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Loss of control over eating prior to and during early pregnancy among community women with overweight and obesity

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Abstract

Objective—This study examined the prevalence of and changes in loss of control over eating (LOC) among pregnant women with overweight/obesity, along with associations between LOC and depressive symptoms and stress.

Method—Community women ($N=200$; BMI ≥ 25 ; 12–20 weeks gestation) reported LOC before and during early pregnancy using the Eating Disorder Examination, which was adapted for administration in pregnancy. Women self-reported depressive symptoms and stress during early pregnancy.

Results—Twenty-eight percent ($n=56$) of women reported LOC before or during early pregnancy: 14.5% ($n=29$) reported LOC incidence during early pregnancy, 9.5% ($n=19$) reported LOC persistence from pre-pregnancy to early pregnancy, and 4.0% ($n=8$) reported LOC pre-pregnancy only. Women with LOC reported more depressive symptoms and stress than did those without. Women with LOC persistence reported clinically-significant depressive symptoms and elevated stress. Levels of depressive symptoms and stress differed between women with LOC persistence and those without LOC ($p < .05$).

Discussion—LOC during pregnancy was prevalent and associated with distress, particularly when present before and during pregnancy. Among women with LOC, few reported remission, but one-half reported onset during early pregnancy. Longitudinal studies are needed among mothers with overweight/obesity to identify patterns of LOC throughout pregnancy and how LOC affects perinatal outcomes.

Keywords

Loss of control; pregnancy; obesity; overweight; community sample

Women who begin pregnancy with overweight or obesity often have greater gestational weight gain (GWG) than is recommended and retain more weight postpartum (1). One

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eating behavior that may impact GWG is loss of control over eating (LOC), the feeling that one cannot stop eating or control what or how much one is eating (2). LOC is associated with higher body mass index (BMI) (3), weight gain (4), and psychological distress among non-pregnant individuals (2, 4–8).

In a community-based study, LOC was reported by one-third of pregnant women with obesity who did not have an eating disorder, using a single-item (9). In a study of women with eating disorders, LOC episodes decreased for nearly half and persisted for the remainder of women during pregnancy (10). There are scant data on how LOC rates change from pre-pregnancy to pregnancy, and studies of prenatal LOC have utilized varied samples (e.g., community cohorts, women with eating disorders), assessment methods (e.g., interviews, questionnaires, single-items), and measurement periods (e.g., pre-pregnancy and pregnancy, pregnancy only) (9–11). Women with obesity may experience LOC incidence as they gain weight and their eating changes during pregnancy, and may experience increased distress. However, to date, there have been no interview-based data evaluating LOC before and during early pregnancy or in relation to distress among community women with overweight/obesity.

Accordingly, we assessed LOC via interview to describe the prevalence of and changes in LOC across the period before and during early pregnancy in a community sample of women with overweight/obesity. We evaluated when LOC was endorsed (pre-pregnancy, during pregnancy), and associations between LOC and demographic and weight-related variables, depressive symptoms, and stress. We hypothesized that LOC, and particularly LOC persistence from pre-pregnancy to early pregnancy, would relate to higher prenatal BMI, weight gain, depressive symptoms, and stress.

Methods

Participants

Two hundred pregnant women completed assessments between 12–20 weeks gestation (Table 1).

Procedure

Women were recruited from obstetric clinics for a longitudinal perinatal eating behavior study. Women were eligible if they were ≥14 years old, had a pre-pregnancy BMI ≥25 kg/m², and a singleton pregnancy. Exclusion criteria were use of weight-affecting medications, participation in weight-management programming, or psychiatric disorders requiring immediate treatment.

Women completed interviews, questionnaires, and weight and height measurements using a digital scale and calibrated stadiometer. Participants provided written informed consent and were compensated. The study site's Institutional Review Board approved this research.

Measures

Demographic and weight information—Women self-reported demographic and pregnancy-related information, and pre-pregnancy weight, which has been shown to be valid

among pregnant women (12). Weight gain during early pregnancy (current minus pre-pregnancy weight), pre-pregnancy BMI (kg/m^2), and current BMI (kg/m^2) were calculated.

LOC—We administered the Eating Disorder Examination-Pregnancy Version (EDE-PV), a structured interview that assesses eating disorder psychopathology and has been found to be reliable among pregnant women (13, 14). We obtained LOC data from the Overeating Section (objective bulimic episodes [OBEs] and subjective bulimic episodes [SBEs]) in the past three months during pregnancy and the three months prior to conception (i.e., pre-pregnancy), yielding two measurement periods, similar to previous research (13). We analyzed LOC presence (1 episode) or absence (5) during either period to understand the influence of when LOC occurred, along with LOC episode frequency across pre-pregnancy and early pregnancy. Interrater reliability for LOC episodes was high (intraclass correlation coefficient = .89).

