Type of delivery and self-reported postpartum symptoms among Iranian women

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Summary

The aim of the present study was to examine the association between mode of delivery and self-reported postpartum among women eight weeks postpartum. A cross-sectional study was conducted on postpartum women with symptoms. A total of 300 individuals over 16 years (155 with normal vaginal delivery and 145 with elective cesarean section) from ten primary healthcare centers in an urban area of Amol, Mazandaran, Iran were selected using a clustering random sampling technique. A standard questionnaire named Edinburgh postnatal depression scale (EPDS) was used to assess depressive symptom. Most women (98.3%) reported at least one postpartum symptom at eight weeks postpartum. The most prevalent postpartum symptoms were excessive tiredness or fatigue (72.2%), pain (65.7%) and backache (61.3%). There was a decrease in percentage of occurrence of sexual problems ($p = 0.009$) with elective cesarean section at postpartum was founded. Compared with women having vaginal delivery, cesarean delivery women were more likely to report headaches (OR = 2.5; CI = 1.493, 4.289) and less to report sexual problems (OR = 0.594; CI = 0.362, 0.975) during postpartum. It would be useful to provide a defined standard for postpartum care and apply regular postpartum visits in primary health care centers, hospital, and home visits and restricting mediolateral episiotomy.

Key words: Postpartum; Vaginal delivery; Cesarean section; Birth; Depression.

Introduction

In Iran, over 1 million women give birth each year [1]. Iranian women receive normal prenatal care at primary health care centers (PHC_s) [2]. More than 95% of births take place in the hospital (1) and in the 24 hours after delivery, mothers go home [3]. The quality of care in the postpartum ward of the hospital is weak [4] and there is no postpartum follow-up by discharge programs (3). The majority of mothers and clinicians do not concern the timing and content of antenatal care visits and postpartum care [5]. The mother's postpartum care is very essential in women's life and cannot be ignored. Women with cesarean child births have to be extra careful [6].

In Iran, the elective cesarean birth rate has risen each year and almost doubled during a five-year period [7] and 47% of deliveries are by cesarean section [8]. About 60% of women prefer to have cesarean to avoid labor pain or to determine the exact time of elective cesarean birth, thus we examined the association between mode of delivery (elective cesarean section and vaginal delivery) and self-reported postpartum symptoms among women at eight weeks postpartum.

Material and Methods

A cross sectional study was conducted on women attending urban PHC for a vaccination program of their baby eight weeks after delivery. A clustering random sampling method was used to select 300 women over 16 years old (155 with normal vaginal delivery and 145 with elective cesarean section) from ten PHC_s in an urban area in Amol, Mazandaran, Iran. The ethics committee of Mashhad University of Medical Sciences and Mazandaran University of Medical Sciences approved the study. Informed written consent was obtained from all women in the study.

Inclusion criteria were: being at least 16 years of age and having a full term singleton baby. Exclusion criteria: being under 16 years of age, having a multiple birth or preterm delivery, having psychological and pregnancy problems, serious medical disease, and emergency cesarean, and drug intake. Also, those with medical conditions such as low back pain, chronic constipation, urination problems before pregnancy, and history of depressive symptoms during pregnancy (also before and after pregnancy) were excluded from the study.

Mode of delivery was categorized to two categories: vaginal delivery and elective cesarean section. Vaginal delivery was defined as non-instrumental vaginal delivery and type of cesarean section included only elective cesarean. Women who had cesarean emergency after onset of labor and cesarean emergency with no labor (prelabor emergency) were excluded. Since at the time of the study, the Iranian version of questionnaires were not available, the questions on mother's postpartum experiences were adapted from a questionnaire used by Brown *et al*. [9]. The reliability of the questionnaire was approved by Cronbach's and it was 0.81. Moreover, its validity was determined by a panel of expert opinions. We assessed the prevalence of 12 common postpartum physical symptoms experienced and depreciative symptoms by women at eight weeks postpartum using the questionnaire.

In this study the Edinburg Postnatal Depression Scale (EPDS) was used; its validity and reliability have been assessed by Montazeri *et al*. and they showed that the EPDS is both reliable and valid in postnatal subjects in Iran [10].

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A socio-demographic questionnaire was used to obtain information regarding age, education, household income, insurance status, and occupational status. Other factors that were assessed included obstetric and delivery characteristics (e.g., parity, mode of delivery, perineal trauma) and psychosocial factors (e.g., unplanned pregnancy, and social support from partner or family).

