

Prenatal and Postnatal Anxiety in Mexican Women Giving Birth in Los Angeles

Patricia L. Engle
California Polytechnic State University

Susan C. M. Scrimshaw
*Department of Anthropology
Latin American Center
School of Public Health
University of California, Los Angeles*

Ruth Enid Zambrana
*School of Social Welfare
University of California, Los Angeles*

Christine Dunkel-Schetter
University of California, Los Angeles

Examined psychosocial factors related to prenatal and postnatal anxiety in 291 primiparous Mexican women giving birth in Los Angeles. Characteristics of health care providers preferred by more anxious and less anxious women were also assessed. Higher prenatal anxiety was associated with less desire for an active role during labor, lower assertiveness, higher pain expectation at delivery, lack of support from family members other than the husband, and preferences for health care providers who are female and Latino. All groups of women preferred health care providers who provided good medical explanations and who were knowledgeable, friendly, and sympathetic. Postnatal anxiety was significantly lower than prenatal anxiety. Negative attitudes toward the baby and number of complications during labor and delivery, however, were related to postnatal anxiety adjusted for prenatal anxiety.

Key words: prenatal anxiety, Mexican women, childbirth attitudes, longitudinal study

The detrimental effects of anxiety on pregnancy and birth have been extensively documented in the literature (R. P. Lederman, 1984; R. P. Lederman, E. Lederman, Work, & McCann, 1978; McDonald, 1968; Reading, 1983). For example, past research has suggested that women who have abnormal deliveries have higher prenatal anxiety than women who have normal deliveries (Davids & DeVault, 1962; Davids, DeVault, and Talmadge, 1961; Gorsuch & Key, 1974; McDonald & Christakos, 1963; McDonald & Parham, 1964). Factors that contributed to anxiety, however, have been investigated less often, particularly for non-Anglo, ethnically distinct women such as Latinas.

Factors associated with prenatal anxiety in past research using White or ethnically heterogeneous samples include greater life stress and less social support (Norbeck & Tilden, 1983), more frequent somatic symptoms (Lubin, Gardener, & Roth, 1975), lack of adequate information (Lunenfeld, Rosenthal, Larhold, & Insler, 1984), prenatal care in clinic settings (Glazer, 1980), and less education (Glazer, 1980; Lubin et al., 1975). Two studies, however, found no relationship between anticipations or expectations about labor and delivery and anxiety (Levy & McGee, 1975; Scott-Hayes, 1982). Furthermore, two studies provide conflicting evidence regarding the relationship of maternal age to anxiety. One study found older women more anxious (Lubin et al., 1975), whereas the other found younger women more anxious (Glazer, 1980).

Only one study, an unpublished dissertation, could be found on anxiety in pregnant Latino women. Perez (1982) assessed anxiety, stress, coping styles, social support, and recorded labor and delivery complications in a sample of 132 Hispanic women in a prenatal clinic. Life stress and lack of social support at 37 weeks gestation were associated with greater anxiety during interactions with medical personnel as assessed on the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) State Anxiety subscale.

Reduction of prenatal anxiety among women of ethnic minority groups may well depend on a better understanding of their culture and of the impact of acculturation on attitudes toward childbirth, provision of health care, fears about pregnancy and childbirth, and sources of social support. It would seem reasonable to hypothesize that the less acculturated the woman, the higher her prenatal anxiety about labor and delivery. In addition to culturally based sources of anxiety, ethnic and class differences between patient and provider may provoke anxiety. The hospital environment may be perceived as strange and possibly frightening to a Latino woman with only limited or no English. Given the substantial size of the Latino population in the greater Los Angeles area (nearly one third of the population is Latino) and the fact that the majority of the women delivering

in most county hospitals are Latinas, it is important to have information about the possible effects of ethnicity on prenatal anxiety, particularly because the majority of doctors and nurses are non-Latinos (Zambrana, Mogel, & Scrimshaw, 1987).

