Journal of Prenatal and Perinatal Psychology and Health 24(1), Fall 2009

Pregnancy, Childbirth and Postpartum Experiences of Israeli Women in the Negev

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ABSTRACT: This study of 302 Israeli women was a secondary analysis conducted to: (1) examine the associations between negative pregnancy, childbirth, and postpartum experiences; (2) determine whether exposure to childhood sexual abuse, domestic violence and fertility problems are related to reproductive experiences and (3) identify among these variables potential predictors of negative childbirth experiences and postpartum depression (PPD). Pregnancy-related fears increased and prior fertility problems decreased the likelihood of negative childbirth experiences. The strongest predictors of a negative first childbirth experience were Caesarian section and vacuum extraction. Child sexual abuse and the number of negative childbirth experiences were significant predictors of PPD. Implications for health care providers are discussed.

KEY WORDS: pregnancy; childbirth; postpartum depression; childhood sexual abuse

Researchers using both qualitative and quantitative methods have shown that biomedical factors related to pregnancy and childbirth, pregnancy and childbirth expectations, and psychosocial factors shape the reproductive experiences of women (Fenwick, Hauck, Downie & Butt, 2005; Gupton, Heaman, & Wang-Kit Cheung, 2001; Hauck, Fenwick, Downie & Butt, 2007; Heaman, Gupton & Gregnory, 2004). Psychosocial factors such as depression, fear or anxiety, and stressful life events experienced during pregnancy, have been found to be associated with negative pregnancy, childbirth and postpartum experiences. Findings suggest that women who had experienced depression, anxiety, or stressful life events during pregnancy are at

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increased risk for obstetric complications, spontaneous abortion, preterm birth, pain and fear during labor, stressful and disappointing experience of childbirth and poor psychological outcomes post-birth (Alder, Fink, Bitzer , Hösli, & Holzgreve, 2007; Alehagen, Wijma, & Wijma, 2006; Bergant, Moser, Heim, & Ulmer, 1998; Dole, et al., 2003; Fisher, Hauck, & Fenwick, 2006; Hedegaard, Henriksen, Secher, Hatch, & Sabroe, 1996; Melender, 2002; Mulder, et al., 2002). Negative pregnancy, childbirth and postpartum experiences, in turn, may lead to the development of postpartum depression (PPD) (Heron, et al., 2004; Righetti-Veltema, Conne-Perreard, Bousquet, & Manzano, 1998; Robertson, Grace, Wallington, & Stewart, 2004; Saisto, Salmela-Aro, Nurmi, & Halmesmäki, 2001; Verkerk, Pop, Van Son, & Van Heck, 2003).

To the best of our knowledge, no study in Israel has analyzed the complex interrelations between women's stressful life events, pregnancy, childbirth and postpartum experiences including PPD. Therefore, we explored the associations among negative life events, pregnancy, childbirth and postpartum experiences of Israeli women in the Negev region. The conceptual framework used in this study was based on the life course perspective, which posits that current physical and mental health statuses are affected by chronic stressors from early childhood (e.g., poverty, child sexual abuse) and exposure to stressors in adult life. Therefore, our investigation focused on three specific stressful life events: childhood sexual abuse, current domestic violence and infertility problems, which represent stressors in both lifespan stages. These life events have been linked to negative reproductive experiences, including PPD (Heimstad, Dahhloe, Laache, Skogvoll, & Schei, 2006; Jasinki, 2004; Leeners, Richter-Appelt, Imthurn, & Rath, 2006; Monti, Agostini, Fagandini, La Sala, & Blickstein, 2009; Oddens, Tonkelaar, & Nieuwenhuyse, 1999).

Postpartum depression is a well-known clinical phenomenon (Nielsen Forman, Videbech, Hedegaard, Daley Salvig, & Secher, 2000) and represents a common complication of childbearing. Halbreich and Karkun (2006) demonstrated in a recent review of 143 studies from 40 countries that there is a wide range of reported prevalence of PPD, from almost 0% to almost 60%. According to these researchers, this variability might be due to cross-cultural variables, reporting style, differences in perceptions of mental health, differences in socio-economic environments, and biological vulnerability factors. The reported prevalence of PPD in Israel ranges from 10% to 23% (Dankner, Goldberg, Fisch, & Crum, 2000; Eilat-Tsanani et al., 2006; Fisch, Tadmor, Dankner, & Diamant, 1997; Glasser et al., 1998).