Statistical analysis

Descriptive statistics were used to describe baseline socio-demographic, obstetrics, and delivery, and social support variables. Differences in associations between groups were done using chi-square analysis. Multiple logistic regressions were used to determine the relationship between postpartum symptoms and mode of delivery. The odds ratio (OR) was presented together with the 95% CI. Adjustments were made for independent variables which included age, income, pregnancy planned, parity, occupation, and education. All analyses were employed using a two-tailed hypothesis with significance set at a p value of ≤ 0.05.

Results

Of the 348 women who attended PHCs, eight (2.3%) did not like participating in the research and 40 (11.5%) were excluded from analysis because of exclusion criteria; thus a total of 300 women were assessed and their characteristics are given in Table 1.

The mean age of the sample was 25.2 ± 4.7 years (range 17-40 years). More than 85% of subjects had an education of elementary level or lower. Only 23 (7.7%) were employed in the year prior to the birth. The mean parity of women was 1.4 ± 0.6 deliveries. Approximately 58% of women were primiparous and 95.7% were breast feeding at study entry. The mean number of antenatal visits for the last pregnancy was 9.5. All of the women (100%) were married and had a current partner; with respect to mode of delivery, 155 (51.7%) women had vaginal delivery, and 145 (48.3%) had elective cesarean section. Finally, 13 (8.6%) had some degree of perineal trauma, 130 (85.5%) had a mediolateral episiotomy, and nine (5.9%) had an intact perineum. With respect to income, over half (56%) the women reported a total household income of less than 3000,000 Rials per month (1 Rial = $ 0.0001 USD). Almost all the women (97.3%) had familial social support.

Table 2 shows the prevalence of postpartum symptoms and depression according to mode of delivery. The most prevalent postpartum symptoms were excessive tiredness or fatigue (72.2%), pain (65.7%), backache (61.3%), sore or cracked nipple (44.7%), and sexual problems (39.3%) at eight weeks postpartum.

In terms of women's depression, 14.0% of women experienced depression at eight weeks postpartum. An increase in percentage of occurrence of bad headaches (0.0001) and more cough or colds than controls (0.036) with elective cesarean section was observed, while, there was a decrease in percentage of occurrence of sexual problems (p = 0.009) with elective cesarean section at postpartum.

Table 3 illustrates the estimated OR (with 95% CI) and adjusted OR for risk of postpartum symptoms and depression. Compared with women undergoing vaginal delivery, women having cesarean section were significantly more likely to report headaches (OR = 2.528; CI = 1.493, 4.289) at eight weeks postpartum. Women with cesarean delivery were less likely to report sexual problems than those having vaginal deliveries (OR = 0.594; CI = 0.362, 0.975). Compared with women having vaginal delivery, cesarean delivery women were more likely to report more cough or colds than controls during postpartum (OR = 1.912; CI = 1.037, 3.525), but this did not reach statistical significance with adjusted OR.

Table 1. — *Women's characteristics at eight weeks postpartum correlated to type of delivery*.

	Total	Vaginal delivery = 155 n (%)	Elective cesarean section = 145 n (%)
Socio-demographic variables			
Age (years)			
17-23	114 (38.0)	69 (44.5)	45 (31.0)
24-27	99 (33.0)	53 (34.2)	46 (31.7)
28-40	87 (29.0)	33 (21.3)	54 (37.2)
Education (years)			
> 6	37 (12.3)	20 (12.9)	17 (11.7)
6-12	220 (73.3)	115 (44.2)	195 (79.4)
> 12	43 (14.3)	20 (12.9)	23 (15.9)
Occupation			
House wife	277 (99.3)	146 (94.2)	131 (90.3)
Employment	23 (7.7)	14 (9.7)	14 (9.7)
House hold income (Rials)*			
> 3000,000	56 (18.7)	29 (18.7)	27 (18.6)
3000,000-5000,000	231 (77.0)	120 (77.4)	111 (76.6)
	13 (4.3)	6 (3.9)	7 (4.8)
Payment for delivery			
Insurance	278 (99.7)	146 (94.2)	132 (91.0)
Self pay	27 (7.3)	9 (5.6)	13 (9.0)
Obstetric and delivery variables			
Parity			
1	176 (58.1)	99 (63.9)	77 (53.1)
2+	124 (41.3)	56 (36.1)	68 (46.9)
Number antenatal visits			
> 6	16 (5.3)	7 (4.5)	9 (6.2)
	184 (94.7)	148 (95.5)	136 (93.8)
Delivery place of the last child			
Public hospital	273 (91.0)	146 (94.2)	127 (87.6)
Private hospita	2.7 (9.0)	9 (5.8)	18 (12.4)
Episiotomy	130 (85.5)	130 (85.5)	–
Perineal trauma	13 (8.6)	13 (8.6)	–
Intact perineum	9 (5.9)	9 (5.9)	–
Breast feeding	287 (95.7)	149 (96.1)	138 (95.2)
Social support variables			
Pregnancy status			
Planned	262 (87.3)	138 (89.0)	124 (85.5)
Not planned	28 (12.7)	17 (11.0)	21 (14.5)
Social support from partner			
Yes	284 (94.7)	149 (96.1)	135 (93.1)
No	16 (5.3)	6 (3.9)	19 (6.9)
Social support from family			
Yes	292 (97.3)	149 (96.1)	143 (98.6)
No	8 (2.7)	6 (3.9)	2 (1.4)