In this article, three issues are addressed. First, the association of degree of acculturation with levels of prenatal anxiety is examined, as well as relationships with other factors believed to be associated with prenatal anxiety in Anglo women. These factors are lack of knowledge about childbirth, lack of social support from the woman's family or the baby's father, and lack of a sense of control over the events that will occur during labor and delivery (R. P. Lederman, 1984; Seidon, 1978; Wortman, 1982).

A second question concerns which psychosocial and medical factors are associated with changes from prenatal anxiety levels to postnatal anxiety levels. Although one would expect anxiety levels to decrease among certain individuals, they may continue to be high among others. For example, a difficult birth experience, a child born with abnormalities, or the absence of family support postnatally might be associated with continued levels of high anxiety (Entwisle & Doering, 1981; Pedersen, Zaslow, Cain, & Anderson, 1981). High postnatal anxiety in turn may negatively affect parenting behavior (Beckwith, 1984). Thus, we examined whether prenatal variables and the course of labor and delivery affected changes from prenatal to postnatal anxiety.

The third question we address concerns the effects of women's anxiety on preferences for health care providers. What characteristics of providers do Latino women generally value, and are there any characteristics of providers particularly valued by highly anxious women?

Assessment of preferences may provide clues for interventions elucidated by analysis of problem areas. Thus, these preferences serve a complementary role to the behavior and anxiety relationships.

Women received care from a variety of providers, both prenatally and postnatally. Preferences were assessed postnatally in order to determine the woman's opinions based on the sum of her experiences, not simply on her experience with prenatal care providers.

These questions were addressed in a study of 291 low-income Mexican women delivering their first baby in Los Angeles. Prenatal and postnatal anxiety, acculturation, knowledge of childbirth, social support, desire for control, and other variables were assessed by clinic and inpatient interviews. In addition, medical charts were coded for relevant variables during pregnancy, labor, and delivery. Although it is not the main theme of this article, the effect of prenatal anxiety on birth outcome was also addressed in analyses.

Subjects

Sample selection. From July 1981 to September 1982, 291 Mexican women who were having their first baby in one of two Los Angeles hospitals and who were of low-risk status were interviewed once in the last 6 weeks of pregnancy and again during their postpartum stay in the hospital. For the purposes of this study, Mexican women were defined as the subjects', their mothers', or their grandmothers' having been born in Mexico. Low risk was defined as fewer than three abortions and no major medical complications of pregnancy (e.g., gestational diabetes or multiple fetuses). Women who had a previous pregnancy that had lasted more than 20 weeks were excluded from the sample on the grounds that they would have had a previous experience similar enough to full-term delivery to bias their perceptions of birth.

All women who met the study criteria and who planned to deliver in the two study hospitals were approached to be a part of the study by a trained Spanish-speaking interviewer during the 12 months of data collection. Of the 406 women identified, 34 (12%) declined to participate in the study. At the postpartum timepoint, 291 of the 372 prepartum sample (78%) were reinterviewed. Of the women not interviewed at the postpartum follow-up, 80 could not be located, probably because they chose to deliver at a different hospital, and 1 declined to be interviewed.

Characteristics of the women. Ninety-six percent of the sample was born in Mexico. More than one fourth (27%) of the women had been in the United States less than 1 year, and more than three fourths (79%) had been in the United States 6 years or fewer. Eighty-seven percent of the women declared a preference for receiving explanations in Spanish, and only 20% said they were comfortable using English in the hospital setting.

The age range of the women was 15 to 38 years, with a mean of 22.6 years. The mean number of years of formal education was 7.6, with a range of 0 to 17. The majority of the sample was of low socioeconomic status, based on occupation and education. Forty-three percent of the women listed themselves as having no personal income. Sixty-six percent of the women were married, and, of the remaining single women, more than half (51%) planned (or hoped) to marry.

