ΔR^2	.16	.01	.03
ΔF	19.01**	1.01	3.99*

*$p < .05$. **$p < .01$.

Table 2 shows combined effect of overweight preoccupation, appearance orientation, and body image appearance evaluation on disordered eating behavior that accounted for total 20% of variance in Model 3. In all the three models tested, overweight preoccupation has the strongest predictive role on disordered eating behavior with 16% variance in Model 1. Appearance orientation has no significance in Model 2 and Model 3. It has negligible variance in disordered eating behavior where it stands alone as a predictor. Appearance Evaluation in Model 3 has significant negative prediction (3% variance), that is, if evaluation is positive, women would experience less disordered eating problem. Overall, overweight preoccupation is the domain of body dissatisfaction that effects disordered eating behavior the most significantly than any other domain, hence proved that hypothesis 1, that is, body image dissatisfaction lead towards disordered eating behavior is partially accepted.

Relationship between Associated Behaviors, Disordered Eating Behavior, and Body Image

In order to study the effect of pre-pregnancy and after pregnancy weight concerns for hypothesis testing as well as to examine the relationship of variables like exercise habits, figure concerns, weight concerns before, during and after pregnancy (each demographic consisting of response categories i.e. *not at all, slightly, moderately, to a great extent*) with disordered eating behavior and body image, Pearson Product Moment correlation was computed. None of the

relationship along subscales Overeating, Eating Choices and Habits, Appearance Orientation, and Appearance Evaluation was significant ($p > .05$); hence, analysis along these subscales is not reported in Table 3.

Table 3
Correlation between the Associated Behaviors, DEBS, MBSRQ, and their Domains (N=100)

Variables	Exercise Habits	Figure Concerns	Pre-pregnancy weight concerns	During pregnancy weight concerns	After pregnancy weight concerns
DEBS	-.15	.11	.26**	-.06	.22*
EW	-.22*	.29**	.25*	-.01	.28**
SP	.07	.06	.15	-.01	.23*
MBSRQ					
OP	-.39**	.24*	.21*	.16	.19
BS	.05	-.26**	-.17	.31**	-.44**
SCW	.05	.19	.06	-.03	.27**

Note. DEBS = disordered eating behavior scale; EW = eating withdrawal; SP = social pressure; MBSRQ = multidimensional body-self relations questionnaire; OP = overweight preoccupation; BS = body satisfaction; SCW = self-classified weight. Variables that have at least one significant correlation coefficient are reported.
$p < .05$. ** $p < .01$.

Results in Table 3 shows that exercise habits is significantly negatively associated with eating withdrawal and overweight preoccupation, that is, as women practice more exercise habits, saying no to eating and weight concerns decrease. Figure related concerns are positively associated with eating withdrawal, and overweight preoccupation, while negatively with body satisfaction, that is, as figure related concerns or worries increases, eating withdrawal, overweight preoccupation, and body dissatisfaction also increases.

Table 3 shows that pre-pregnancy weight concerns are positively associated with overall disordered eating behavior including eating withdrawal, and current overweight preoccupation, that is, experiencing pre-pregnancy weight concerns increase disordered eating behavior, eating withdrawal, and overweight preoccupation. However, weight concerns during pregnancy are positively associated with body satisfaction, that is, as the weight concerns during pregnancy increases, current body satisfaction also increase.

Results in Table 3 show that weight concerns after pregnancy is positively associated with disordered eating behavior, eating withdrawal, experiencing social pressure, and self-classified weight

(as being overweight), while negatively associated with body satisfaction, that is, body dissatisfaction increases. A significant positive correlation (r = .52, p < .001) was found between weight related concerns before and after pregnancy. Therefore, the hypothesis 2, that is, there is a positive relationship between weight related concerns before and after pregnancy is confirmed.

