Quality of life in obese pregnant women: a longitudinal study

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BACKGROUND AND OBJECTIVE
Recent studies emphasize the importance of health-related quality of life (QOL) within the broader context of maternal health and pregnancy outcomes. A growing body of literature describes the close association between obesity and QOL. Because maternal obesity adversely impacts pregnancy outcome, primarily through increased rates of hypertensive disease, diabetes mellitus, and infections, one would expect QOL to be affected in these women. However, minimal research that has examined the associations among prepregnancy weight, weight gain during gestation, and QOL is available.

We assessed the contribution of obesity to QOL during pregnancy. Our tool was the Short Form–12 (SF-12) Health Survey, which had been used previously in pregnant women in its long form of 36 items (SF-36). SF-12 summary scores have been found to be good predictors of SF-36 summary scores, by reproducing their psychometric performance.

MATERIALS AND METHODS
We obtained study subjects from consecutive cases until we had filled the sample size of 220 pregnant women (110 obese women, 110 nonobese women). All women completed the SF-12 questionnaire at 2 time points during their pregnancies: at the first pregnancy visit and during the third trimester (36–37 weeks’ gestation). All women who initiated their maternity care at the Mexican Institute of Social Security in León, Mexico, from January 2005-January 2006 were invited to participate. In general, the population’s economic status was low-medium.

We considered pregnant women to be nonobese if their body mass index (BMI) was more than 19 kg/m² and to be obese when their BMI was ≥27 kg/m². At both visits, we evaluated blood pressure, glucose levels, weight, and BMI and reviewed all medical charts.

None of the mothers were hypertensive or diabetic, had another chronic disease, or were taking medications for disorders such as psychosis, depression, and anxiety. The range of medical or obstetric complications that were obtained through medical chart review included miscarriage, preterm labor, preeclampsia, gestational diabetes mellitus, and other.

RESULTS

On average, obese pregnant women were older than their nonobese counterparts by 2.2 years and had achieved lower levels of education. No statistically significant difference was found between the groups regarding gestational age or a family history of diabetes mellitus and hypertension. Weight gain was higher in the nonobese group during the follow-up period. Glucose levels (69.3 vs 76.6 mg/dL; P < .001) and systolic (97.4 vs 108.6 mm Hg; P < .001) and diastolic (60.1 vs 67.3 mm Hg; P < .001) blood pressure levels were lower in nonobese women than in the obese group at the beginning of gestation. Maternal complications such as hypertension during pregnancy, glucose intolerance, cesarean delivery, and anteprtum hospitalization were higher in the obese group.

The SF-12 questionnaire produces the physical and mental component scores (physical component score [PCS] and mental component score [MCS], respectively). The QOL questionnaire was completed by only 178 women (81%) in the third trimester of pregnancy. Of these, 2 women (1 woman in each group) miscarried; 8 women had preterm deliveries that prevented a second evaluation (5 and 3 women in the obese and nonobese groups, respectively); and 32 women (14.5%) left the study (13 and 19 women in the obese and nonobese groups, respectively). The principal reason for dropping out of the study (22 women) was that the patients were no longer connected to our institution and were lost to follow-up evaluation.

The MCS was lower in obese women than in nonobese women at the beginning of gestation (47.0 vs 50.3, respectively; P = .01) and in the third trimester (52.8 vs 55.2, respectively; P = .03). In both groups, however, the MCS was higher during the last trimester than at the beginning of pregnancy (Table). The PCS decreased significantly in both groups between the first evaluation and the third trimester. PCS was no different at the beginning of pregnancy between groups (49.7 vs 50.8, respectively; P = .32), but decreased more over the course of the pregnancy in obese women than in nonobese women (-6.2 vs -3.6, respectively; P = .04). During the third trimester, the PCS was higher in nonobese than in obese women (47.2 vs 43.5, respectively, P = .01).

Multiple regression analysis showed that baseline BMI, weight gain, and the
presence of complications during pregnancy were associated negatively in the entire group with PCS in the third trimester.

**COMMENT**

To our knowledge, this is the first study to examine, in a prospective design across pregnancy, the relationship of BMI at the beginning of pregnancy, weight gain, and QOL. Recent studies emphasize the importance of health-related QOL within the broader context of maternal health and pregnancy outcomes. Lower physical activity and social functioning in pregnancy have been linked to an increased risk for preterm birth. Poor emotional functioning has been associated with an increase in the number of primary care visits and in the use of resources. The joy of pregnancy may be related to the increased MCS that we found in both groups, even when such happiness persisted at a lower level in obese women than in nonobese women.

We found that MCS was lower in obese than in nonobese women at the beginning of pregnancy and in the last trimester. In addition, we identified a greater decrease in PCS during pregnancy in the obese group. Hassan et al reported that obese women in a US sample had a higher rate of sick days for physical and mental health than did nonobese women.

In late pregnancy, when weight gain is seen more as externally driven (ie, attributed to caring for the developing fetus), eating and weight-related concerns may not be tied to depression, anxiety, and QOL, which possibly explains the paradoxical increase in MCS in both groups. In general, we found that pregnancy complications were higher in obese women and that this variable was related positively to a decrease in PCS.

One limitation of our study is that its results reflect the conditions of the healthy obese population not of the obese population at large. Nevertheless, our work broadens the understanding of the effects of obesity on health-related QOL during pregnancy among a sample of women at a low to medium economic level. Our results underscore the importance of the identification of obesity and the evaluation QOL in early pregnancy. Future studies are needed to determine whether the evaluation and control of obesity can heighten QOL and improve perinatal outcomes.

**CLINICAL IMPLICATIONS**

- Physical component score of quality of life (QOL) is more affected in obese than in nonobese women during pregnancy.
- Body weight at the beginning of pregnancy and weight gain and complications during gestation are associated negatively with QOL in late pregnancy.
- Future studies are needed to determine whether the evaluation and control of obesity can enhance QOL and improve perinatal outcomes.

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**TABLE**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obese pregnant women</th>
<th>Nonobese pregnant women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beginning of pregnancy (n = 110)</td>
<td>Third trimester (n = 91)</td>
</tr>
<tr>
<td></td>
<td>Beginning of pregnancy (n = 110)</td>
<td>Third trimester (n = 87)</td>
</tr>
<tr>
<td>PCS</td>
<td>49.7 ± 8.0</td>
<td>43.5 ± 10.3</td>
</tr>
<tr>
<td>MCS</td>
<td>47.0 ± 11.0</td>
<td>52.8 ± 7.9</td>
</tr>
</tbody>
</table>

Data are shown as mean ± SD. Paired Student t test was performed to compare baseline and final variables in each group. MCS, Mental component score; PCS, physical component score.