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The influence of childbirth experiences on women's postpartum traumatic stress symptoms: A comparison between Israeli Jewish and Arab women

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ABSTRACT

Background: childbirth is a positive experience for most women yet some women express distress after birth. Traumatic experience can sometimes cause post-traumatic stress disorder (PTSD) in relation to childbirth. Prevalence of traumatic birth experience and PTSD after childbirth differs between cultures.
Objectives: to examine the subjective recall of childbirth experiences and PTSD symptoms of Israeli Jewish and Arab women; to examine comparatively the prevalence of PTSD symptoms six to eight weeks after childbirth and to establish the factors that predict PTSD symptoms.
Methods: a prospective study was conducted in a region characterised by wide variations in ethnocultural groups. The study was comprised of two time points: Time 1 (T1) interviews were conducted at the bedside of the women in the maternity ward of each hospital 24–48 hours after childbirth. Time 2 (T2), all 171 women participating in T1 were interviewed by phone six to eight weeks after childbirth.
Findings: 34 women (19.9%) reported their labour as traumatic 24–48 hours after birth (T1), and six to eight weeks later (T2) 67 women (39.2%) assessed their experience as traumatic. More Arab women (69.6%) than Jewish women (56.5%) had a positive memory of childbirth, but this difference only approached statistical significance ($p=.09$). Results showed rather low frequencies of PTSD symptoms, and no ethnic difference. PTSD symptoms were significantly and positively predicted by subjective recollection of childbirth experience (Time 2). PTSD symptoms were higher for women who did not have a vaginal birth, and more women with PTSD symptoms were not breast feeding.
Conclusions: we found more similarities than differences between Arab and Jewish women's experience of their births and no differences between them on the prevalence of PTSD symptoms after birth. The results suggest that non-vaginal birth (instrumental or caesarean section) and negative recollection of the childbirth experience are important factors related to the development of PTSD symptoms after birth, and that women with PTSD symptoms are less likely to breast feed.

Introduction

Childbirth is a positive experience for most women yet some women express distress after birth due to experiencing a very painful ordeal, often associated with feelings of being out of control (Sarid et al., 2011; Halperin et al., 2013). Results from a study conducted in the Atlanta metropolitan area (USA) showed that 34–55% of the women experienced their births as traumatic (Soet et al., 2003). In an Israeli sample, traumatic births were described by 31.8% of the women (Sarid et al., 2011).

Results from other studies showed while childbirth experiences are sometimes viewed as traumatic, less than 10% of women report symptoms of post-traumatic stress disorder (PTSD) in relation to childbirth (Ayers and Pickering, 2001; Ayers, 2007). A higher percentage of women report symptoms but do not meet the diagnostic criteria (Beck, 2004b; Alder et al., 2006; Olde et al., 2006; Alcorn et al., 2010; Andersen et al., 2012; Polachek et al., 2012).

Some of the described risk factors for reporting traumatic experiences or PTSD symptoms resulting from childbirth are anxiety and depression during pregnancy and prior experience of a traumatic birth (Sarid et al., 2011; Polachek et al., 2012), high levels of obstetric intervention, the use of emergency procedures during birth (Segal-Engelchin et al., 2009), perception of inadequate support during labour (Ayers et al., 2014), subjective report of loss of control and

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helplessness in labour (Beck, 2006), and lack of partner support during the pregnancy and birth process (Ayers et al., 2014). Prevalence rates of postpartum PTSD rise when mothers were antenatally exposed to rape, domestic violence, war, motor vehicle accidents, injuries, and manifested distressing symptom behaviours (Lev-Wiesel et al., 2009). The higher rates of PTSD after birth among these women are explained as a re-experience of traumatic events prior to birth (Griebenow, 2006).

PTSD resulting from traumatic childbirth negatively affects mothers' quality of life both on the short- and long-term basis (Beck, 2004a, 2004b; Beck and Watson, 2008). Women who experience traumatic childbirth have fewer subsequent children and have a longer interval to the second baby (Gottvall and Waldenström, 2002). Postpartum PTSD also negatively affects women's relationship with their partners (Ayers et al., 2006; Iles et al., 2011). Women suffering from PTSD felt isolated from the world of motherhood as they distanced themselves from their infants and other mothers with infants possibly to avoid triggers of their traumatic childbirth (Bailham and Joseph, 2003; Beck, 2004a; Parfitt and Ayers, 2009; Muzik et al., 2013).