In contrast to the "baby blues," which occur in the majority of new mothers, PPD is not a transient mood disorder (Beck 1998; Wisner, Parry, & Piontek, 2002). It can generate negative outcomes for mothers and their children, and can have adverse long-term effects if untreated. Thus, early identification and treatment of PPD are important (Beck, 2001; Robertson et al., 2004). Yet, early detection of PPD appears to be a difficult challenge due to its social stigma, which often inhibits women from seeking professional help. To prevent the detrimental effects of PPD, it is, therefore, crucial to identify women at high risk so interventions can be initiated before the onset of PPD (Beck, 2001; Righetti-Veltema et al., 1998).

Various risk factors for PPD have been identified in previous studies. Robertson et al. (2004) found in a systematic review of recent studies that the strongest predictors of PPD included depression or anxiety, experiencing stressful life events and low levels of social support during pregnancy, and a previous history of depression. Three additional significant predictors were identified in this review with small-to-moderate predictive relationships: marital problems, socioeconomic deprivation (e.g., low income, financial strain), and pregnancy- and delivery-related complications. Results from Israeli samples have also identified various risk factors for PPD, including: immigrant status, unemployment, secularism, Asian-North African ethnic origin among the Jewish population, Arab ethnicity compared to Jewish ethnicity, unplanned pregnancy, low levels of post partum social support, pre-existing depression, history of mood disorders during oral contraceptive use, poor health, and a negative pregnancy experience (Bloch, Rotenberg, Koren, & Klien, 2005; Dankner et al., 2000, Eilat-Tsanani et al., 2006; Fisch et al., 1997; Glasser et al., 1998).

Although labor is usually considered as a rather predictable and planned event, it can be perceived as having potential physical and psychological unpredictable risks. Women may indeed experience objective threats during the labor process, such as physical injuries both for themselves and for their infants. Delivery-related complications and increased medical interventions have been found to increase feelings of anxiety, fear, and helplessness (Ballard, Stanley, & Brockington, 1995). Medical interventions, such as Caesarian Section (CS), vacuum extraction and forceps extraction, have been found to be associated with negative or traumatic birth experiences (Creedy, Shochet, & Horsfall, 2000; Lyons, 1998; Soet, Brack, & Dilorio, 2003).

In Israel, the rate of one medical intervention in particular, CS, has increased over the years 1990-2000 from 4% to 10% among low-risk women in Jerusalem (Cohain & Yoselis, 2004). Statistics from the

Negev region showed a rate of 10% for low-risk women as well (Sheiner et al., 2004). Two recent surveys have found that the CS rate has now reached 18%, one is a national sample (Manakota et al., 2008) and the other, a survey of women living in the Central region of Israel (Maslovitz, Kupferminc, Lessing, & Many, 2005). The rate of elective CS was only 7% in the national survey (Manakota et al., 2008), which is comparable to other European countries (Florica, Stephansson, & Nordström, 2006). However, elective CS was reported at 44% among those with CS in the survey of women living in the Central region of Israel, possibly indicating a higher rate of elective CS among high socio-economic groups who live in this region (Maslovitz, Kupferminc, Lessing, & Many, 2005). Thus, it appears that the vast majority of reported CS procedures in Israel are emergency ones, although this rate varies in different areas of the country.

Researchers in previous studies have examined the impact of emergency CS on mental health symptoms following birth. Women who had experienced an emergency CS report higher rates of PPD, compared with those who had experienced a standard delivery process (Boyce & Todd, 1992; Koo, Lynch, & Cooper, 2003). However, other researchers did not find an association between PPD and an emergency CS (Alami, Kadri, & Berrada, 2006; Durik, Hyde, & Clark, 2000; Jossefsson et al., 2002; Montazeri, Torkan, & Omidavri, 2007; Nielsen Forman et al., 2000; Patel, Murphy, & Peters, 2005). These equivocal findings may be partly explained by methodological inconsistencies. For example, a number of investigators employed a non-clinical cut-off score for depression (Matthey, Henshaw, Elliot, & Barnett, 2006; Patel et al., 2005), whereas others did not differentiate between women who had undergone a planned versus an emergency CS (Alami et al., 2006; Montazeri et al., 2007).