Characteristics of the providers. The ethnicity of the provider population is described in detail in Zambrana et al. (1987). All 44 labor and delivery nurses providing care in both institutions were interviewed. Only 5% were Mexican. Of the 50 obstetricians interviewed, none was Mexican

or Mexican American. It was not possible to identify which provider cared for a woman because many different people were caregivers—prenatally, during labor, during delivery, and postnatally. Thus, the woman's postnatal evaluation of her care reflected experience with a wide variety of characteristics.

Procedure

Prenatal interviews were conducted in the health care clinics by a team of trained Spanish-speaking interviewers. Interviewers were initially trained in a group using role playing and videotaped sequences until they achieved an acceptable degree of consistency in questioning.

Women in the sample were interviewed after the 34th week of their pregnancies. Postnatal interviews were conducted in the hospital between 24 and 48 hr after childbirth for vaginal deliveries and between 48 and 96 hr postpartum for cesarean deliveries. The interviewers also obtained information from the medical records.

Instruments

The prenatal and postnatal interviews included the STAI State Anxiety subscale (Spielberger et al., 1970) and a series of questions designed to assess demographic background, knowledge of childbirth, desire for control during birth, assertiveness, pain expectations, social support, and preferences for health care providers. The postnatal interview contained several questions on attitudes toward labor and delivery and Szapocznik's Biculturalism Scale (Szapocznik, Scopetta, Kurtines, & Arandale, 1978).

Indices of Anxiety and Acculturation were created by combining all items using standard scoring methods. Indices were developed from the other items in the interview schedules by submitting related items to principal components factoring. One interpretable component emerged from each factor analysis. Items were weighted by their factor loadings and were summed to create each index. Indices are as follows: Knowledge About Childbirth ($\alpha = .75$), Desire for Control During Labor and Delivery ($\alpha = .80$), Social Support From the Baby's Father ($\alpha = .82$), and Social Support From Family and Friends ($\alpha = .55$). In addition to these indices, single items on assertiveness and on expectation of pain during delivery were used in analyses. These measures are described in the next sections.

STAI State Anxiety subscale. Women were asked to report on their feelings of anxiety prenatally and postnatally using this scale. Cross-language validity of the State Anxiety subscale has been assessed by testing bilinguals on both the English and Spanish versions and is acceptably high

(Spielberger & Sharma, 1976). By and large, the Spanish translation was appropriate for Mexicans living in Southern California.¹ Only state anxiety was measured here because it has been found to be more associated with obstetric complications (Edwards & Jones, 1970; Gorsuch & Key, 1974; Grabstein et al., 1977; Zichella, 1979) than trait anxiety.

Acculturation. The Szapocznik Biculturalism Scale assesses preferences (on a 5-point scale) for speaking either English or Spanish in different settings (e.g., at home, at work) and enjoyment of Latin American and American cultural features such as music, television programs, foods, and celebrations. Two scores were derived based on factor-analytic results: Preference for American Culture and Preference for Latin American Culture. Only the American preference items were used here, as there was little variability in the Latin American preference items. One highly correlated demographic item was also used to form this index: years living in the United States. This scale was assessed postnatally.

Desire for Control During Labor and Delivery. Nine items describing how women wished to behave during labor and delivery were combined to form this index. Only one factor on which 9 of 12 original items had relatively equal loadings emerged. Each woman rated (on a 4-point scale) how important it was for her to be calm; quiet; in control; confident; dignified; able to talk to doctors and nurses; alert and awake; not to be scared; and not to yell during labor and delivery. A high score on this index reflects a woman's desire to be in control, dignified, and confident during labor.

Assertiveness. During the prenatal interview, assertiveness was measured by asking "When you know you have a right to something, but you are not getting it, which of these do you do?" The three possible responses were *speak up and ask for it*, *mention that you did not get it and see what happens*, and *forget about it*.