Distress—Women reported depressive symptoms on the Center for Epidemiological Studies-Depression Scale (CES-D) (15) and stress on the Perceived Stress Scale (PSS) (16), which have demonstrated adequate reliability and validity in pregnant women (17, 18).

Data Analytic Plan

We analyzed LOC rates pre-pregnancy versus during early pregnancy using Pearson χ^2 analyses. There were four groups: no LOC ($n = 144$; 72.0%), LOC incidence (absent pre-pregnancy but present during pregnancy; $n = 29$; 14.5%), LOC remission (present pre-pregnancy but absent during pregnancy; $n = 8$; 4.0%), and LOC persistence (present pre-pregnancy and during pregnancy, $n = 19$; 9.5%). A small percentage of women reported LOC remission, which was not large enough for sub-group analysis (exclusion of this group did not alter the pattern of findings; data not shown). Thus, we conducted two sets of analyses: LOC presence versus absence ($n = 200$; collapsing across women who endorsed LOC in either period), and LOC as a function of the perinatal phase ($n = 192$; LOC incidence, LOC persistence, no LOC). Pearson χ^2 and t -test analyses were used to evaluate demographic and weight-related variables in association with LOC presence/absence. Pearson χ^2 analyses and ANOVA were used to evaluate associations with LOC persistence, incidence, or no LOC. We applied a Bonferroni correction and included pairwise comparisons for depressive symptoms and stress. We conducted correlational analyses to assess LOC episode frequency (across pre-pregnancy and early pregnancy) in relation to depressive symptoms and stress. Statistical significance was determined by an alpha of .05. Standardized mean differences (d) are provided. Analyses were performed in IBM SPSS Statistics for Windows, Version 23.0 [IBM Corp., Armonk, NY].

Results

LOC presence versus absence

More than one-quarter of the women ($n = 56$; 28.0%) reported LOC before or during pregnancy. No demographic or weight-related variables were significantly associated with LOC presence ($ps > .07$).

On average, women reported a CES-D score of 12.02 (± 9.68) and a PSS score of 20.60 (± 8.78). Depressive symptoms and stress were associated ($r = .71, p < .001$). Women with LOC reported more depressive symptoms ($t(198) = -3.14, p < .002, d = 0.48$) and stress ($t(198) = -3.11, p < .003, d = 0.49$) than those without LOC.

LOC pre-pregnancy to early pregnancy

More women reported LOC during early pregnancy than pre-pregnancy ($\chi^2 = 36.80, p < .001$). In sub-analyses (no LOC, incidence, persistence), no demographic or weight-related variables were associated ($ps > .17$). However, differences emerged in depressive symptoms ($F(2, 189) = 4.69, p < .02, d = 0.64$) and stress ($F(2, 189) = 5.31, p < .006, d = 0.68$): women with LOC persistence evidenced the most symptoms, followed by women with incidence, and those without LOC (Figure 1). In pairwise comparisons, depressive symptoms ($p < .03$) and stress ($p < .02$) differed between women with LOC persistence and those without LOC. Symptoms among women with LOC incidence did not differ from the other two groups ($ps > .17$). Higher LOC episode frequency was associated with higher depressive symptoms ($r = .31, p < .001$) and stress ($r = .22, p < .002$).

Discussion

This study provides the first data on LOC rates among community women with overweight/obesity before and during early pregnancy using a structured interview. We documented that LOC was evident in more than one-quarter of the women before and during pregnancy (28% overall), and distress was most apparent among women in whom LOC was present before and during pregnancy (LOC persistence). Moreover, we found incident LOC during early pregnancy in this population at risk for excessive weight gain.

The current findings provide initial evidence that LOC rates in pregnant community women with overweight/obesity are similar to rates reported in previous studies of pregnancy and by non-pregnant women. Furthermore, these data indicate the emergence of LOC during pregnancy and underscore the importance of further study of LOC during the transition from pre- to early pregnancy in women with overweight/obesity.

Demographic variables were unrelated to prenatal LOC in the present study. Some, but not all, previous studies have suggested that LOC and OBEs are more common among racial/ethnic minorities (19). Against hypotheses, LOC was not associated with weight-related variables, possibly because all women had BMIs in the overweight/obese range, limiting our ability to detect associations. Future research is warranted with broader BMI ranges.

Across the sample, women's CES-D scores were below the clinical cutoff (< 16), and PSS scores were comparable to adult norms (16). However, women with LOC persistence reported clinically-significant depressive symptoms and elevated stress, consistent with LOC data in non-pregnant individuals with obesity (5–7). Distress levels among women with prenatal LOC incidence were not significantly higher than women without LOC and did not differ from women with LOC persistence. The severity of distress associated with LOC incidence may increase with ongoing LOC throughout pregnancy, and longer time intervals are needed to evaluate the impact of LOC incidence on distress.