This study was a secondary analysis of data from a comprehensive study undertaken to examine women's health behaviors and to identify potential predictors of their physical and psychological health (Cwikel & Mendlinger, 2003). The secondary analysis was designed to investigate the associations among negative life events (e.g., childhood sexual abuse, domestic violence and coping with infertility problems), pregnancy, childbirth and postpartum experiences of women in the Negev region. The Negev Region is the southern half of the country constituting 58% of Israel's pre-1967 land mass but sparsely populated with only 10% of Israel's population. This region has high proportions of new immigrants, unemployed and low socio-economic groups (Negev Development Authority, 1998). Immigrants represent 15.0% of Israel's population, while in the Negev, the percentage is much higher due to

major immigration waves from the former Soviet Union (FSU). For example, statistics for the three leading cities on immigration absorption within the Negev (Beer-Sheva, Arad and Kiriyat Gat) indicate that immigrants constitute 30.6%, 41.9%, and 32.7% of their populations, respectively (Negev Development Authority, 2007). Indeed the Negev is considered a human population laboratory due to the multi-ethnic and cultural variety of its population. Given these unique characteristics, the current study was designed to examine whether previous findings regarding women's fertility experiences apply to women in the Negev. Given the findings indicating the effect of both socio-economic and cultural factors on PPD rates (Halbreich & Karkun, 2006), we assumed that PPD rates in the Negev region might be high compared with other regions in Israel.

The specific aims of the current study were to survey a population of women in the Negev: (1) to examine the prevalence of and associations among negative pregnancy and childbirth experiences, and PPD; (2) to determine whether negative life events (exposure to sexual abuse during childhood, current domestic violence from a partner, and fertility problems) are related to pregnancy and childbirth experiences and PPD, and (3) to identify potential predictors of negative childbirth experiences and PPD.

METHOD

Participants

This study was conducted in the Negev because in comparison to all other regions of Israel, this region is characterized by wide variations in ethnic groups, socio-economic groups and immigrant status (Negev Development Authority, 2007). A random telephone survey was conducted during the years 2002-2003 to explore correlates of women's psychological and physical health (Cwikel & Mendlinger, 2003). The study protocol was approved by the university ethics committee. We obtained verbal informed consent at the onset of the telephone interview.

The survey was based on a sampling frame of 1196 women that included the following parameters: women between the ages of 25 and 42, who had children under the age of 18 and were resident in the Negev Region of Israel. Women's names were obtained from the Israeli population registry. Women who had originated in areas of the FSU (today's Federation of Independent States) were over-sampled to better represent the variety of subpopulations based on an earlier larger

survey which demonstrated a high proportion of new immigrants residing in this region (Cwikel & Barak, 2003). Bedouin Arab-speaking women, who constitute approximately one-third of the women of the Negev (Negev Development Authority, 1998), were not included in the current survey, in light of the recent findings from a quota-sample survey of Bedouin women suggesting that phone surveys are not an appropriate method for the recruitment of this subpopulation due to an extremely low phone response rate (Cwikel & Barak, 2002).

Of the 538 women contacted, complete interviews were obtained from 302; 215 refused to be interviewed and 21 interviews were incomplete. The response rate was 56%, which is comparable to the rate reported in previous studies based on telephone surveys (Bleich, Gelkopf, & Solomon, 2003; Krueger & Stone, 2008). The interviews were conducted by phone by trained interviewers working from the university research center in the late afternoon and evening hours, with up to three calls at each phone number.

The average age of the women in this study was 37.7 years (SD = 3.5, range 25-42 years) and the vast majority of the women were married (97%). Over half (54%) had some academic education (mean years of education, 14.2 (SD = 2.9). The sample was predominantly Jewish (98%). Most reported being religious to some extent – 46% defined themselves as traditional, 12% religious, and 6% ultra-orthodox; 35% defined themselves as secular. They had their first child at 23 years on average (SD = 3.2) and had an average of three children each (range 1-11). The majority of the participants were Israeli born (68.2%), 13.6% immigrated to Israel from the FSU, 12.6% were born in the Middle East or North Africa, and 5.6% were of European or American background.

Income difficulties were reported by about half of the sample, with 12.3% reporting that it was very difficult for them to pay their basic living expenses, 30.2% saying that it was hard to meet basic expenses, and 57.5% reporting that they did not have income difficulties. The majority of the women were employed (77.5%) with the modal answer being 35-40 hours a week. Those with higher education were more likely to work; women working averaged 14.6 years of education compared with those who were not working (12.3 years) ($t = 5.0$, $df = 289$, $p < .001$). Those who were not working were significantly more likely to report income difficulties as well ($t = 4.6$, $df = 289$, $p < .001$).

Measures

Pregnancy characteristics. These were assessed using a 3-item

questionnaire designed by the authors to assess the medical (risk to mother and/or risk to fetus), physical (*easy/reasonable/difficult*), and psychological (*positive feelings/fears and anxiety*) components of their pregnancy. Participants were instructed to relate to each child's pregnancy separately.

