

Is Mode of Delivery a Determinant of Postpartum Health-Related Quality of Life in Nigerian Women?

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Abstract

Background: Women experience many changes that might affect their well-being during the postpartum period. In some climes, there is an established association between mode of delivery (MOD) and postpartum health-related quality of life (HRQoL), but there is a dearth of related literature in southeastern Nigeria. Such information will guide health-care providers on health promotion strategies for improved maternal and infant well-being. **Aim:** The aim of this study was to assess the influence of MOD on HRQoL of Nigerian postpartum women. **Material and Methods:** This was a cross-sectional descriptive survey of 200 postpartum women in Enugu, Nigeria. Information on maternal characteristics was collected with a structured questionnaire, while the investigation of their postpartum HRQoL was with the Short Form 36 health survey questionnaire. **Results:** In general, the majority of the respondents had moderate HRQoL values in most domains, including physical function, bodily pain, general health (GH), energy and fatigue, social function, and perceived mental health. Values for role limitations as a result of physical and emotional problems were predominantly low. HRQoL scores did not significantly vary between the cesarean section (CS) and spontaneous vaginal delivery (SVD) groups. MOD was a correlate of respondents' GH with women in the CS group showing lower values, as compared to those with SVD. **Conclusion:** In general, postpartum women in this study recorded low-to-moderate HRQoL scores. MOD was a determinant of their GH scores. Follow-up interprofessional health care is recommended in the postpartum period to improve HRQoL.

Keywords: Health-related quality of life, mode of delivery, Nigeria, postpartum, women's health

INTRODUCTION

The World Health Organization (WHO) in 2013 described the postpartum period as the most significant yet the most overlooked stage in the lives of mothers and babies.^[1] It is the period beginning immediately after the birth of a child and extending for about six weeks. The postpartum period can have a major physical, emotional, and social effect on the quality of life (QoL) for mothers^[2] due to complications such as postpartum depression, mental distress,^[3] urinary incontinence, anemia,^[4] genital infections, breast problems,^[5,6] physical complaints, fatigue, pain, sleep problems,^[6,7] and difficulty in resuming sexual activity.^[8] They could also present with facets of physical symptoms such as fatigue, headache, dyspareunia, hemorrhoids, and pain at multiple sites.^[9] Although people regard these symptoms as transient, they appear to be associated with functional maternal impairment and with poor emotional status when untreated.^[10]

These postpartum conditions affect maternal health-related QoL (HRQoL). Assessing HRQoL in the postpartum period allows the mother to self-evaluate her situation and further informs health-care providers on necessary steps toward the promotion of maternal and infant well-being. There were several investigations done on the concept of QoL in diverse populations and health conditions with the existence of a wide variety of conceptual models to define it.^[11-13] It was not until 1994 that the WHO QoL group defined QoL thus: "an

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individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.^[14,15] When authorities make a description of the QoL in the context of health and diseases, they commonly refer to it as HRQoL, which goes beyond the direct measure of health and focuses on the QoL consequences of health status.^[16] Relative to the childbearing years, several factors such as mode of delivery (MOD), physical, mental, and social changes affect the postpartum HRQoL.^[17]

MOD is a known determinant of the severity of most postpartum health challenges as well as individual recovery rates.^[2,18-20] Most of the births in Nigeria are through spontaneous vaginal deliveries (SVDs).^[21] For more than 10 years now, there has been a major global increase in the rate of cesarean deliveries, and this trend has been attributed to changing maternal characteristics and professional clinical practice styles, increasing malpractice pressure, as well as economic, organizational, social, and cultural factors.^[22] Although Betrán *et al.*^[22] reported that cesarean section (CS) rates in Nigeria and Guinea decreased over the past decades as compared to other countries, more recent studies^[21,23] have shown increasing rates, particularly among women in the relatively high wealth quintile.^[23] The WHO recommends the utilization of CSs when maternal and fetal life is at risk.^[24] However, the debate on the best practices (SVD vs. CS) to minimize postnatal morbidity remains a matter of controversy both from professionals' perspectives and from women's perceptions of the childbirth experience.^[25]

MOD and childbirth experience may have a long-term effect on HRQoL.^[2,18-20] Studies^[4,18,19,26] already investigated the association between type of delivery and HRQoL, but there is still a controversy on the degree of this association. Huang *et al.*^[4] previously reported that women who underwent SVD had higher mean physical HRQoL scores, as compared to those with CS, whereas mental HRQoL did not vary between both the groups. Others showed decreased HRQoL^[27] and poorer mental health (MH)^[25] in postpartum women with CS, as compared to those with SVD. However, other studies did not confirm any relations between MOD and some domains of HRQoL.^[4,26]

Because of improving health-care practices and outcomes in postpartum women, there is a need to assess the impact of their MOD on their HRQoL. As much as authorities have assessed such relationships in other climes, there is still a scarcity of related studies among sub-Saharan African women. Thus, this study aimed to evaluate the relationship between MOD and postpartum HRQoL of Nigerian women.