*Rial = 0.0001 USD

Discussion

The postpartum period is an exciting, dynamic time in a woman's life but both mother and clinician have little knowledge regarding physical or psychological state of

Table 2. — *Postpartum symptoms at eight weeks according to delivery.*

	Total	Vaginal delivery = 155 n (%)	Elective cesarean = 145 n (%)	*p* value
Excessively tired or fatigued	218 (72.7)	114 (73.5)	104 (71.7)	0.723
Backaches	184 (61.3)	88 (56.8)	96 (66.2)	0.094
Sore or cracked nipples	130 (44.7)	73 (47.1)	61 (42.1)	0.381
Pain*	104 (47.1)	61 (42.1)	93 (64.1)	0.590
Hemorrhoids	15 (5.0)	8 (5.2)	7 (4.8)	0.895
Bowl problems	72 (20.0)	39 (25.2)	33 (22.8)	0.626
Bad headaches	95 (31.7)	35 (22.6)	60 (41.4)	0.0001
Bladder problems	30 (10.0)	16 (10.3)	14 (9.7)	0.847
Red or tender breast or mastitis	81 (27.0)	49 (31.6)	32 (22.1)	0.063
More cough or colds than control	52 (17.3)	20 (12.9)	32 (22.1)	0.036
Sexual problems	118 (39.3)	72 (46.5)	46 (31.7)	0.009
Depressive symptoms (EPDS > 12)**	42 (14.0)	118 (11.7)	24 (16.6)	0.226
No postpartum symptoms	5 (1.7)	0 (0.0)	5 (3.4)	0.020

* Mothers having vaginal delivery were asked questions of perineal pain and mothers who had, elective cesarean were asked questions of pain of cesarean incision.
** Edinburgh Postnatal Depression scale (EPDS) measures point prevalence of depressive symptoms.

Table 3. — *Odds ratio and 95% confidence interval for risk of postpartum and depressive symptoms: elective cesarean vs vaginal delivery.*

	Unadjusted or (95% CI)	Adjusted or (95% CI)†
Excessively tired or fatigued	0.912 (0.549-1.516)	0.825 (0.482-1.413)
Backaches	1.942 (0.340-2.383)	1.292 (0.794-2.103)
Sore or cracked nipples	0.816 (0.517-1.287)	0.790 (0.492-1.268)
Pain	0.877 (0.544-1.413)	0.881 (0.534-1.453)
Hemorrhoids	0.932 (0.329-2.639)	0.963 (0.327-2.833)
Bowel problems	0.876 (0.515-1.491)	0.813 (0.468-1.412)
Bad headaches	2.420 (1.466-3.990)*	2.528 (1.493-4.288)*
Bladder problems	0.928 (0.436-1.977)	0.936 (0.421-2.078)
Red or tender breasts or mastitis	0.613 (0.365-1.029)	0.590 (0.344-1.013)
More cough or colds than controls	1.912 (1.037-3.525)*	1.817 (0.964-3.426)
Sexual problems	0.536 (0.334-0.858)**	0.594 (0.362-0.975)**
Depressive symptoms (EPDS >12)	1.499 (0.776-2.895)	1.686 (0.850-3.344)

*$p < 0.01$, **$p < 0.05$.
†Adjusted for age, income, planned pregnancy, parity, occupation and education.

postpartum recovery. Postpartum care is very essential in a woman's life, but often this care is ignored. The results showed that almost all of the women (98.3%) in the study reported at least one postpartum symptom since the birth. The majority of women (69.0%) reported between two and five symptoms, and those results are consistent with many studies indicating that only a small percent of women reported an absence of physical postpartum symptoms and over 90% of women had at least one postpartum symptom [11-13].

In this study the most prevalent reported postpartum symptoms at eight weeks postpartum were: excessive tiredness or fatigue, pain (perineal pain, incision of cesarean), and backache. These results are in line with many studies indicating that these symptoms are the most common symptoms.