Pain expectation. The woman's expectation of pain at delivery was measured during the prenatal interview using a visual analog scale. The woman was asked to rate the amount of pain she expected to feel on an undifferentiated vertical line scale with "no pain" at one end and "maximum

¹Modifications were made in the Spanish translations of three of the State Anxiety items after pretesting the scale with our patient population. Item 3, *estoy tensa*, was changed to *estoy tensa y no relajada*; Item 4, *estoy contrariada* (*regretful* in the English version), was changed to *estoy arrepentida*; and Item 7, *estoy preocupada actualmente por algun posible contratiempo*, was changed to *estoy preocupada ahora mismo por algun posible contratiempo*. The feminine form was used because all our subjects were women.

pain" at the other. A template was used to divide the lines into eight segments for scoring.

Social support. Two distinct factors emerged from the eight social support items that were assessed prenatally—Social Support From the Baby's Father and Social Support From Family and Friends. Four items contributed significantly to the father scale: "In general, how is your relationship with the baby's father? Has the baby's father paid more or less attention to you since you've been pregnant? Does the baby's father plan to help support the baby? Are you single, married, planning to get married, widowed, or divorced?" Four items contributed significantly to the Social Support From Family and Friends: "In general, do you feel your family understands you? How are relations with your mother? How often do you leave home to visit family and friends? Are you satisfied with how often you go out to visit family or friends?"

These items had previously been found to be predictive of psychological depression among newly arrived Mexican migrant women in San Francisco (Dane, 1980).

Items that did not load on either scale in factor analysis were (a) whether the baby's father planned to be present in labor or delivery, which probably measured extraneous factors such as employment, (b) whether the woman feared the baby's father would leave during pregnancy (low variance), and (c) where the woman's mother lived.

Knowledge About Childbirth. The Knowledge About Childbirth factor included responses to five postpartum questions: "Before arriving at the hospital for this birth, did you know that the mouth of the uterus (cervix) had to open 10 centimeters? that, when the mouth of the uterus was open 10 centimeters, you would have to push the baby out? that there is a way of breathing and relaxing that would help you feel less pain? that labor and delivery occur in different rooms? that you were going to have a small cut to make room for the baby to come out?"

A question about attendance at childbirth classes was not used because only 10% of the women had attended any classes, and none had attended a full series of eight classes. The higher the score on the Knowledge About Childbirth scale, the greater a woman's reported knowledge of childbirth.

Preferred characteristics in health care providers. During the postpartum interview, women were asked to rate how important it was to them for nurses and physicians to have particular characteristics such as friendliness. Their responses were coded on a 4-point scale ranging from *not at all important* to *very important*. Three general categories of characteristics were used: demographic items (being older, being Hispanic, being

male, being female, speaking Spanish, being a parent), items measuring knowledge (knowing a lot about medicine, explaining what is happening), and items reflecting affective qualities (smiling a lot, being friendly, being courteous and polite, being understanding and sympathetic).

Postnatal outcome variable. Indicators of postnatal outcome were derived from medical charts and postnatal interviews. Complications during labor and delivery were scored from medical charts using the Hoebel, Youkeles, and Forsythe (1979) scoring system. The baby's health was measured by 1- and 5-min Apgar scores. A semantic differential scale with nine bipolar adjectives was used to assess the mother's attitude toward her experience of labor and toward the baby (e.g., beautiful-ugly, happy-sad, easy-difficult). The Attitude Toward Baby scale had an alpha of .35; the Attitude Toward Labor scale had an alpha of .54. High scores reflect a positive attitude toward labor and the baby. More information about these scales is contained in Engle, Scrimshaw, and Smidt (1984).

RESULTS

The mean prenatal State Anxiety score for the sample was 1.80 on a 1-to-4 scale (4 = high). This score is similar to the published norm for U.S. college freshmen but is higher than that of other undergraduates (Spielberger et al., 1970). It is lower than mean State Anxiety scores of surgical patients prior to surgery.

Determinants of Prenatal Anxiety

Intercorrelations among the seven independent predictor variables (Knowledge About Childbirth, Pain Expectation, Desire for Control During Labor and Delivery, Assertiveness, Social Support From the Baby's Father, Social Support From Family and Friends, Acculturation) appear in Table 1. More acculturated women tended to be more assertive and desired to have more control in labor than did less acculturated women, although they did not seem to be more knowledgeable or to expect a different degree of pain than did the less acculturated women. Women with high family support tended to have higher spousal support.