Study strengths include assessment of a large, diverse sample of pregnant women and detailed LOC evaluation using the EDE-PV interview. Limitations include cross-sectional design and retrospective recall, although this is common for eating measures (13). Moreover, assessments addressed early pregnancy (not pregnancy in its entirety), and the three-months immediately pre-pregnancy (not lifetime history). In the sub-analyses, we did not include the eight women with LOC remission; data from larger samples will help clarify associations between LOC remission and distress across pregnancy.

Longitudinal research is needed to assess LOC throughout pregnancy and in relation to GWG, health behaviors, perinatal outcomes, and distress. If LOC predicts excessive GWG or poorer outcomes, developing and evaluating interventions that target perinatal LOC (20) may improve women's health and psychosocial functioning.

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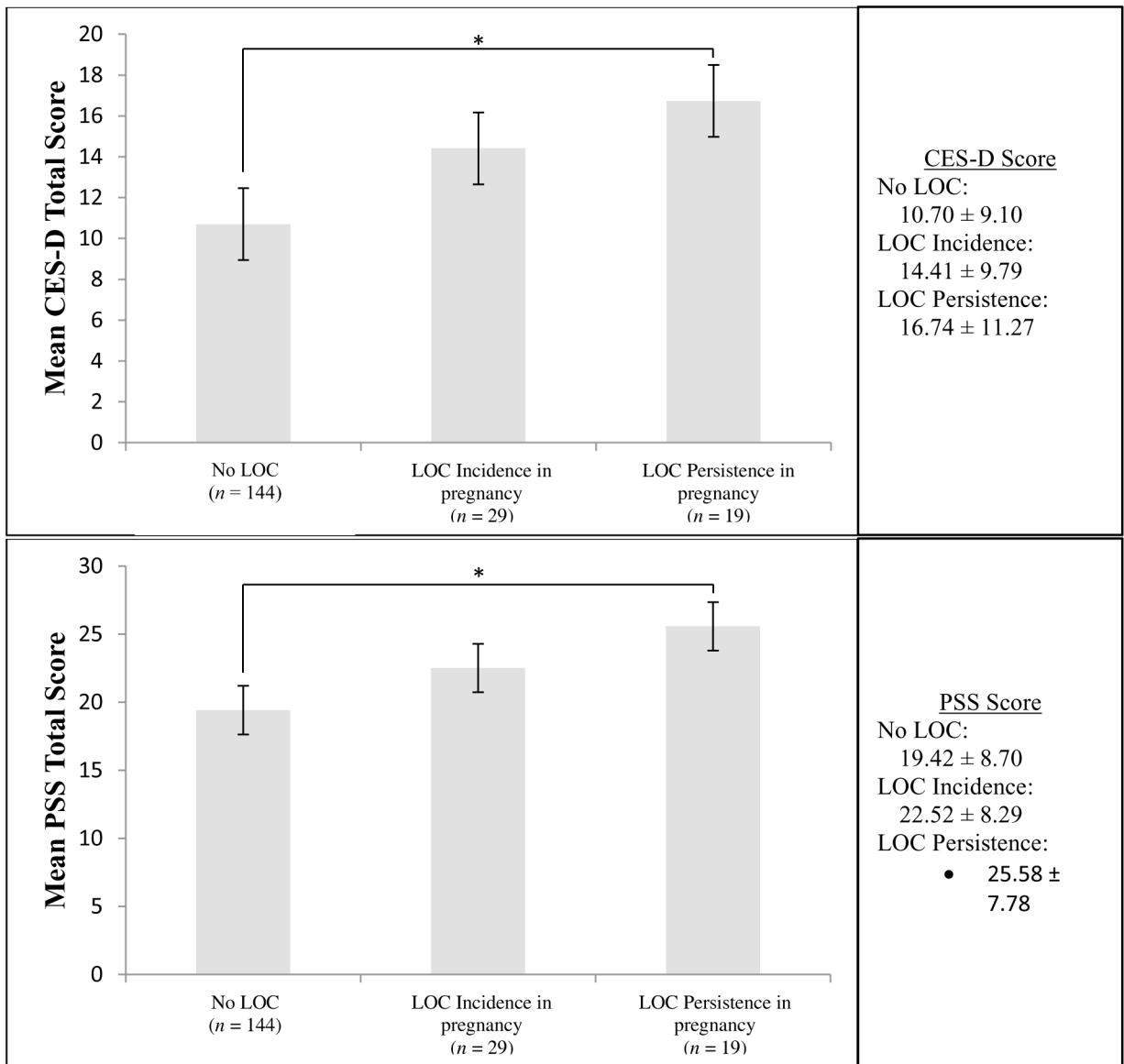


Figure 1. Differences in depressive symptoms and perceived stress by LOC presentation in early pregnancy ($n = 192$). Abbreviations: LOC (loss of control over eating), CES-D (Center for Epidemiological Studies-Depression Scale), PSS (Perceived Stress Scale). * $p < .05$. The CES-D ranges from 0–60 and the PSS from 0–56, with higher scores indicating greater symptom severity.