The impact of ethno-cultural background on the prevalence of PTSD has been studied in different cultural settings. Findings showed that prevalence of PTSD after childbirth differs between cultures. For example, the reported prevalence of diagnosed PTSD after childbirth ranges from .9% among German women (Pantlen and Rohde, 2001), 1.5–3% and 1.9% among UK and US women respectively (Ayers and Pickering, 2001; Soet et al., 2003), and close to 6% among Nigerian (Adewuya et al., 2006) and Australian women (Creedy et al., 2000). A higher prevalence of 9% was found in Sweden (Tham et al., 2007). In a recent Israeli study, the prevalence of postpartum PTSD was 3.4% (complete PTSD), 7.9% sub-clinical PTSD, and 25.9% for significant symptoms of PTSD (Polachek et al., 2012). The different rates of PTSD can reflect different social norms and expectations embedded in each culture regarding childbirth including the physiological processes of labour and birth. Alternatively, it may reflect the differences in the provision of maternity care (e.g. intervention rates, women's feelings of choice and control; the way services are organised and delivered). The Israel health system implements adequate planning and delivery of care and support services in a multicultural society. Israeli Jewish and Arab women share Israeli residency, citizenship and access to the Israeli medical system. The medical and nursing staff in the maternity wards in Israel, especially in the North, is a mixture of Arab and Jewish midwives and doctors and the treatment is equitable.

As a multi-ethnic, cultural, religious, and lingual society, Israel has a high level of informal segregation patterns. Although groups are not separated by official policy, – a number of different sectors within the society have chosen to lead a different lifestyle, maintaining their strong cultural, religious, ideological, and/or ethnic identity (Jabareen, 2006). The vast majority of Arab Israelis have chosen to maintain their distinct identity. Although they coexist as two separate communities, over the years Jewish and Arab Israelis have come to accept each other, acknowledging the uniqueness and aspirations of each community and participating in a growing number of joint endeavours (Bard and Berman, 2012). Cultural values serve as an important framework for understanding an individual's beliefs about major life events. A transition such as birth is considered a significant life event that is particularly affected by the cultural context (Cassar, 2006).

Findings from previous studies showed that complaints and high levels of distress are related to higher risk of PTSD symptoms (Roca and Freeman, 2001; Carlozzi et al., 2010). Findings from a recent study (Halperin et al., 2013) showed that one day after childbirth, Israeli Arab women compared to Jewish women reported more distress expressed as more fear for themselves and fear for the baby's safety during labour. In addition, more Arab women rated their childbirth experience as traumatic, and had more medical interventions during their labour and birth, such as induction of labour, episiotomy, analgesics and vacuum extraction. It was also found that overall, labour pain and medical interventions were associated with a negative birth experience and that the more negative the experience of childbirth was evaluated, and the greater the assessment of pain, the lower the satisfaction was with the childbirth experience (Halperin et al., 2013).

Previous studies suggested possible explanations that relate the impact of negative responses to the childbirth experience to the increase of negative perceptions over time (Waldenström, 2004; Conde et al., 2008). This can lead to re-experiencing symptoms of PTSD. Memory disturbance are common in the presentation of PTSD. These can be manifested by intrusive memories of the traumatic event or the inability to recall some aspects of the trauma (Samuelson, 2011). PTSD patients' tendency to recall and focus on negative memories may in turn limit their capacity to consider positive experiences in their lives that are contrary to the negative memories of the trauma. This tendency may contribute to the retrieval of memories that maintain negative mood states. The tendency to focus on negative memories, and regard them as self-defining, is described in the literature as a vulnerability to develop PTSD (Sutherland and Bryant, 2005). In this context our previous findings point to more negative perceptions among Arab women versus Jewish women towards their birth experiences as a possible risk factor to future negative perception (Halperin et al., 2013).

Few previous research studies on the possible impact of ethnicity on PTSD symptoms have been found and none on groups such as Israeli Jewish and Arab women. In the current study we thus seek to examine the subjective recall of childbirth experiences and PTSD symptoms of Israeli Jewish and Arab women. The first aim of this study is to examine comparatively the prevalence of PTSD symptoms six to eight weeks after childbirth and the second aim is to establish the factors that predict PTSD symptoms.