Role of Lactation Period on DE Behavior and Body Image Concerns

The difference along the period of lactation on DEBS, MBSRQS, and subscales was computed through ANOVA. The period of lactation was divided into four categories i.e. 1-6 months (n = 29) that is the postpartum period, 7-12 months (n = 24), 13-18 months (n = 22), and 19-24 months (n=25). The results showed nonsignificant differences among mothers in different period of lactation on disordered eating behavior and body image concerns; F (3, 96) = 2.201, p = .093. These results indicate that lactating period does not play role in disordered eating behaviors and body image concerns for present sample. Therefore, hypothesis 3, that the presence of disordered eating behaviors and body image dissatisfaction is high during the first six months postpartum phase than other, is rejected.

Associated Behaviors

The frequencies and percentages on certain demographic and associated variables of sample related to eating behaviors and body were analyzed (Table 4).

Table 4

Frequency and Percentage along Associated Behaviors (N = 100)

Responses	*f (%)*	Responses	*f (%)*
Exercise		**Pica after pregnancy**	
Regularly	10	Salt	1
Frequently	9	Rice	1
Occasionally	11	Nothing	98
Not at all	70	**Pica during pregnancy**	
Weight concern before pregnancy		Soil	6
Not at all	36	Soil & cement (both)	1
Slightly	22	Ice	11
Moderately	23	Nail biting	2
To a great extent	19	Paper eating	1

Continued…

Responses	*f (%)*	Responses	*f (%)*
Weight concern during pregnancy		Rice (uncooked)	7
Not at all	58	Salt	1
Slightly	25	**Supplement intake* (current)**	
Moderately	12	Iron	49(38)
To a great extent	5	Calcium	40(31)
Weight concern after pregnancy		Vitamins	9(6.9)
Not at all	18	Antibiotics	1(0.7)
Slightly	13	Nothing	31(23.4)
Moderately	19	**Food preference for breast feeding***	
To a great extent	50	Milk	52(36.11)
Figure concern after delivery		Fruits	40(27.77)
Not at all	20	Chicken & soup	7(4.86)
Slightly	16	Junk food	4(2.77)
Moderately	17	*Desi ghee* & rice	3(2.08)
To a great extent	47	More *chappatis*	2(1.38)
Figure changes after birth*		Proper 3 time meal	3(2.08)
Tummy	73(38.6)	Spicy food	1(0.69)
Hips	45(23.8)	Vegetable & meat	3(2.08)
Heavy breast	46(24.3)	Juices	2(1.38)
Whole figure changed	4(2.1)	Wheat	1(0.69)
Back pain	3(1.6)	Avoid oily food	1(0.69)
No change	18(9.5)	Sweet dishes	1(0.69)
		Water	1(0.69)
		Nothing	23(15.97)

Note. Percentages for all categories are same as frequencies as $N = 100$.
*Frequencies can exceed 100 due to multiple responses. For these, percentages are also calculated out of total (as given in parentheses) responses on that category.

The results in Table 4 shows that 70% mothers during their lactating phase do not exercise at all and 10% do it regularly. On weight related concerns, 19% women had concerns to a great extent before pregnancy and 36% had no pre-pregnancy concerns. However, during pregnancy, 58% women had no weight related concerns and only 5% were concerned to a great extent. High percentage of weight related concerns are found after pregnancy, that is, 50% women have concerns regarding their weight to a great extent. As shown in Table 4, 47% women have figure related concerns after delivery and 16 % have slight concerns.

Responses on figure changes after delivery shows that 73% women report that their tummy has got enlarged and is not in normal shape as it was before pregnancy; 45% women report that their hips have enlarged; and 46% women have heavy breast due to breastfeeding; and a small percentage report change in whole figure, and having back pain. However, 18% report having no change in their figure after delivery.

Responses on Pica (eating nonfood items) are shown in Table 4. Results show the presence of pica during pregnancy. Most women have reported experiencing Pica during pregnancy only, 71% women did not have pica during pregnancy, however, 11% report eating ice followed by uncooked rice and soil. Out of total sample, only 2% continued eating nonfood items including salt (1%) and rice (1%); remaining discontinued this pattern after delivery.