Correlations of prenatal anxiety with these seven variables are also shown in Table 1. Assertiveness, Desire for Control During Labor and Delivery, and Social Support From Family and Friends were associated with significantly less anxiety prenatally. Knowledge About Childbirth, Pain Expectation, Social Support From the Baby's Father, and Acculturation were unrelated to prenatal anxiety.

TABLE 1
Intercorrelations Among Prenatal and Postnatal Indices

Variable	Variable							
	2	3	4	5	6	7	8	9
1. Knowledge About Childbirth	-.06	.11	.06	.00	-.2	.12	-.07	-.13
2. Pain expectation		-.05	-.01	-.06	-.06	.05	.10	.08
3. Desire for Control			-.12	-.08	.05	.17*	-.32**	-.24**
During Labor and Delivery				.04	-.13	.19**	-.21**	-.16*
4. Assertiveness					.28*	.04	-.32**	-.17*
5. Social Support						.05	.01	.00
From Family and Friends							-.06	-.08
6. Social Support								.42*
From the Baby's Father								
7. Acculturation								
8. Prenatal anxiety								
9. Postnatal anxiety								

Note. $N = 203$ for prenatal variables, and $N = 186$ for correlations with postnatal anxiety.

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

The background variables of mother's age, number of previous abortions or miscarriages, and complications during pregnancy were significantly lower than prenatal anxiety and postnatal anxiety; therefore, these correlations were not included in subsequent analyses.

Determinants of Postnatal Anxiety

Although prenatal and postnatal anxiety were significantly correlated ($r = .45$, $p < .01$), postnatal anxiety scores were significantly lower than prenatal anxiety scores, as would be expected (prenatal $M = 1.80$, $SD = .45$; postnatal $M = 1.56$, $SD = .41$), paired $t(246) = 8.29$, $p < .01$. A small number of mothers (5%) had higher postnatal than prenatal anxiety scores.

Correlations of postnatal anxiety and the seven independent variables appear in Table 1. Generally the same variables are related to postnatal anxiety as to prenatal anxiety.

Table 2 presents the results of a multiple regression that examined variables associated with a change from prenatal anxiety levels to postnatal anxiety levels. Change was analyzed with an analysis of covariance in which postnatal anxiety was the dependent measure and prenatal anxiety was entered first into the regression analysis. The regression betas indicate which variables are associated with a change in anxiety when all variables

TABLE 2
Multiple-Regression Analysis Predicting Postnatal Anxiety

Variable	β	F
Prenatal anxiety	.31	17.43**
Knowledge About Childbirth	-.11	2.72
Pain expectation	.04	.43
Desire for Control During Labor and Delivery	-.13	3.79*
Assertiveness	.08	1.41
Social Support From Family and Friends*	-.06	.73
Social Support From the Baby's Father*	.03	.27
Acculturation	-.05	.45
1-min. Apgar score	-.10	2.32
Attitude Toward Baby*	-.20	8.93**
Labor and delivery complications	.13	3.79*
Attitude Toward Labor*	-.04	.40

Notes. $N = 186$; ordinary least-squares regression, all variables entered; $F(12, 173) = 5.82, p < .01, R^2 = .29$; multiple $R = .54$.

*High score = positive response.

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

are entered. The overall equation was highly significant, $F(12, 158) = 6.27, p < .001$.

Postnatal anxiety was significantly associated with prenatal anxiety. In addition, three variables were associated with postnatal anxiety, controlling for prenatal anxiety and other factors. These are a more negative Attitude Toward the Baby, more complications during labor and delivery, and less Desire for Control During Labor and Delivery prenatally.