Methods

Research design

This prospective study was conducted in two postpartum units of two major public hospitals in the Northern part of Israel, a region characterised by heterogeneity in ethno-cultural groups (Israel Central Bureau of Statistics, 2012).

Inclusion criteria were: women after first or second birth, who spoke and understood Hebrew and gave birth at 34–42 weeks gestational age to a living single child. Israeli Arab women tend to speak Arabic as a first language but are typically fluent in Hebrew as well, thus, this inclusion criterion did not exclude them. Questionnaires were given to 230 women at their bedside in the maternity ward of each hospital. The sample was derived from the total population of women who gave birth in one year as either a first or second birth at two major hospitals. This sample size approached the criteria for statistical power that was calculated using EPI-INFO. A sample of 266 respondents was required based on calculating two sided significance level (1-alpha) of .95, while a sample of 216 was required based on one-sided significance of .90, and power based on (1-beta), 80% chance of detection. However, in one year complete questionnaires were obtained from only 171 women (74.3% response rate). Thus, the sample size limits our statistical power.

The study was comprised of two time points: Time 1 (T1) interviews were conducted at the bedside of the women in the maternity ward of each hospital 24–28 hours after childbirth. Results from this time point are described elsewhere (Halperin et al., 2013). Time 2 (T2): Between August 2011 and August 2012, six to eight weeks after labour, all women participating in T1 were interviewed by phone. In the T2 interview, women were first asked about PTSD symptoms and then

about how they recalled their childbirth experiences to reduce recall bias and the colouring of postpartum events by traumatic stress.

Participants

The participants consisted of 171 Israeli Jewish (67.3%, $n=115$) and Arab women (32.7%, $n=56$). For two-thirds of the women this was their second childbirth ($N=114$, 66.7%) and the rest were primiparae ($N=57$, 33.3%). The great majority of Arab women (92.9%) and Jewish women (73.9%) were Israeli born ($N=85$, $\chi^2=10.13$, $p<.01$). Jewish women who were not born in Israel originated from the former Soviet Union (see Table 1).

In summary, the great majority of women were married and born in Israel. Jewish women tended to be older, employed, to have a higher degree of education and a higher proportion of them were secular.

Scales

PTSD Symptom scale (Solomon et al., 1992; Foa et al., 1993): The 17 items in the PSS-SR are grouped into three symptom clusters: intrusion (four items), avoidance (seven items), and arousal (six items). Participants rated the severity of each symptom over the past four weeks on a four-point scale, ranging from 0=not at all to 3=very much. A positive screen for meeting the criteria necessary for a diagnosis of post-traumatic stress disorder can be made when the participant endorses at least one intrusion, three avoidance, and two arousal symptoms (Coffey et al., 1998). Cronbach's alpha was .95 for the total score and .77, .92, and .87 for intrusion, avoidance, and arousal subscales, respectively.

The PSS-SR does not provide a diagnosis of post-traumatic stress disorder but rather a positive screen indicating a high likelihood of the disorder. Total scores can range from 0 to 51. A total PSS-SR score of 12 or higher reflects that the woman is suffering from several post-traumatic stress symptoms.

Childbirth variables were collected from the self-report questionnaire that was administered to the women at T1 (Halperin et al., 2013). The questionnaire included the following:

1. Childbirth number (0=first, 1=second).
2. Duration of birth in hours.
3. Assessment of childbirth as traumatic. Answers were given as 0=no, 1=yes.
4. Past trauma – one general question (past traumatic labour) with two possible answers (0=no, 1=yes).
5. One question measure pregnancy complications. Respondents were asked whether there were any complications during their pregnancy (preeclampsia, gestational diabetes, etc.) (0=no, 1=yes).
6. Vaginal birth (0=no, 1=yes). Other options were considered as medically traumatic (used forceps, vacuum extraction, emergency C-section). These data were extracted from the women's medical record.
7. Stress during childbirth: used forceps, vacuum extraction, episiotomy, emergency C-section, newborn received special care, medical problems to mother or newborn after birth (for each 0=no, 1=yes). A higher number of procedures meant more negative experiences during childbirth based on the women's approach.
8. Extent of pain during labour (0–100). Women gave a self-report evaluation to their experience of pain.
9. Breast-feeding. Answers were given as 0=no, 1=yes (yes means exclusive or partial breast-feeding).