As shown in Table 4, 49% women report taking iron supplements currently followed by calcium supplements; only 1% are on antibiotics for cure of any infection; 31% report that they do not take any kind of supplements. Regarding current food preferences in lactation period, in order to feed their babies, 52% women prefer to take milk, 40% fruits, while 23% report taking nothing special for lactation. Others are shown in Table 4.

Discussion

The present study was conducted in order to examine the relationship of body image dissatisfaction and disordered eating behaviors in mothers during lactating phase. Additionally, the present research also aimed to study the role of various associated behaviors (i.e., exercise habits; figure related concerns; weight related concerns before, during, and after pregnancy; and lactating period) on the study variables and their subscales.

The mean and standard deviation were computed on the basis of transformed scores. According to the results, participants scored higher on self-classified weight indicating that the most sensitive part of body image which women view during lactation is their weight. Most participants reported to have concerns being overweight during this phase. The reason may be that women undergo a lot of changes in their whole body throughout pregnancy and following child birth, and it takes time to return to the pre-pregnancy state (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Stein & Fairburn, 1996). Additionally, individuals, who are overweight, once stigmatized, are common target for discrimination and bias in social relationships, as well as by health professional, because of their physical appearance

(Myers & Rosen, 1999). Nevertheless, participants also scored higher on body satisfaction. During lactation, women reported that they are usually dissatisfied by certain parts of their body, especially, tummy, hips, breast, and weight (see Walker, Timmerman, Kim, &Sterling, 2002) due to changes in these parts during pregnancy and following child birth. However, they reported that overall they are satisfied by their body parts and assumes that changes in tummy, hips, breast, and weight is a natural process during this phase. The reason may also be that at this stage taking care of the child is more important to mothers, so they have less pre-occupations about their body.

The next domain of body image that women view important during this phase is body image appearance evaluation and appearance orientation (see Tiggemann & Lynch, 2001). Participants reported during the interviews that every women desires to invest in her appearance in order to look good. Therefore, they view evaluation and investment in their appearance as an important part of body image. On the other hand, the participants scored lowest on overweight preoccupation (fat anxiety). The reason participants reported is that changes in their body parts during pregnancy and following childbirth is a natural process and they accept that change. According to them, they will naturally adjust to such changes gradually, and regain previous shape and weight. Out of the total sample, only few women reported having high overweight preoccupation, otherwise, they were more concerned about not gaining extra weight because already they have gained a lot.

On the findings of relationship between body image and disordered eating behaviors, results showed that disordered eating behavior is significantly negatively correlated with evaluation of body image appearance, and positively with overweight preoccupation, and investment in appearance (appearance orientation). Women reported their evaluation of body image appearance as an important part and those who evaluate their body image appearance as negative are more prone towards engaging in DE behaviors. Similarly, women experiencing fat anxiety engage in DE behavior. Results also indicated that women who invest more in their appearance, when gain weight during lactation are more pone towards engaging in DE behaviors. As literature indicate that women's relationship with their bodies is often troubled with their comparison to unrealistic standards, insecurity, and judgment (Groesz, Levine, & Murnen, 2002; Wilcox & Laird, 2000; Wiseman, 2002) and body image involves an evaluation and experience of the physical self (Tiggemann & Lynch, 2001). Therefore, in the present sample it is observed that those women, who are dissatisfied by their physical appearance either in the form of

evaluation, investment, or anxiety regarding getting fat, are more prone towards disordered eating behaviors.

As evidences have shown that body image focuses on the weight and shape (Tiggemann & Lynch, 2001), both of which are particularly significant for women (Piran, 2001). However, body image has been found to be an important constituent of self-concept particularly self-esteem, efficacy, and life quality, particularly among women of childbearing age (Kates, 2008). During lactating phase, women are still concerned about their evaluation of and investment in appearance, and have overweight preoccupation because they experience a different phase of life transition in which they are confronted with changes that were not present during pre-pregnancy phase.