Childbirth characteristics. Two questions were utilized to ascertain childbirth characteristics. The first question asked participants to indicate the medical procedures employed in each child's birth selecting from a list of seven types of medical procedures: standard birth without any medical interventions, CS, vacuum extraction, breech delivery, forceps delivery, use of epidural injection, and injection given for induction of labor. Time of birth (premature birth/late birth) was also queried. The second question assessed birth experience with regard to each child on a 5-point scale ranging from 1 (*very positive*) to 5 (*very negative and traumatic*).

Fertility. Participants were asked to indicate whether they encountered difficulties in conceiving (*yes/no*). Those who did were asked to note the diagnosed source of these difficulties from a list of four types of sources: the women themselves, their husbands, both themselves and their husbands, unknown. In addition, they were asked to indicate whether they had fertility treatments (*yes/no*).

Exposure to domestic violence. This variable was measured by a 5-item scale on domestic violence experienced in the past year from a partner, including threats, physical and sexual violence. The scale had previously been validated in women's health surveys in Israel (Cwikel & Barak, 2003; Cwikel, Lev-Weisel, & Al-Krenawi, 2003; Gross & Brammli-Greenberg, 2000). Internal consistency was Cronbach's α =.73. In addition, one question measured exposure to childhood sexual abuse before the age of 18 (*yes/no*).

Postpartum depression. All women who had given birth within the past 2 years (n = 65) were administered a Hebrew version of the Edinburgh Postnatal Depression Scale (EPDS), which has previously been validated in Israeli samples (Glasser & Barell, 1999). EPDS scores ranged from 0-21, with a mean of 4.3 (SD = 4.9). The standard cut-off point of 10 and above was used to indicate PPD (Cox, Chapman, Murray, & Jones, 1996; Cox, Holden, & Sagovsky, 1987). We found good internal consistency for this scale (Cronbach's α =.83).

Demographics variables. These variables consisted of education, income difficulties (*very difficult to meet basic needs, difficult to meet basic needs, not difficult*), age, ethnic background (Israeli born, North-African/Middle East, Europe/American, Former Soviet Union Republics), religion, religious observance (ultra-Orthodox, religious,

traditional, secular), number of children, and employment status (employed (hours per week), not working). Those born outside of Israel also were asked to indicate the percentage of friends who spoke their native language (scored by percentage reported).

Data Analysis

Statistics employed to address the first two research questions were descriptive statistics, odds ratios, correlations, chi-square, and t-test. Hierarchical regression analyses were conducted to identify potential predictors of negative childbirth experiences and PPD (research question three).

Results

Childhood Sexual Abuse, Domestic Violence and Fertility Problems

Exposure to domestic violence from a partner in the past year was reported by 13.6% of the sample, with the majority reporting exposure to verbal abuse (10.6%) and 3% reported exposure to more than one type of domestic violence. A history of sexual abuse before the age of 18 was reported by 6% of the sample, and when a history of sexual abuse was added to current domestic violence, 18.1% reported either a history of sexual abuse, domestic violence or both. When asked if they had had trouble becoming pregnant, 21.7% reported that they had had such difficulty. Of these, only 47% reported some kind of fertility treatment. When asked about infertility as a medical problem, only 5% of the women reported that they had a diagnosed fertility problem in the past.

Reproductive Experiences

Pregnancy experiences. The first research objective concerned participants' pregnancy, childbirth, and postpartum experiences. Descriptive data regarding pregnancy are presented in Table 1. This table shows the results of four separate measures: medical characteristics (risk to fetus, risk to mother: each a separate variable), physical experiences (easy, reasonable, difficult) and psychological experiences (positive feelings, fears and anxiety).

As can be seen in Table 1, the vast majority of the women defined their pregnancies as easy or reasonable (ranging from 64% regarding the fourth child to 75% regarding the first child). Reports of difficult pregnancies increased from 23% for the first child to 36% for the fourth

Table 1

The medical, physical and psychological characteristics of participants' pregnancies by number of child (%)

	Pregnancy Characteristics						
	Medical (%)		Physical (%)			Psychological (%)	
Number of Child	Risk to Fetus	Risk to Mother	Easy	Reasonable	Difficult	Positive Feelings	Fears and anxiety
1 (n=301)	7.3	3.6	45.8	30.8	23.4	69.8	30.2
2 (n=284)	8.6	6.0	42.1	30.8	27.1	68.8	31.2
3 (n=214)	6.0	5.6	38.6	26.7	34.7	62.2	37.8
4 (n=100)	3.0	2.0	30.8	33.0	36.2	57.0	43.0

child. As to the psychological features of pregnancy, the percentage of women who reported negative feelings during their pregnancies increased with each child. A low percentage of women reported a diagnosed medical risk (regarding either themselves or their fetus). When a risk to the fetus was detected, there was an increase in women's anxiety during the pregnancy (54.5% vs. 28.3%, OR = 1.9, CI = 1.26-2.95, p = .015). Similarly, when a risk to the mother was diagnosed, there was also an increase in her level of anxiety (72.7% vs. 28.6%, OR = 2.545, CI = 1.697-3.818, p = .004).