Previous stressful life events – They were measured using Traumatic Events Questionnaire (TEQ). The TEQ assesses experiences with nine specific types of traumatic events (e.g. accidents, crime, adult abusive experiences) reported in the empirical literature as having the potential to elicit PTSD symptoms (Vrana and Lauterbach, 1994). Each question has two possible answers (0=no, 1=yes). Cronbach's alpha =.91. This questionnaire has been used in other studies of trauma and childbirth (Lev-Wiesel et al., 2009; Schwerdtfeger and Shreffler, 2009).

Demographic variables – Ethnicity (Jewish/Arab – two self-segregated communities. Jewish and Arab Israelis have come to accept each other, acknowledging the uniqueness and aspirations of each community), age, education, marital status, religiosity, place of birth, number of previous deliveries or pregnancies, and number of children.

The study protocol was approved by the Helsinki Committee of the two medical centres. We obtained informed consent at the onset of the self-completion questionnaire 24–48 hours post childbirth and their telephone number for the second phase of the study. The questionnaire was not translated into Arabic because the Arab population in the north, although Arabic is their mother tongue, learn

Table 1
Distribution of the women's demographic characteristics by ethnicity ($N=171$).

		Total (n=171)		Jewish (n=115)		Arab (n=56)		Difference
		N	%	N	%	N	%	
Family status	Single	8	4.7	7	6.1	1	1.8	$\chi^2(1)=2.50$ (married versus not married)
	Married	161	94.2	106	92.2	55	98.2	
	Divorced	2	1.2	2	1.7	–		
Place of birth	Israel	137	80.1	85	73.9	52	92.9	$\chi^2(1)=10.13$**
	Other	34	19.9	30	26.1	4	7.1	
Education	Elementary	2	1.2	–		2	3.6	$\chi^2(3)=10.45$*
	High school	62	36.2	35	30.4	27	48.2	
	Professional	27	15.8	19	16.5	8	14.3	
	Academic	80	46.8	61	53.0	19	33.9	
Employment	Yes	137	80.1	104	90.4	33	58.9	$\chi^2(1)=23.47$***
Religiosity	Religious	25	14.6	14	12.2	11	19.6	$\chi^2(2)=24.05$***
	Traditional	58	33.9	27	23.5	31	55.4	
	Secular	88	51.5	74	64.3	14	25.0	
Age (18–41)		$M=28.95$ SD=4.81		$M=30.43$ SD=4.14		$M=25.91$ SD=4.68		$t(169)=6.42$***

* $p<.05$.
** $p<.01$.
*** $p<.001$.

Hebrew alongside Arabic in their natural environment (Rubanovsky, 2005).

Statistical analyses

Data regarding demographics as well as childbirth recall are presented with frequencies, means and standard deviations. Ethnic differences between Israeli Jewish and Arab women are calculated with χ^2 tests; suitable for the comparison of nominal and ordinal variables between two groups. Postpartum symptoms are described with means and standard deviations.

For examining the mean PTSD symptoms between the two groups, we conducted a series of *t*-tests. In order to predict PTSD symptoms we conducted a hierarchical linear regression in four steps. PTSD symptoms were used as a continuous variable. Our sample size had low power to support the null hypothesis of no ethnic differences (effect size=.37 as calculated for Table 2, alpha=.05, power=.62). However, the sample size had sufficient power for the regression analysis (effect size=.17 as calculated for Table 3, alpha=.05, power=.99).

Findings

Results are presented according to the study aims. The first aim of this study is to examine comparatively the prevalence of PTSD symptoms six to eight weeks after childbirth among Israeli Arab and Jewish women. Post birth PTSD symptoms are presented in Table 2.

Results in Table 2 show rather low symptom means in both ethnic groups, with no significant difference between them. Only 16 women (9.4%) met the clinical criteria of post trauma, nine of them Jewish (7.8%), and seven Arab (12.5%) (χ^2 (1)=.97, p=.325).