Chi-square analysis revealed that there were significant differences between mode of delivery in three experienced postpartum symptoms; bad headaches, more coughs or colds than controls, and sexual problems. Women undergoing cesarean birth reported more postpartum symptoms at eight weeks postpartum than their counterparts who had a vaginal delivery.

Also these women reported needing more help during the postpartum period (83.4% vs 74.5%). Various researchers found that assisted vaginal delivery increased postpartum symptoms [14-16]. In Iran, assisted vaginal delivery is not common and there is an increasing trend toward cesarean rather than use of vacuum devices or forceps. Since none of our subjects reported that they had an assisted vaginal delivery, such concerns are not applicable to our study population.

Our study showed that around 67% of women with vaginal delivery reported perineal pain at eight weeks postpartum. In terms of pain associated with a cesarean section around 64% of all subjects reported pain at the site of incision. Glazener suggested that sexual problems were associated with perineal pain [17] and Hartmann *et al*. reported that dysparunia was more common among women with episiotomy [18]. Another study showed no difference in reports of dysparunia between women with medline episiotomy and women who had perineal tearing [19], while Baksu *et al*. found common sexual problems in women with mediolateral episiotomy [20].

In this study, nearly all of our subjects (143 of 150) had vaginal delivery by mediolateral episiotomy or perineal trauma and only nine (5.9%) had an intact perineum. Our results also showed that women with vaginal delivery had more sexual problems than women with cesarean sections at eight weeks postpartum. Our findings with respect to similarity of experiences between women who underwent cesarean section and women delivered vaginally by mediolateral episiotomy [20]. While another study showed no difference in sexual problems between women who delivered vaginally and those who underwent cesarean section [21]. A possible explanation for the higher prevalence of reported sexual problems is use of mediolateral episiotomy. We should put emphasis on restricting mediolateral episiotomy, although certainly our data do not support elective cesarean section as a strong protective effect on sexual problems at eight weeks postpartum.

This study showed excessive tiredness or fatigue is common at eight weeks postpartum and not related to mode of delivery. Several studies showed that tiredness was the most common postpartum symptom and generally related to mode of delivery [11, 12].

Several studies showed that approximately 10% of women will experience depression in the immediate postpartum period [22, 23], while we found more than 10% of

occurrences of depression at eight weeks postpartum did not relate to mode of delivery. A study from Iran reported that cesarean section is a certain risk factor for depression during postpartum [24].

There are several limitations of the study. We used a cross-sectional design to determine a relationship between mode of delivery and symptoms reported at eight weeks postpartum, whereas in future studies the use of longitudinal data should provide stronger evidence of this relationship. Moreover, this study is a self-reported outcome with sample restriction. However there was no issue of recall bias answering questions about postpartum symptoms at eight weeks as women were answering questions regarding their current postpartum symptoms.

In conclusion, this study showed a very high prevalence of postpartum syndrome at eight weeks postpartum. A possible explanation for the higher prevalence of postpartum symptoms is that the role of PHCs in postnatal care is unclear as is the use of mediolateral episiotomy. However PHCs are the only place that offer infant vaccination, and most women do visit PHCs at least to vaccinate theirs infants. Also PHCs provide prenatal care and family planning programs [10, 25]. Providing a defined standard for postpartum care and applying regular postpartum visits between three and eight weeks after delivery in PHCs and the hospital would be useful to reduce postpartum symptoms increase quality of life. Emphasis should be placed on counseling women during the prenatal visit regarding mode of delivery, postpartum services and related problems in terms of postpartum symptoms, contact with women who missed their postpartum appointment by phone and home visits and restricting mediolateral episiotomy.

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References

[1] Aghlmand S., Akbari F., Lameei A., Mohammad K., Small R., Arab M.: "Developing evidence-based maternity care in Iran: a quality improvement study". *BMC Pregnancy Childbirth*, 2008, *8*, 20.

[2] Kajuri M.D., Karimi S., Shekarabi R., Hosseini F.: "Investigating women's satisfaction with prenatal care received at the primary health care centers of Shirvan Chardaval, Iran in 2005". *Internet J. Gynecol. Obstet*., 2007, *7*, 1.

[3] Kashaninia Z., Sajedi F., Khoramirad A., Dadkhah A.: "The effect of discharge planning on physical status of Iranian mothers in the postpartum period". *J. Nursing*, 2007, *1*, 10.

[4] Simbar M., Alizadeh Dibazari Z., Abed Saeidi J., Alavi Majd H.: "Assessment of quality of care in postpartum wards of Shaheed Beheshti Medical Science University hospitals, 2004". *Int. J. Health care Qual. Assur. Inc. Leadersh. Health Serv*., 2005, *18*, 333.