Childbirth experiences. Detailed descriptions of the medical procedures that women underwent at birth are presented in Table 2.

As can be seen in Table 2, the most common procedure was induction of delivery (9.9-16%), followed by CS (7.5-11.8%) and epidural block (7.1-11.7%). Medical interventions were most common for first delivery and third delivery. Regarding the psychological evaluation of the birth experience, 23% of the women defined their first birth experiences as either negative or traumatic. Subsequent births were described as somewhat less negative or traumatic (second birth- 15.3%, third birth 17.5%, and fourth birth – 10.2%). At least one negative or traumatic birth was reported by 31.8% of the mothers, and

Table 2

Description of the medical procedures encountered at birth by number of child (%)

Number of Child	Vacuum Extraction	Forceps Delivery	Epidural Injection	Induced Delivery	Breech Delivery	C-Section
1 (n=301)	3.7	2.0	9.0	13.6	1.3	9.3
2 (n=284)	2.1	0.7	7.1	9.9	1.8	7.5
3 (n=214)	1.9	0.5	11.7	16.0	2.8	11.8
4 (n=100)	1.1	1.0	7.1	13.3	1.0	9.1

6.3% reported three or more traumatic or negative births. There was a positive correlation between traumatic first births and traumatic second births ($r = .594$, $p < .001$), as well as between subsequent births (births 1-3, $r = .594$, $p < .001$; births 2-3, $r = .489$, $p < .001$; births 3-4, $r = .560$, $p < .001$; and births 4-5, $r = .631$, $p < .001$).

Reports of fears and anxieties during the first pregnancy increased the likelihood of reporting a negative or traumatic birth experience (31.1% vs. 19.7%, OR = 1.5, CI = 1.05-2.14, $p = .037$), as well as for subsequent pregnancies (second birth -25.3% vs. 11%, OR = 1.2, CI = 1.05-1.36, $p = .003$, third birth – 27.8% vs. 11.6%, OR = 1.2, CI = 1.05-1.42, $p < .05$).

Cesarean section and vacuum extraction were significantly associated with a report of a negative or traumatic birth experience (64.8% vs. 18.7%, OR = 6.0, CI = 2.9-12.5, $p < .001$; 54.5% vs. 21.7.8%, OR = 4.0, CI = 1.3-12.8, $p = .01$, respectively). Breech, epidural, forceps delivery, premature delivery, and late delivery were not associated with reporting negative or traumatic birth experiences.

The only demographic variable that differentiated between women who reported negative or traumatic birth experiences from women who did not was the percentage of friends in their social network who spoke their native language, but not new immigrant status per se. Those who did not indicate negative or traumatic birth experiences reported having twice as many friends who spoke their native language than those reporting such birth experiences (42% on average vs. 21% on average, $t = 6.2$, $df = 88$, $p = .015$).

Postpartum depression. A higher risk of developing PPD was found among women who reported traumatic and negative birth experiences. Of the 66 participants who had given birth in the past year (22% of the total sample), 15.2% reported symptoms of PPD according to the Edinburgh scale cut-off. Traumatic and negative births significantly increased the risk of PPD (41.7% vs. 9.3%, OR = 1.75, CI = .934-3.28, p = .013), (chi-square = 8.02, $p \leq 0.05$).

Pregnancy, Childbirth, and Postpartum Experiences in Relation to Negative Life Events

The second study objective related to whether negative life events such as childhood sexual abuse, current domestic violence from a partner, and fertility problems affected the risk of negative pregnancy, childbirth, and postpartum experiences. None of these life events were associated with reporting negative pregnancy experiences. With regard to childhood sexual abuse and domestic violence, however, the findings showed that the presence of either one or both of these types of abuse significantly increased the likelihood of reporting traumatic or a negative birth experience (35.2% vs. 20.2%, OR = 1.8, CI = 1.1 -2.9, $p < .05$). Childhood sexual abuse also was found to significantly increase the risk of developing PPD (66.7% vs. 12.9%, OR = 13.5, CI = 1.1-166.5, $p < .05$). By contrast, having fertility problems was found to decrease the likelihood of reporting traumatic or negative birth experiences (0.0% vs. 24.1%, OR = 0.76, CI = 0.71-0.81, $p < .05$).