Childbirth was evaluated dichotomously as traumatic/non-traumatic by the women immediately after labour. Six to eight weeks later they were asked to assess the childbirth experience as positive or traumatic. Among participating women, 34 (19.9%) reported their labour as traumatic 24–48 hours after birth (T1), and six to eight weeks later (T2) 67 women (39.2%) assessed their experience as traumatic. It is interesting to note that at T2 about 60% of the women (N=104, 60.8%) had a positive memory of childbirth, with an ethnic difference that approached statistical significance (χ^2=2.72, p=.09, 56.5% of Jewish women, and 69.6% of Arab women).

The second aim is to examine factors that predict PTSD symptoms, which were assessed six to eight weeks later (M=7.63, SD=9.56). Prediction of PTSD symptoms was conducted with a hierarchical linear regression. Ethnicity, age, past stressful life events and past trauma were used as control variables. Other independent variables were birth number, duration of birth, vaginal birth, stress during childbirth, negative experience of childbirth, extent of pain during labour, breast feeding and the recollection of childbirth trauma (T2). Due to the multitude of birth related independent variables and the aspiration for a concise regression model, a preliminary hierarchical regression was conducted with PTSD symptoms as the dependent variable and the six birth related variables as predictors. This regression model was not significant (F (6, 165)=1.27, p=.276) yet vaginal birth was found a significant predictor (β=−.07, p=.042). Thus, the final hierarchical regression model included ethnicity, age, past stressful life events and past trauma at step 1, vaginal birth at step 2, breast feeding at step 3, and the recollection of childbirth trauma (T2) at step 4. The regression is presented in Table 3.

The first step in the model for predicting PTSD symptoms was comprised of ethnicity, age, past stressful life events and trauma and pregnancy complications. The independent variables did not predict PTSD symptoms. The second step which included the type of birth explained 2.7% of the variance. The third step added breast feeding and explained 5.4% to the variance. The fourth step which was subjective recollection at T2 added another 7.8% to the variance. All in all, the model explained 17.8% of the variance in predicting PTSD symptoms. Findings demonstrate that PTSD symptoms are significantly and positively predicted by subjective recollection of childbirth experience (Time 2) but not by ethnicity. PTSD symptoms were higher for women who did not have a vaginal birth, and more women with PTSD symptoms were not breast feeding.

Discussion

Childbirth is described as a multifaceted experience. A sense of security and perceived control, experienced level of labour pain, personal support, midwifery care, experience of earlier deliveries, intrapartum analgesia, information given and involvement in decision-making contribute to the childbirth experience (Hodnett, 2002; Green and Baston, 2003; Hodnett et al., 2007; Ford et al., 2009). Unplanned medical interventions during childbirth, e.g. oxytocin augmentation, emergency caesarean and operative vaginal deliveries, intrapartum complications and need of neonatal intensive care are reported in the literature as related to maternal distress (Gottvall and Waldenström, 2002; Hildingsson et al., 2002; Rubertsson et al., 2003).

Women's overall experience of labour and birth may be described in both a positive and negative fashion, and it is an important outcome of labour, as it has the potential for a permanent or long-term positive or negative impact on women's lives and their future reproductive plans (Waldenström, 2003). The childbirth experience assumes a unique meaning for each woman (Costa et al., 2003). Most women in the current study had a positive memory of childbirth, with no ethnic differences. Waldenström (2003) found that over the first six postpartum months, mothers showed a tendency to minimise the negative feelings, worries and pain felt during the childbirth experience and, on the other hand, to maximise the positive feelings felt at that time. Conde and colleagues (2008) showed that women with worse perceptions of the childbirth experience seemed to intensify and increase their negative perceptions over time, whereas the positive aspects remained consistently positive in most cases.

In our study, negative recollection of the experience was higher for women who, in the hospital, have rated childbirth as traumatic. This may have at least two explanations. Immediate postpartum assessments may be coloured by either a halo effect or denial. The halo effect is a result of the woman's relief at having come through the experience safely, with a healthy baby, whereas denial is the first stage of a grief reaction, when expectations have not been met, long-term memories were more negative (Hodnett, 2002). In a comparison of

Table 2
Distribution of post birth PTSD symptoms by ethnicity (N=171).