MATERIALS AND METHODS

Study participants

The sample size calculation for an infinite population^[28] required a sample of 384 to complete this study. However, 200 conveniently selected postpartum women were willing

and available to participate in this cross-sectional descriptive survey. The participants' recruitment was from postnatal clinics and immunization centers of seven hospitals in Enugu, Nigeria. We included only mothers within 6–24 weeks of postpartum duration in this study. Those not included in the study were women who are pregnant and have a stillbirth or dead infant(s) from their last pregnancies, postpartum depression, or other significant mental and neuromusculoskeletal disorders affecting mobility and functioning as well as with self-reported memory deficits were self-reported through verbal interviews.

Instruments for data collection

We used a structured form to collect information on respondents' general characteristics, including maternal age, occupation, educational level, parity, gravidity, number of children, MOD, and postpartum duration.

Assessment of their HRQoL was with the Short Form 36 (SF-36) health survey questionnaire. The SF-36 is a standard and widely used HRQoL instrument. It covers eight domains, including physical function (PF, ten items), role limitations due to physical problems (RP, four items), bodily pain (BP, two items), general health (GH, five items), energy and fatigue (EF, four items), social function (SF, two items), role limitation due to emotional problems (RE, three items), and perceived MH (five items).

The scores within each domain range from 0 to 100 with higher, intermediate, and lower scores indicating a high, moderate, and low HRQoL, respectively.^[29,30] The SF 36 is proven to be an adaptable, reliable, and valid measure for HRQoL, and many studies involving different postpartum populations utilized it as their instrument of choice.^[31-33] The usefulness and validity of the modified SF-36 and modifications to reflect the cultural context of Nigeria is as documented by Mbada *et al.*^[34]

Ethical issues and procedure

Ethical approval for this study was by the Research and Ethics Committee of the University of Nigeria Teaching Hospital, Ituku-Ozalla, before commencing the study. Researchers of this study submitted a cover note explaining the study along with consent and ethical certificates to the conveniently selected postnatal clinics and immunization centers before the study. Respondents gave written informed consent before their participation. Two trained research assistants distributed the English version of the study instrument to the respondents, and filled copies were collected immediately afterward.

Data analysis

Scoring the SF-36 health survey questionnaire is a two-step process. First, numeric values were assigned to the responses and recorded per the scoring key. All items were scored such that a high score defines a more favorable HRQoL. Cumulatively, the analyst totaled the total scores per domain on a scale of 0–100 such that the minimum and maximum possible values are 0 and 100, respectively. Incompletely filled questionnaires were excluded from the analysis. To the extent

of our literature search, there are no existing normative data of SF-36 scores for Nigerian pregnant and postpartum women. Hence, for this study, HRQoL scores were categorized as low (<40), moderate (40–60), and high (>60).

Descriptive statistics of mean, standard deviation, frequencies, and percentages were used to summarize data. The determination of statistical differences between HRQoL values of both the groups was with an independent *t*-test, and a correlation between MOD and HRQoL values was with Pearson's correlation coefficient. Significantly correlated variables further underwent linear regression analysis with the alpha value set at $P = 0.05$. The analysis was with the aid of SPSS version 22 (Chicago, IL, USA).

RESULTS

Out of the 390 distributed questionnaires, 200 were completed and returned, yielding a response rate of 51.3%.

Table 1 reveals that most of the respondents were <30 years of age (64.0%), civil servants (40.0%), within 6–16 weeks postpartum (54.5%), and had their recent child (ren) through SVD (64.0%). Slightly above half of them were primigravida (52.5%), primiparous (55.5%), and had one child (58.0%). Results revealed that most of the study's respondents had moderate HRQoL values in most domains, including PF (48.5%), BP (67.5%), GH (68.5%), EF (72.0%), SF (55.0%), and perceived MH (58.0%). On the other hand,

the majority of them scored low values in RP (68.5%) and RE (49.0%) domains [Table 2].

HRQoL values in all domains did not significantly ($P > 0.05$) vary between the women with SVD and CS. However, marginal differences existed between groups, with the SVD group recording higher values in five domains including PF, EF, perceived MH, SF, and GH [Table 3]. Women in the CS group recorded higher values in the other three domains of RP, RE, and BP. Table 4 shows that MOD only significantly correlated with respondents' GH domain scores. A 0.03 difference in GH existed between women with CS and SVD deliveries, meaning that women who underwent CS reported a GH score that is 0.03 lower than women with SVD. However, only 2.5% of the variation in GH is explained by MOD ($R^2 = 0.025$), suggesting that many other factors could be influencing GH in postpartum women.