Predictors of Negative Childbirth Experiences and PPD

To determine which variables contribute to mothers' perceived negative and traumatic first childbirth experience, hierarchical regression analyses were conducted. The demographic variables were entered first, followed by negative life events (current domestic violence, childhood sexual abuse, and fertility problems), physical and psychological characteristics of participants' pregnancies, and finally by delivery-related medical procedures. All the demographic variables were not significant; therefore only three steps of the regression are presented in Table 3.

Results of the regression analyses showed that 16% ($p < .001$) of the variance in mothers' negative or traumatic first childbirth experience was explained. Domestic violence and not having fertility problems together accounted for 3% of variance in mothers' negative or traumatic childbirth experiences. The inclusion of mothers'

Table 3

Hierarchical Regression Coefficients of Negative Life Events, Fears and Anxiety during Pregnancy, and Delivery-Related Medical Procedures on Negative or Traumatic First Childbirth Experience (n=301)

Predictor	B	Standard Error	Beta	R^2
Step1				0.03*
Domestic violence	0.44	0.23	0.112*	
Fertility Problems	-0.78	0.36	0.127*	
Step 2				0.05**
Domestic violence	0.38	0.22	0.01	
Fertility Problems	-0.85	0.35	0.014*	
Fears and anxiety during pregnancy	0.46	0.17	0.16**	
Step 3				0.16***
Domestic violence	0.33	0.21	0.085	
Fertility problems	-0.82	0.34	0.014*	
Fears and anxiety during pregnancy	0.37	0.16	0.24*	
C-section	1.39	0.25	0.30***	
Vacuum extraction	1.12	0.39	0.16**	

* p≤.05, **p≤.01, ***p≤.001

psychological state during pregnancy in the second step explained an additional 2% of the variance. CS and vacuum extraction had the greatest contribution to mothers' negative or traumatic childbirth experiences, explaining 11% of the variance.

The above set of variables, with the addition of the negative or traumatic first childbirth experience variable, was tested also on negative second childbirth experiences. The demographic variables were entered first, followed by negative life events, negative or traumatic first childbirth experience, physical and psychological characteristics of participants' pregnancies, and finally by delivery-related medical procedures. In this analysis, both the demographic variables and the negative life events were found to be non significant, therefore only three steps of the regression are presented in Table 4.

As shown in Table 4, the full model explained 37% of the variance. The findings show that a negative first childbirth experience was the strongest predictor of a negative second childbirth experience, contributing 33% of the explained variance. Negative feelings during pregnancy and CS made a small but significant contribution to mothers' negative second childbirth experience, each adding 2% to the explained variance in the model.

Table 4

Hierarchical Regression Coefficients of Traumatic First Childbirth Experience, Fears and Anxiety during Pregnancy, and Delivery-Related Medical Procedures on Negative or Traumatic Second Childbirth Experience (n=284)

Predictor	B	Standard Error	Beta	R^2
Step1				0.33***
Negative or traumatic first childbirth experience	0.54	0.05	0.58***	
Step 2				0.35***
Negative or traumatic first childbirth experience	0.53	0.05	.0.57***	
Fears and anxiety during pregnancy	0.34	0.13	0.13**	
Step 3				0.37**
Negative or traumatic first childbirth experience	0.51	0.05	0.55***	
Fears and anxiety during pregnancy	0.32	0.13	0.13*	
C-section	0.60	0.23	0.13**	

* p≤.05, **p≤.01, ***p≤.001

Hierarchical regression analyses were conducted to determine the contribution of the research variables to variance in PPD. The same set of variables along with the number of negative or traumatic childbirth experiences were regressed on the EPDS. The variables that were retained in the final model include working outside the home, child sexual abuse, and number of traumatic births. These variables together explained 27% of the variance in PPD. Childhood sexual abuse was found to be the strongest predictor of PPD, adding 15% to the explained variance in the model.

DISCUSSION

Our findings indicate that in this multi-ethnic sample, experiences of both physical difficulties and fears during pregnancy tended to increase with each child. Women reporting a diagnosed medical risk regarding themselves or their fetus were found to have a significantly increased risk of experiencing fears and anxiety during pregnancy. These results are in line with prior findings suggesting that the child's

Table 5

Hierarchical Regression Coefficients of Demographic Characteristics, Negative Life Events, and the Number of Negative or Traumatic Childbirth Experiences on PPD (n=65)

Predictor	B	Standard Error	Beta	R^2
Step1				0.07*
Working outside of the home	-3.96	1.74	-0.27*	
Step 2				0.22**
Working outside of the home	-3.48	1.62	-0.24*	
Childhood sexual abuse	8.85	2.66	0.37**	
Step 3				0.27*
Working outside of the home	-2.79	1.62	-0.19	
Childhood sexual abuse	9.04	2.60	0.38***	
The number of negative or traumatic childbirth experiences	1.49	0.75	0.22*	

* p≤.05, **p≤.01, ***p≤.001

and mother's well being is one of the major sources of fear during pregnancy (Fisher et al., 2006; Gupton et al., 2001; Melender, 2002; Tsui et al., 2006).