Anxiety as a Determinant of Birth Outcome

Table 3 presents correlations of prenatal and postnatal anxiety with outcome variables reflecting the course of labor and delivery and the baby's

TABLE 3
Correlations of Prenatal and Postnatal Anxiety With Labor and Delivery Outcomes

Variable	Prenatal Anxiety	Postnatal Anxiety
1-min Apgar score	-.10	-.18*
Attitude Toward Baby	-.09	-.23*
Labor and delivery complications	.04	.16*
Attitude Toward Labor	-.14	-.11

Note. $N = 186$.

* $p < .05$.

condition. There are small but significant correlations of the baby's condition and complications of labor and delivery with postnatal anxiety. These associations were not seen with prenatal anxiety.

Women's Attitudes Toward Health Care Providers

For all women, the most important characteristics of both doctors and nurses were that they "explain what is happening" (mentioned as *very important* by 90% of the women), "know a lot about medicine" (*very important* for 89%), be "understanding and sympathetic" (*very important* for 76%), "be friendly" (*very important* for 73%), and "be polite" (*very important* for 63%). Demographic characteristics of providers, such as age, sex, and being Latino, were generally *not at all important*, although speaking Spanish was considered *very important* by 63% of the women.

Whether highly anxious women differed from less anxious women on preferences for health care providers was assessed by examining the association between degree of preference for a characteristic and level of prenatal anxiety. Prenatal anxiety scores were divided into terciles for this analysis. The more anxious the woman, the more important she felt it was for both physicians and nurses (a) to be Hispanic, $\chi^2(6, N = 261) = 14.2, p < .05$, for nurses, and $\chi^2(6, N = 262) = 15.6, p < .05$, for physicians, and (b) to be female, $\chi^2(6, N = 263) = 19.0, p < .01$, for nurses, and $\chi^2(6, N = 261) = 14.2, p < .05$, for physicians. In addition, moderately and highly anxious women were more likely than less anxious women to value nurses' friendliness, $\chi^2(6, N = 261) = 12.6, p < .05$.

DISCUSSION

Contrary to our expectation, acculturation was not directly associated with prenatal or postnatal anxiety. However, assertiveness, desire for control during labor and delivery, and social support from family and friends among Mexican women in our sample were related to less prenatal anxiety and less postnatal anxiety. In contrast, medical factors such as number of pregnancy complications were not associated with prenatal anxiety.

Although acculturation was not associated with anxiety, it was related to greater assertiveness and to desire for control during labor and delivery. Thus, the relationship between acculturation and anxiety in pregnancy may be indirect in this sample. Saunders (1954) found that less acculturated Mexican women were less assertive, particularly in medical settings, than more acculturated women.

The results also indicate that social support from the woman's family and friends was related to less prenatal anxiety and less postnatal anxiety,

whereas social support from the baby's father was not. The importance for Latinas of the extended family as a support system during childbirth has been reported elsewhere (Kay, 1978). One could speculate from these findings that family members might be equally or more valuable than the baby's father as labor coaches for Latinas. Sosa, Kennell, Klaus, Robertson, and Urrutia (1980) documented that a female companion (a *doula*) present during labor resulted in shorter labors and fewer complications at delivery for Guatemalan women. Our results suggest that someone other than the baby's father may fulfill the role of *doula* and that family members in particular may be perceived as an important source of support during pregnancy and childbirth.

The strongest predictor of postnatal anxiety was prenatal anxiety. Postpartum anxiety was also higher for women whose labor had been difficult and for women who perceived their child less positively, even controlling for prenatal anxiety. Adjusting for prenatal anxiety, however, women with greater desire for control during labor prenatally had significantly lower postnatal anxiety.

The importance of this measure of postnatal anxiety for long-term adaptation to parenthood might be limited because the assessment occurred during a transition time (2 days postpartum). Despite this caution, it should be noted that Beckwith (1984), who followed a subsample from our study for 13 months, found that higher early-postpartum anxiety was associated with less social engagement with infants over time.