	Total *M* (SD)	Jewish *M* (SD)	Arab *M* (SD)	Difference (*t* (169)
Total symptoms score (range 0–51)	7.63 (9.56)	7.34 (9.93)	8.23 (8.80)	.57
Intrusion (range 0–15)	2.26 (2.58)	2.23 (2.64)	2.32 (2.49)	.23
Avoidance (range 0–21)	2.59 (4.46)	2.54 (4.65)	2.70 (4.09)	.22
Arousal (range 0–15)	2.78 (3.22)	2.57 (3.24)	3.21 (3.15)	1.22

Table 3
Hierarchical linear regression for PTSD symptoms ($N=171$).

	PTSD symptoms		
	B	SE	*β*
Step 1			
Ethnicity	1.40	1.60	.07
Age	−.12	.17	−.06
Past stressful life events	−.70	1.42	−.04
Past trauma	−.63	1.64	−.03
Pregnancy complications	−1.74	1.49	−.09
		$R^2=.018$, ns.	
Step 2			
Vaginal birth	−2.88	1.41	−.15*
		$\Delta R^2=.027$*	
Step 3			
Breast feeding	−3.08	1.41	−.17*
		$\Delta R^2=.054$**	
Step 4			
Subjective recollection of childbirth experience (T2)	5.64	1.45	.30***
		$\Delta R^2=.078$***	
Model		$R^2=.178$, $F(8, 162)=4.30$***	

* $p<.05$.
** $p<.01$.
*** $p<.001$.

women's memory of childbirth at two months and one year after the birth, it was found that some women had become more negative over time (Waldenström, 2003). We assessed the women's recollection of the experience of labour and birth six to eight weeks after the birth, and we also found that the negative assessment of the birth experience increased over time.

Many studies compared women who were less than very satisfied with those who were very satisfied, whereas, in the current study, we compared those who had a negative experience of labour and birth with those who had a positive experience or mixed feeling. Women's birth experience may be measured too soon after the birth, and their response may then be coloured by the happiness of having given birth to a healthy baby, which may mask other reactions (Bennett, 1985). Another problem is that satisfaction with the experience of labour and birth is often not disentangled as a separate outcome from satisfaction with intrapartum care, despite the possibility that the quality of care received may affect women's overall assessment of the birth.

Childbirth is one of the most painful events that a woman is likely to experience. Research has shown that the recall of pain intensity felt during childbirth experience is generally fairly accurate or, instead, is perceived as less severe over time (Niven and Murphy-Black, 2000). Studies also show that women's memories of pain, labour and overall childbirth experience changed in opposite directions: in general, pain became less severe, whereas the overall perception of childbirth became more negative over time (Simkin, 1991; Waldenström, 2004; Ayers et al., 2014).

Although childbirth pain is a unique experience for each individual woman, how the woman perceives and makes meaning of her pain, as well as her pain related behaviours while giving birth, are culturally defined (Baker, et al., 2001; Moore and Moos, 2003). Women give birth within their sociocultural context, which affects the psychosocial and physiologic perceptions of pain (Shilling, 2000; Callister, 2003). Because studies of childbirth pain depend on retrospective recall, previous emotions and expectations concerning pain may be overshadowed by positive maternal and newborn outcomes.

A painful birth is just as likely to have a positive evaluation as one without pain, depending on the woman's feelings of fulfilment (Callister, 2003). Childbirth pain is unique and complex, differing from the pain of disease, trauma, or medical and/or surgical procedures (Niven and Murphy-Black, 2000) and is usually characterised by the generally positive event of giving birth. Maternal self-efficacy or confidence in women's ability to cope makes a difference in the ability to manage the pain of childbirth.