Fears and anxiety during the course of pregnancy increased the probability of experiencing a negative and traumatic childbirth, and were also significant predictors of negative or traumatic experiences in subsequent childbirths. Similar results were reported by Saisto et al. (2001) and Hauck et al. (2007) indicating that negative emotions during pregnancy affect the subsequent childbirth experience. Furthermore, a negative and traumatic first childbirth experience was found to be the strongest predictor of a negative and traumatic second childbirth. Prior researchers have demonstrated that a previous negative childbirth experience increases fear of childbirth in subsequent childbirths (Fisher et al., 2006; Melender, 2002; Saisto & Halmesmaki, 2003), which are then more likely to result in medical interventions during childbirth and subsequent psychological complications (Hoffberg & Ward, 2003; Tsui et al., 2006). This, according to Hoffberg and Ward (2003), reflects the "vicious cycle principle", whereby women's expectations regarding the anticipated childbirth may influence their actual childbirth experience.

Deliveries by CS or vacuum extraction correlated significantly with negative and traumatic childbirth experiences and were the strongest predictors of a negative or traumatic first childbirth experience. Given the findings associating fear of childbirth with both an emergency and an elective CS (Saisto & Halmesmaki, 2003; Tsui et al., 2006), it is not quite clear whether CS, in and of itself, or rather fear of childbirth leading to surgical interventions accounts for the association between CS and negative or traumatic childbirth experiences. Support for the latter possibility may be derived from our findings indicating that a previous negative birth experience, which is known to intensify fears about a subsequent childbirth, is a much stronger predictor of a negative second childbirth experience than CS. Further research is needed to determine the role that medical interventions play in shaping women's childbirth experiences and subsequent family spacing decisions and such research could benefit from a community-based, prospective cohort study design.

With regard to negative life events, women who reported a history of childhood sexual abuse and/or had recently experienced domestic violence were more likely to experience a negative or traumatic childbirth. Results of previous studies of the effects of childhood sexual abuse and domestic violence on both pregnancy and childbirth outcomes are equivocal. While some investigators have shown that childhood sexual abuse and domestic violence are linked with detrimental pregnancy and birth outcomes (Bohn & Holz, 1996; Cokkinides, Coker, Sanderson, Addy, & Bethea, 1999; Heimstad et al., 2006; Jacobs, 1992; Janssen et al., 2003; Jasinski, 2004), others have not confirmed this link (Benedict, Paine, Paine, Brandt, & Stallings, 1999; Gazmararian et al., 2000). This inconsistency, which may stem from the differences in the data collection methodologies (e.g., personal interviews by a health-care professional or self-reported questionnaires administered by a research assistant), suggests the need for further research on the relationship between these life events and experiences of pregnancy and childbirth.

Interestingly, our findings show that previous fertility problems significantly decreased the risk of experiencing a negative or traumatic childbirth. Perhaps the prolonged anticipation for a child mitigates perceived experiences of pain and distress related to childbirth. Another possible explanation is that women with a history of fertility problems receive greater support and attention from the medical staff during both pregnancy and childbirth, which in turn mediates their experience of pain and fear during childbirth. Support for this explanation is derived from findings indicating the important

role that supportive midwives (Fisher et al., 2006) or trained doulas (Campbell, Lake, Falk, & Backstrand, 2006) play in promoting women's sense of control and decreasing their fears and anxieties during childbirth.

The importance of social support with regard to women's positive experiences of childbirth is reflected in the fact that women with a higher percentage of friends who spoke their native language were less likely to report negative experiences of childbirth than women with a lower percentage of such friends. Women may feel more comfortable sharing their childbirth-related fears and concerns with people of their own culture, an issue that is particularly important for immigrant women who make up a high proportion of birthing women in the multi-ethnic Negev region. Increased sharing of ones concerns may enhance the amount of support a woman receives, which in turn may lessen her fear and anxiety in childbirth.