On the other hand, present study found that self-classified weight and body dissatisfaction has nonsignificant role in initiating DE behaviors. The reason may be that pregnancy following child birth is a phase which starts a life stage in which women not only thinks of their own food requirements, and nutritional needs with weight related goals like reducing it, but also of the needs and demands of their baby which is their at most priority (Devine & Olson, 1992; Gordon & Tobias, 1984). Women perceive that changes in dietary behaviors are associated to transitions in family roles that in turn are related to their marital status and parenthood (Devine, Bove, & Olson, 2000).Women view changes in body parts and weight gain after delivery as a natural process. They assume that it takes time to regain pre-pregnancy weight and figure. Therefore, the components of body image including self-classified weight and body dissatisfaction has no role in engaging in disordered eating behaviors among this sample.

Further, within subscales correlation of DE behavior showed that eating withdrawal is positively related with social pressure. A negative body image can result in adverse psychosocial consequences for both sexes, including disordered eating (Cash & Deagle, 1997; Stice, 2002), depression (Noles, Cash, & Winstead, 1985), and social anxiety (Cash & Fleming, 2002). Participants during this phase usually get comments from various social figures including husband, in-laws, parents, and friends regarding their weight and figure. Participants reported such reasons during the interview in the present study as well. Such social pressure leads them to engage in eating withdrawal in order to prevent further weight gain despite taking healthy diet for lactation. Results also show that overeating is positively related to eating choices and habits. As women have healthy eating choices and habits, overeating also increases during this phase.

The correlation among subscales of MBSRQ (i.e., self-classified weight with appearance orientation and body satisfaction) shows opposite direction. This represents heterogeneous nature of MBSRQ. Body image is a multidimensional construct encompassing self-perceptions and attitudes regarding one's physical appearance (Cash, 2002). As it is a multidimensional construct, therefore, each construct is different from other, hence, cannot be interpreted as a single phenomenon.

Further, it was found that overweight preoccupation is the component of body image that affects DE behavior most significantly than any other component that accounted for 16% variance (see Table 4). DE behaviors, unhealthy dieting practices, and obesity share common psychopathology, and can have adverse serious effects on physical as well as psychological health (Fairburn, 2008; Fairburn & Brownell, 2002). Evidences suggest that obesity can eventuate in individuals with DE behaviors (Fairburn, Cooper, Doll, & O'Connor, 2000) and higher levels of body dissatisfaction exists in obese population as compared to populations with other eating disorders (Ciliska, 1998; Polivy & Herman, 1992). Participants during interviews reported that after delivery, they had already gained a lot of weight and as a result had the fear of gaining more weight, subsequently engaged in DE behaviors. Although, moderation was not carried out in the present study, it is recommended to study the moderating role of weight related concerns for overweight preoccupation in the development of DE behaviors.

The present research findings on associated behaviors showed a significant positive correlation of pre-pregnancy and after pregnancy weight concerns. Therefore, hypothesis 2, that is, there is a positive relationship of weight related concerns before and after pregnancy, is accepted. Evidences suggests that dissatisfaction with body's weight following childbirth has been positively linked with pre-pregnancy BMI, gestational weight gain and post-delivery BMI (Hiser, 1987; Walker, 1996). Results also showed that as exercise habits increases, eating withdrawal and overweight preoccupation decreases. This shows that women who exercise, have healthy diet habits and do not engage in eating withdrawal and overweight preoccupation. They consume healthy food and have no fear of becoming fat. Higher self-efficacy regarding exercise and intentions to exercise leads women to engage in more frequent exercise following one year after child's birth. Further, findings of a study suggests that as frequent exercise habits increases, self-efficacy regarding food intake, body satisfaction, acceptance of weight gain, and a desire to look slimmer also increases (Hinton & Olson, 2001). This indicates that exercise habits work as a

protective factor and can be used for planning interventions for women having high eating withdrawal and overweight preoccupation.