A fifth of the women in the our study reported labour as traumatic close to the time of childbirth, while six to eight weeks later twice as many women assessed their experience as traumatic. This could be due to three factors: (1) Negative changes in the mothers' perceptions of childbirth experience over time could be due to the relief felt when the delivery is finished and to euphoric reactions associated to the birth of a healthy baby that may brighten up the immediate perception. However, over time new memories come to the fore and may express a more balanced view. Women have the opportunity to think about their childbirth experience and deal with its negative aspects, such as long labour, medical interventions, or an unsatisfactory relationship with the caregiver. (2) Another factor could be that infant outcomes, such as functional problems or hospital care provided during the first year, could interfere in the mothers' perceptions of childbirth. Psychosocial factors, such as depression, lack of the partner's support, or fear of childbirth can also have an impact on the construction of this perception over time (Simkin, 1991; Waldenström, 2004; Ayers et al., 2014). (3) Third factor may be due to the ethnicity background. Results from our previous study showed that more Arab women rated their childbirth experience as traumatic, and had more medical interventions during their labour and birth, such as induction of labour, episiotomy, analgesics and vacuum (Halperin et al., 2013). Unplanned medical interventions during childbirth, (e.g. oxytocin augmentation, emergency caesarean and operative vaginal deliveries, intrapartum complications and need of neonatal intensive care) are related to maternal dissatisfaction (Waldenström, 2004; Nystedt et al., 2005; Dencker et al., 2010).

The expression of pain has been shown to differ in various ethnic groups (Callister, 2003). Two Israeli studies found that behavioural expressions of pain were more evident in the Arab women than among the Jewish women (Weisenberg and Caspi, 1989; Rassin et al., 2009). Flannery et al. (1981) detected no statistically significant differences, comparing pain due to episiotomy among Black, Irish, Protestant Anglo-Saxon and Jewish women. Results from another study are not conclusive pointing to small association between age, sex, race, education and pain variables (Garron and Leavitt, 1979). Compared with White women, twice as many ethnic minority women

worried about pain and discomfort, not knowing how long labour would take and about embarrassment during labour and birth (Redshaw and Heikkilä, 2011).

Results from a study comparing Jewish and Bedouin Arab women showed that self-assessments of pain intensity levels in the initial active phase of labour were similar. However, Jewish medical staff tended to under-estimate the felt pain of Bedouin women. However, on the day after childbirth the Jewish women's evaluation of their present pain intensity level resembled that of the Bedouin women again (Sheiner et al., 1999).

It has been noted that 'satisfaction with childbirth is not contingent on the absence of pain' (Enkin et al., 2000, p. 328), as women in some cultural groups view pain as a necessary and integral part of the birth experience (Hodnett, 2002). This may explain why there were a slightly greater percentage of Arab women who described their birth experience as positive.

The differences in pain level can be related to interdependent cultures where the focus is the social context rather than on the person such as the Arab-Muslim culture (Green et al., 2005). Interdependent culture is associated with a sense of duty towards one's group, interdependence with others, a desire for social harmony and conformity to social norms, and roles and status defined within the group (Green et al., 2005). Discussing the individual's life story, personal identity, and uniqueness may be viewed as abnormal, immature, or arrogant, i.e. culturally inappropriate (Jobson and O'Kearney, 2008). Therefore, the social role of trauma survivor/victim contradicts the interdependent cultural expectations of a communal self. On the other hand, an emphasis on the communal self may also result in less acknowledgement, tolerance, discussion and in turn assistance of trauma survivors of particular trauma types that disrupt the group and community, such as rape and domestic violence. Members of interdependent cultures may have reason to suppress trauma-related cognitions pertaining to such trauma types due to these cultural sanctions.

During childbirth, in addition to or in place of analgesia, women manage pain using a range of coping strategies. Antenatal education provides an opportunity prior to birth to help women to prepare for an often painful event (Escott et al., 2009). Many women would like to avoid pharmacological or invasive methods of pain management in labour and this may contribute towards the popularity of complementary methods of pain management such as acupuncture, mind–body techniques, massage, reflexology, herbal medicines and music. Most of these methods, as well as pharmacological methods, are used in the maternity wards were the study took place. The women who attend antenatal education classes are exposed to them and use them more often than women who do not attend those classes.

The model for PTSD symptoms in the current research is significant, but does not support an ethnic difference in the development of PTSD symptoms following birth. However, this finding must be viewed cautiously in light of the low statistical power due to small sample size. Findings demonstrate that PTSD symptoms are significantly predicted by subjective recollection of childbirth experience (Time 2). This finding is consistent with other studies. Zauderer (2014) stated that women who experience a difficult or traumatic birthing experience are at risk for developing psychological difficulties, which may evolve into PTSD. Joseph and Bailham (2004) found that those who experience traumatic obstetric and/or gynaecological procedures may go on to develop PTSD. Creedy et al. (2000) conducted a prospective longitudinal study and found that when they measured PTSD symptoms four to six weeks after childbirth one in three women described an aspect of the labour and childbirth that was traumatic.