One aim of the current study was to examine the prevalence of PPD among women in the Negev region. As mentioned earlier, this region, in comparison to all other regions of Israel, is characterized by wide variations in ethnic groups, socio-economic groups and immigrant status (Negev Development Authority, 2007). The investigation of the postpartum experiences of women in the Negev, thus, provided a context to explore the potential impact of social and cultural factors on the development of PPD. Given the findings demonstrating that socioeconomic indicators, cultural factors and immigrant status are significant risk factors of PPD (Eilat-Tsanani et al., 2006; Halbreich & Karkun, 2006; Robertson et al. 2004), we expected to find a higher prevalence of PPD in the Negev region than that reported in previous studies of Israeli samples. This expectation, however, was not confirmed by our findings showing that the prevalence of PPD in the current sample (15.2%) was comparable to that found in previous studies of Israeli samples (10%-23%) (Fisch et al., 1997; Dankner et al., 2000; Eilat-Tsanani et al., 2006; Glasser et al., 1998).

Childhood sexual abuse was a significant risk factor for PPD and also the major predictor. These findings are in accordance with prior findings suggesting that women with a history of childhood sexual abuse have a significantly increased risk for PPD (Buist, 1998; Leeners, Richter-Appelt, Imthurn, & Rath, 2006). The current findings also indicate the potential for employment outside the home as a mitigator of PPD, a finding consistent with previous research findings (Eilat-Tsanani et al., 2006; Robertson et al., 2004). The number of traumatic or negative childbirth experiences was found to be a small

but significant predictor of PPD. To the best of our knowledge, there are no other published studies to date of the relationship between the number of traumatic birth experiences and PPD.

Nevertheless, a number of investigators who have examined the effects of obstetric factors on postpartum outcomes have shown that pregnancy and delivery complications (i.e., CS, forceps delivery) make a small but significant contribution to the development of PPD (see Robertson et al., 2004 for a review). The relationship between obstetrical complications and PPD, however, was not confirmed by the findings of Rigghetti-Veltema et al. (1998), which suggests that the subjective feelings regarding pregnancy and delivery are more relevant factors concerning PPD than are objective obstetrical events. Indeed, findings of a recent study showed that a difficult experience of delivery was a significant positive predictor of anxiety, which is regarded as a subsidiary component of PPD (Tuohy & McVey, 2008). The current findings, indicating that women's self-defined childbirth experience rather than the mode of delivery was a predictor of PPD, provide further evidence for the importance of women's subjective experience of childbirth regarding PPD. Future study is needed of the relationship between PPD and both adverse experiences of childbirth and the number of such experiences.

Several limitations of the current study should be acknowledged. The first limitation is that data were based only on telephone interviews. A second limitation is that the data are based on self-reports without corroboration with medical records. Inclusion of medical data from hospital records would have strengthened the results. However, in this context, Clark, Kroenke, Callahan, and McDonald (1999) argue that subjective reported measures of health have validity. Indeed, 46% of the sample had high school education or less and were still equally able to recall details of birth experiences compared with more educated women. This is encouraging for future research on diverse populations of women from different socio-economic backgrounds.

Another limitation is that women's negative appraisals of their pregnancy and birth experiences also may be due to prenatal or PPD. Lastly, no detailed data were collected to distinguish between emergency and elective CS, which may have different effects on postpartum experiences. Given the Israeli national rates of 93% emergency CS of all CS (Manakota et al., 2008), we assumed that the vast majority of reported CS procedures in our sample were in fact emergency ones.

Despite these limitations, the findings of this study extend prior

research on the reproductive experiences of women by providing a comprehensive picture of the interrelations between women's pregnancy, childbirth and postpartum experiences, and the dynamics that may be associated with them. Further research using a prospective study design among community-dwelling women may provide a better understanding of the subjective and objective factors involved in shaping women's reproductive experiences.

In summary, the high prevalence of women reporting negative or traumatic birth experiences reinforces the importance of professional support and psychosocial education for women regarding the challenges they may encounter in pregnancy, childbirth and the postpartum period. In light of the steadily increasing rate of CS in the Israeli hospital system, community care follow-up is indicated to help women process their birth experiences. Whereas, antenatal care should include early identification of women at high psychosocial and medical risk, due to changes in the Israeli health care system in the past decade, both antenatal and postpartum care for women has been increasingly cut back. Preventive treatments also are needed within the primary health care system aimed at providing these women with adaptive coping strategies and the ability to reframe their debilitating perceptions regarding pregnancy and childbirth. This, in turn, may prevent future exacerbation of co-morbidity. Thus, health organizations such as clinics and hospitals are called to broaden their therapeutic approach to maternity care by addressing both a woman's life history and current social and psychological status in addition to the objective obstetrical factors. By doing so, they may better prepare women to cope with potential challenges in the intrapartum and postpartum periods and also may promote the well being of their families and children.

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