[5] Rouhi M., Mohammed-alizadeh S., Usefi H., Rouhi N.: "Postpartum morbidity and help-seeking behaviours in Iran". *Br. J. Midwifery*, 2011, *19*, 178.

[6] Declercq E., Cunningham D.K., Johnson C., Sakala C.: "Mothers' reports of postpartum pain associated with vaginal and cesarean deliveries: results of a national survey". *Birth*, 2008, *35*, 16.

[7] Torkan B., Parsay S., Lamyian M., Kazemnejad A., Montazeri A.: "Postnatal quality of life in women after normal vaginal delivery and caesarean section". *BMC Pregnancy Childbirth*, 2009, *9*, 4.

[8] Ministry of Health and Medical Education (MHME) of Iran The Report of the Health Indicators in 2003: http://www.mohme.gov.ir/HNDC/Indicators/DHS_Eng/MAIN.SWF

[9] Brown S., Lumley J.: "Maternal health after childbirth: results of an Australian population based survey". *Br. J. Obstet. Gynaecol*., 1998, *105*, 156.

[10] Montazeri A., Torkan B., Omidvari S.: "The Edinburgh Postnatal Depression Scale (EPDS): translation and validation study of the Iranian version". *BMC Psychiatry*, 2007, *7*, 11.

[11] Thompson J.F., Roberts C.L., Currie M., Ellwood D.A.: "Prevalence and persistence of health problems after childbirth: associations with parity and method of birth". *Birth*, 2002, *29*, 83.

[12] Glazener C.M., Abdalla M., Stroud P., Naji S., Templeton A., Russell I.T.: "Postnatal maternal morbidity: extent, causes, prevention and treatment". *Br. J. Obstet. Gynaecol*., 1995, *102*, 282.

[13] Ansara D., Cohen M.M., Gallop R., Kung R., Schei B.: "Predictors of women's physical health problems after childbirth". *J. Psychosom Obstet. Gynaecol*., 2005, *26*, 115.

[14] Brown S., Lumley J.: "Physical health problems after childbirth and maternal depression at six to seven months postpartum". *BJOG*, 2000, *107*, 1194.

[15] Lydon-Rochelle M.T., Holt V.L., Martin D.P.: "Delivery method and self-reported postpartum general health status among primiparous women". *Paediatr. Perinat. Epidemiol*., 2001, *15*, 232.

[16] Borders N.: "After the afterbirth: a critical review of postpartum health relative to method of delivery". *J. Midwifery Womens Health*., 2006, *51*, 242.

[17] Glazener C.M.: "Sexual function after childbirth: women's experiences, persistent morbidity and lack of professional recognition". *Br. J. Obstet. Gynaecol*., 1997, *104*, 330.

[18] Hartmann K., Viswanathan M., Palmieri R., Gartlehner G., Thorp J. Jr., Lohr K.N.: "Outcomes of routine episiotomy: a systematic review". *JAMA*, 2005, *293*, 2141.

[19] Signorello L.B., Harlow B.L., Chekos A.K., Repke J.T.: "Postpartum sexual functioning and its relationship to perineal trauma: a retrospective cohort study of primiparous women". *Am. J. Obstet. Gynecol*., 2001, *184*, 881.

[20] Baksu B., Davas I., Agar E., Akyol A., Varolan A.: "The effect of mode of delivery on postpartum sexual functioning in primiparous women". *Int. Urogynecol. J. Pelvic. Floor Dysfunct*., 2007, *18*, 401.

[21] Baytur Y.B., Deveci A., Uyar Y., Ozcakir H.T., Kizilkaya S., Caglar H.: "Mode of delivery and pelvic floor muscle strength and sexual function after childbirth". *Int. J. Gynaecol. Obstet*., 2005, *88*, 276.

[22] Pop V.J., Wijnen H.A., van Montfort M., Essed G.G., de Geus C.A., van Son M.M. *et al*.: "Blues and depression during early puerperium: home versus hospital deliveries". *Br. J. Obstet. Gynaecol*., 1995, *102*, 701.

[23] Small R., Astbury J., Brown S., Lumley J.: "Missing voices: what women say and do about depression after childbirth". *Med. J. Aust*., 1994, *161*, 473.

[24] Baghianimoghadam M., Shodjaee Zadeh D., Aminian A.: "Caesarean Section, Vaginal delivery and post natal depression". *Iranian J. Publ. Health*, 2009, *38*, 118.

[25] Mehryar A.: "Primary Health Care and the Rural Poor in the Islamic Republic of Iran". Scaling Up Poverty Reduction: A Global Learning Process and Conference, Shanghai, May 25-27, 2004.

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