Table 1

Demographic and weight-related characteristics of the sample.

Variable	All Participants (N = 200)		No LOC (n = 144)		LOC Incidence (n = 29)		LOC Persistence (n = 19)	
	Mean (SD)	or n (%)	Mean (SD)	or n (%)	Mean (SD)	or n (%)	Mean (SD)	or n (%)
Age (years)	27.675	(5.525)	27.43	(5.33)	28.69	(6.04)	28.53	(6.60)
BMI prior to pregnancy (kg/m ²)	32.885	(6.782)	33.11	(6.83)	30.96	(5.23)	34.43	(8.59)
BMI during early pregnancy (kg/m ²)	34.135	(7.228)	34.32	(7.38)	32.44	(6.13)	35.65	(8.30)
Gestational age to date (weeks)	15.321	(2.403)	15.36	(2.37)	15.13	(2.56)	15.58	(2.50)
Weight gain during early pregnancy (kg)	3.440	(6.950)	3.36	(7.19)	4.15	(5.96)	3.11	(7.37)
Gravidity (number of pregnancies)	2.910	(2.324)	2.81	(2.28)	3.55	(2.49)	2.89	(2.64)
Parity (number of births)	1.180	(1.377)	1.09	(1.3)	1.59	(1.52)	1.42	(1.80)
Intentional pregnancy								
Yes	92	(46.0%)	72	(50.0%)	17	(58.6%)	14	(73.7%)
No	108	(54.0%)	72	(50.0%)	12	(41.4%)	5	(26.3%)
Education								
Grade school or some high school	23	(11.6%)	14	(9.7%)	6	(20.7%)	3	(15.8%)
High school graduate/GED	46	(23.1%)	34	(23.6%)	5	(17.2%)	4	(21.1%)
Some college/technical school	78	(39.2%)	54	(37.5%)	13	(44.8%)	9	(47.4%)
4-year college graduate	22	(11.1%)	18	(12.5%)	2	(6.9%)	2	(10.5%)
Post-graduate degree	30	(15.1%)	23	(16.0%)	3	(10.3%)	1	(5.3%)
Race								
White or Caucasian	89	(44.5%)	70	(48.6%)	8	(27.6%)	9	(47.4%)
Black or African American	88	(44.0%)	61	(42.4%)	16	(55.2%)	7	(36.8%)
Mixed race	19	(9.5%)	10	(6.9%)	4	(13.8%)	3	(15.8%)
American Indian/Alaska Native	1	(0.5%)	1	(0.7%)	1	(3.4%)	0	(0.0%)
Ethnicity (Hispanic/Latina)								
Yes	7	(3.5%)	4	(2.8%)	2	(6.9%)	1	(5.3%)
No	193	(96.5%)	140	(97.2%)	27	(93.1%)	18	(94.7%)
Income								
\$30,000	135	(67.8%)	94	(65.3%)	23	(79.3%)	13	(68.4%)
>\$30,000	65	(32.5%)	49	(34.0%)	6	(20.7%)	6	(31.6%)
Pre-pregnancy LOC episode frequency (range)	0–132		0		0		1–132	

Variable	All Participants (N = 200) Mean (SD) or n (%)	No LOC (n = 144) Mean (SD) or n (%)	LOC Incidence (n = 29) Mean (SD) or n (%)	LOC Persistence (n = 19) Mean (SD) or n (%)
Early pregnancy LOC episode frequency (range)	0-158	0	1-158	1-74
LOC episode frequency (pre- and early pregnancy)	5.77 (22.39)	0.00 (0.00)	11.45 (30.27)	34.79 (51.33)
OBE frequency (pre- and early pregnancy)	2.22 (12.84)	0.00 (0.00)	1.45 (2.95)	16.89 (34.46)
SBE frequency (pre- and early pregnancy)	3.54 (15.96)	0.00 (0.00)	10.00 (28.17)	17.89 (32.05)

Abbreviation: BMI (body mass index); GED (General Educational Development certificate); LOC (loss of control over eating); OBE (objective bulimic episode); SBE (subjective bulimic episode).