PTSD symptoms were likely to be higher for women who did not have vaginal birth, and more women with PTSD symptoms were not breast feeding, showing the long term effect of traumatic birth experiences on mother–infant behaviour. Emergency and elective caesarean deliveries are similarly associated with a decreased rate of exclusive breast feeding compared with vaginal childbirth (Zanardo et al., 2010). A meta-analysis showed that women who have had a c-section are less likely to breast feed and also to express less satisfaction with the birth experience. Not breast feeding when you intended to breast feed can be a source of disappointment adding to the negative evaluation of the birth experience (DiMatteo et al., 1996).

Some other studies, similarly to ours, reported an association between an emergency caesarean section and a negative birth experience (Nurmi and Halmesma, 2001; Saisto et al., 2001; Collins and O'Cathain, 2003; Ford et al., 2009; Segal-Engelchin et al., 2009).

Earlier studies had implicated unplanned interventions during childbirth to be significantly associated with PTSD, such as emergency caesarean sections and instrumental deliveries such as forceps childbirth (Czarnocka and Slade, 2000; Soderquist et al., 2002; Adewuya et al., 2006). MaClean et al. (2000) concluded that women who have instrumental deliveries may perceive the birth experiences as more traumatic than women that have planned caesarean sections or normal deliveries. Joseph and Bailham (2004) found that at one month after the childbirth both the emergency caesarean section and instrumental delivery groups were more likely to experience symptoms of PTSD.

The impact of birth trauma on mothers' breast-feeding experiences can lead women down two strikingly different paths. One path can propel women into persevering in breast feeding; whereas the other path can lead to distressing impediments that curtail women's breast-feeding attempts (Beck and Watson, 2008). One of the cardinal post-traumatic stress symptoms is the avoidance of stimuli or triggers related to the original trauma (American Psychiatric Association, 2012), which can distance mothers from their infants because they are constant reminders of the original trauma the women endured (Beck, 2004a; Joseph and Bailham, 2004; Ayers et al., 2006; Nicholls and Ayers, 2007). The impact of birth trauma on mother–infant interaction certainly needs further investigation.

The limited literature on quantitative research conducted on PTSD after childbirth shows that risk factors can include emergency caesarean childbirth, first pregnancy, high level of obstetric intervention, perception of inadequate care during labour and childbirth, premature or high-risk infants, and psychiatric history (Waldenström, 2004). Some maternal characteristics, such as being single, depressed, or scared of labour and childbirth in early pregnancy seem to be associated with changes in the initial positive perception of childbirth experience in a negative direction, suggesting that the childbirth experience did not have a 'healing' effect on these women (Waldenström, 2004).

Further empirical research is needed to better understand the effect of negative childbirth experience on women from other ethnic and cultural backgrounds and the association this has with their pregnancy outcomes, mother–infant interactions and PTSD symptoms.

Limitations

The first limitation is the lack of homogeneity between the subgroups that compose the two large groups. Among Jews there are immigrants who preserve their homeland delivery customs (such as immigrants from Ethiopia or South America) and among Arabs, urban and rural populations differ; and Bedouin, Druze and Christians differ. A more comprehensive study in other regions in Israel would have helped to understand those subgroups. The second limitation is that we used self-report measures that are very subjective about traumatic experiences however we did validate the birth experiences with the medical record. It is important to note that women who suffer from PTSD symptoms may be more likely to recall their birth experience as traumatic and these variables are likely to be correlated as they were both assessed at T2, at six to eight weeks post partum.

The third limitation of the study is that the sample size has little statistical power to support the null hypothesis of no ethnic differences. However, the sample represents a full year of women who gave birth at two major hospitals and some women declined to participate in the study. Future population-based research is called for to gather estimates of rates of trauma and post-traumatic stress disorder and to explore between-group differences. It would also be important to construct a larger sample including sub-groups such as parents of premature babies.

Conflict of interest

No funds were received for the conduct of this research, thus there is no conflict of interest.

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