For all women, the most important characteristics of providers were full explanations and providers' medical knowledge. Apparently providers of either gender and ethnicity can extend the informed care that these women value. Yet, our direct observations of a subset of 45 women (Moore, Scrimshaw, Walker, & Engle, 1986) indicated that, for many women, explanations of medical procedures were not given, even in cases for which language was not a barrier. Perhaps an awareness of the value of these explanations to this patient population can influence medical practice. In addition, variations in the preferences of less and more anxious women may provide a basis for developing strategies for reassuring highly anxious women.

It is clear that anxiety during pregnancy and childbirth needs improved measurement and understanding, particularly because, in many instances, health care providers work with patients from cultures other than their own. Women approach childbirth with knowledge and concerns that have been shaped by their sociocultural background. It is also important to look at within-culture variation. As we have demonstrated, Latino women vary in anxiety, assertiveness, levels of information about childbirth, anticipation of childbirth pain, desire for control in labor and delivery, social support, and the preferences they have for health care providers. Too often, research

on pregnancy and childbirth neglects even to mention culture and makes no attempt to study cross-cultural variation. Additional research is needed to collect and compare information regarding pregnancy and childbirth anxiety across cultures within the United States so as to improve the delivery of prenatal and intrapartum care.

ACKNOWLEDGMENTS

The data described here were collected as part of the Latino Birth Project at the School of Public Health of the University of California, Los Angeles. The project was funded by National Institute of Child Health and Human Development, Division of Maternal and Child Health (Grant R01 HD13796-02).

We thank Ms. Marci Lobel for her comments on a draft of this article, Drs. Virginia Clark and Robert Smidt for their statistical advice, and Ms. Diana Kay Moody for her patient assistance in preparing the manuscript.

REFERENCES

- Beckwith, L. (1984). *Birth experience in Hispanic women*. Unpublished manuscript.
- Dane, N. (1980). *Social, environmental and psychological stress in Latin American immigrant women*. Unpublished PhD dissertation, California School of Psychology, Berkeley.
- Davids, A., & DeVault, S. (1962). Maternal anxiety during pregnancy and childbirth: abnormalities. *Psychosomatic Medicine*, 24, 464-470.
- Davids, A., DeVault, S., & Talmadge, M. (1961). Anxiety, pregnancy and childbirth abnormalities. *Journal of Consulting Psychology*, 25, 74-77.
- Edwards, K. R., & Jones, M. R. (1970). Personality changes related to pregnancy and obstetric complications. *Proceedings of the 78th Annual Convention of the American Psychological Association*, 5, 341-342.
- Engle, P. L., Scrimshaw, S. C. M., & Smidt, R. L. (1984). Sex differences in attitude toward newborn infants among women of Mexican origin. *Medical Anthropology*, 8, 133-144.
- Entwisle, D. R., & Doering, S. G. (1981). *The first birth: A family turning point*. Baltimore: Johns Hopkins University Press.
- Glazer, G. (1980). Anxiety levels and concerns among pregnant women. *Research in Nursing and Health*, 3, 107-113.
- Gorsuch, R. L., & Key, M. K. (1974). Abnormalities of pregnancy as a function of anxiety and life stress. *Psychosomatic Medicine*, 36, 352-361.
- Grabstein, J., Bejar, R., Ellison, M., Weingold, A., Marinoff, S., & Stefancik, C. (1977). *Maternal anxiety and perinatal outcome*. Washington, DC: George Washington University School of Medicine and Health Sciences.
- Hoebel, C. J., Youkeles, L., & Forsythe, A. (1979). Prenatal and intrapartum high risk screening: II. Risk factors reassessed. *American Journal of Obstetrics and Gynecology*, 145, 1051.
- Kay, M. A. (1978). *The Mexican American*. In A. Clark (Ed.), *Culture/childbearing/health professionals*. Philadelphia: Davis.