Additionally, present study showed that participants having high figure related worries reported experiencing high levels of eating withdrawal, overweight preoccupation, and body dissatisfaction. Women who view their shape and figure as an important component of body image when enter into the phase of lactation wants to immediately get back to their previous shape and in order to do so, engage in eating withdrawal and have the fear of not becoming fat that may further distort their figure, hence, are dissatisfied with changes that have occurred in body parts. Further, findings indicate that as weight related concerns during pregnancy increases, body satisfaction also increases because most women feel that pregnancy releases them from the responsibility regarding their weight, therefore, leaving them free to over-eat and consume increased diet (Siega-Riz et al., 2001). Rubin (1984) reported that during the phase of pregnancy women usually regard their personal attractiveness as irrelevant. During interviews, participants reported they were concerned to gain healthy normal weight for their baby's health and were satisfied with gaining a healthy weight. According to them, they were concerned to have the baby's normal weight and all their attention was towards baby. Pregnancy is a critical time for the development of the fetus and mothers are usually recommended by physicians to consume healthy diet for baby's weight.

Findings suggest that pre-pregnancy weight related concerns are positively associated with DE behavior, eating withdrawal, and overweight preoccupation. Women who had high worries regarding weight in their pre-pregnant state are more inclined towards engaging in DE behavior, eating withdrawal, and overweight preoccupation presently. Results showed that weight concerns after pregnancy were positively associated with DE behavior, eating withdrawal, and self-classified weight, whereas, negatively associated with body satisfaction. Due to changes in the body image concerns after delivery, women are concerned to maintain their previous weight and are usually dissatisfied with certain body parts and as a result engage in DE behavior, eating withdrawal, and classify their weight as being overweight.

Limitations and Suggestions

Collecting data with mothers in the OPD is a very difficult task because mothers were there for the clinical examination of their babies

and were facing difficulty in handling their babies that were distracting their attention while responding to the questions. They insisted upon reading each statement of the questionnaire to give respective responses that might have led to socially desirable responses in order to maintain a good impression. It is suggested to avoid carrying out data collection in the OPD's of hospitals, so that measures could be administered in self-report format. There is a lot of difference between the eating patterns in Pakistan. Some mothers even do not know the exact meaning of dieting. Other than this, some statements regarding body image for example, body being sexually appealing, or liking one's nude body, are some statements to which women showed reluctance and considered these inappropriate questions. Therefore, adaptation should be done to validate such instruments in our culture. Questionnaires used in the study were in English and Urdu language. This issue has created difficulty in understanding certain statement in questionnaire used in English. The sample size of the present study was small and literate that affected the reliability of the scales and their respective subscales. Therefore, the generalizability of the findings is low. Analyses on certain demographics i.e., Pica, BMI, duration of marriage, and number of children were not carried out in the present study, as well as moderating role of overweight preoccupation in the development of DE behaviors was also not examined due to the limited time period and limited page limit of the research. However, it is recommended for future studies to find out the role of these variables for better understanding.

Implications of the Study

The present study can help to give a better insight of eating behaviors and body image concerns that are considered important and have most priorities during lactating phase. The present study can also be helpful for nutritionists to promote positive health and nutritional habits for lactating mothers. It can also help psychologists to plan psychological interventions for those women who have high body dissatisfaction during this phase and how they can accept and adjust to the changes in their body parts e.g. promoting exercise habits among such mothers during this phase can help as a protective factor in improving dietary habits and in promoting positive body image.

Conclusion

Studies conducted in western societies have found a strong relationship of body dissatisfaction and DE behavior among women.

However, the finding of the present study showed that body parts dissatisfaction and DE behavior are not associated among women during lactating phase in our culture. Findings in the present study also revealed that among the domains of body image, overweight preoccupation is the strongest predictor of DE behavior. Findings showed that pre-pregnancy weight concerns are positively associated with weight concerns after pregnancy. Exercise was found to be a protective factor against eating withdrawal and overweight preoccupation.

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