- Lederman, R. P. (1984). *Psychosocial adaptation in pregnancy: Assessment of seven dimensions of maternal development*. Englewood, NJ: Prentice-Hall.
- Lederman, R. P., Lederman, E., Work, B. S., Jr., & McCann, D. S. (1978). The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. *American Journal of Obstetrics and Gynecology*, 132, 495-500.
- Levy, J., & McGee, R. (1975). Childbirth as a crisis: A test of Janis's theory of communication and stress resolution. *Journal of Personality and Social Psychology*, 32, 135-138.
- Lubin, B., Gardener, S. H., & Roth, A. (1975). Mood and somatic symptoms during pregnancy. *Psychosomatic Medicine*, 37, 136-146.
- Lunenfeld, E., Rosenthal, J., Larhold, K. M., & Inslter, V. (1984). Childbirth experience - Psychological, cultural, and medical associations. *Journal of Psychosomatic Obstetrics and Gynecology*, 3, 165-171.
- McDonald, R. L. (1968). The role of emotional factors in obstetric complications: A review. *Psychosomatic Medicine*, 30, 222-237.
- McDonald, R. L., & Christakos, A. C. (1963). Relationship of emotional adjustment during pregnancy to obstetric complications. *American Journal of Obstetrics and Gynecology*, 86, 341-348.
- McDonald, R. L., & Parham, K. J. (1964). Relation of emotional changes during pregnancy to obstetric complications in unmarried primigravidas. *American Journal of Obstetrics and Gynecology*, 90, 198-201.
- Moore, D. S., Scrimshaw, S. C. M., Walker, J., & Engle, P. L. (1986). *Latina women in labor: Pain in expectation and response with and without drugs*. Unpublished manuscript.
- Norbeck, J. S., & Tilden, V. P. (1983). Life stress, social support, and emotional disequilibrium in complications of pregnancy: A prospective, multivariate study. *Journal of Health and Social Behavior*, 24, 30-46.
- Pedersen, F. A., Zaslow, M. J., Cain, R. L., & Anderson, B. J. (1981). Cesarean childbirth: Psychological implications for mothers and fathers. *Infant Mental Health*, 2, 257-263.
- Perez, R. (1982). *Stress and coping as determinants of adaptation to pregnancy in Hispanic women*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Reading, A. E. (1983). The influence of maternal anxiety on the course and outcome of pregnancy: A review. *Health Psychology*, 2, 187-202.
- Saunders, L. (1954). *Cultural differences and medical care*. New York: Russell Sage Foundation.
- Scott-Hayes, G. (1982). The subjective anticipation and evaluation of childbirth and anxiety. *British Journal of Medical Psychology*, 50, 602.
- Seidon, A. (1978). The sense of mastery in the childbirth experience. In M. Notman & C. Nadelson (Eds.), *The woman patient: Medical and psychological interfaces* (Vol., pp. 87-105). New York: Plenum.
- Sosa, R., Kennell, J., Klaus, M., Robertson, S., & Urrutia, J. (1980). The effects of a supportive companion on prenatal problems, length of labor and mother-infant interaction. *New England Journal of Medicine*, 303, 597-700.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *STAI manual for the State Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Spielberger, C. D., & Sharma, S. (1976). Cross-cultural measurement of anxiety. In C. D. Spielberger & R. Diaz-Guerrero (Eds.), *Cross-cultural research on anxiety* (pp. 127-146). Washington, DC: Hemisphere/Wiley.
- Szapocznik, J., Scopetta, M. A., Kurtines, W., & Arandale, N. (1978). Theory and measurement of acculturation. *International Journal of Psychology*, 2, 146-152.
- Wortman, C. B. (1982). Appendix D: Research on childbirth settings. The assessment of psychological variables. In *Report of a Study by the Committee on Assessing Alternative Birth Settings*, National Academy of Sciences, International Institute of Medicine, and

- National Research Council* (pp. 102-148). Washington, DC: National Academy Press.
- Zambrana, R. E., Mogel, W., & Scrimshaw, S. C. M. (1987). Gender and level of training differences in obstetrician's attitudes toward patients in childbirth. *Women and Health*, 12(1), 5-23.
- Zichella, L. (1979). Psychological and psychoneuroendocrine correlates of normal labor. In L. Carezza & L. Zichella (Eds.), *Emotion and reproduction* (pp. 731-740). New York: Academic.