However, MOD did not significantly ($P > 0.05$) correlate with each of the other domains, including PF, role limitation because of physical problems, BP, EF, SF, role limitation because of emotional problems, and perceived MH.

DISCUSSION

This study investigated the influence of MOD on postpartum HRQoL among postpartum women in Enugu, Nigeria. Women's viewpoint of their HRQoL is a pertinent measure of the quality and effectiveness of maternal and child health interventions.^[35]

Table 1: Demographic characteristics of the respondents

Variables	Options	Frequency (%)
Age	Under 30	128 (64.0)
	31–40	65 (32.5)
	41–50	7 (3.5)
Education	No school	10 (5)
	Elementary	43 (21.5)
	High school	99 (49.5)
	College	40 (20)
	Higher education	8 (4)
Employment status	Yes	130 (65.0)
	No	70 (35)
Proximity to a health clinic/hospital (km)	0–10	60 (30)
	11–20	110 (55)
	21–30	29 (14.5)
	>30	1 (0.5)
Occupation	Homemaker	27 (13.5)
	Trader	28 (14)
	Businesswoman	31 (15.5)
	Civil servant	80 (40)
	Student	31 (15.5)
	Others	3 (1.5)
Mode of delivery	SVD	128 (64)
	CS	72 (36)
Postpartum duration (weeks)	<6	43 (21.6)
	6–16	109 (54.5)
	>16	48 (23.9)

SVD: Spontaneous vaginal delivery, CS: Cesarean section

Table 2: Quality of life of postpartum mothers

Domains of HRQoL	Level of HRQoL	Frequency (%)
Physical functioning QoL	Low	74 (37)
	Moderate	97 (48.5)
	High	29 (14.5)
Role limitation due to physical functioning QoL	Low	137 (68.5)
	Moderate	31 (15.5)
	High	32 (16)
Role limitation due to emotional well-being QoL	Low	98 (49)
	Moderate	19 (9.5)
	High	83 (41.5)
Energy and fatigue QoL	Low	41 (20.5)
	Moderate	144 (72.0)
	High	15 (7.5)
Emotional well-being QoL	Low	39 (19.5)
	Moderate	116 (58.0)
	High	45 (22.5)
Social functioning QoL	Low	60 (30)
	Moderate	110 (55)
	High	30 (15)
Pain QoL	Low	44 (22)
	Moderate	135 (67.5)
General health QoL	Low	21 (10.5)
	Moderate	137 (68.5)
	High	32 (16)

QoL: Quality of life, HRQoL: Health-related QoL

Table 3: Spearman correlation between different domains of health-related quality of life and postpartum characteristics of the postpartum mothers

	<i>r</i> (<i>P</i>)							
	PF	RLPH	RLEP	EF	EW	SF	P	GH
Mode of delivery	-0.085 (0.228)	-0.002 (0.976)	0.078 (0.275)	-0.031 (0.660)	-0.040 (0.576)	-0.045 (0.531)	-0.042 (0.555)	-0.144 (0.042)
Family setting	-0.049 (0.494)	-0.136 (0.056)	0.150 (0.350)	-0.014 (0.848)	0.044 (0.541)	0.009 (0.905)	0.038 (0.598)	-0.018 (0.803)
Proximity to hospital	-0.047 (0.519)	-0.076 (0.295)	-0.044 (0.542)	-0.022 (0.760)	-0.090 (0.212)	-0.037 (0.609)	-0.013 (0.852)	-0.046 (0.520)
Postpartum duration	-0.098 (0.178)	-0.168 (0.021*)	0.101 (0.167)	0.132 (0.070)	0.090 (0.217)	0.127 (0.081)	0.110 (0.130)	0.057 (0.438)
Gestation period	0.114 (0.109)	0.127 (0.076)	0.089 (0.213)	-0.095 (0.184)	0.096 (0.178)	0.048 (0.499)	0.091 (0.202)	0.037 (0.600)
Postpartum illness	-0.074 (0.298)	-0.099 (0.164)	-0.137 (0.054)	-0.087 (0.222)	-0.066 (0.358)	-0.133 (0.063)	-0.097 (0.174)	-0.073 (0.308)
Marital status	0.012 (0.865)	0.073 (0.305)	-0.086 (0.227)	0.081 (0.255)	-0.007 (0.924)	-0.093 (0.188)	-0.083 (0.245)	-0.006 (0.935)

PF: Physical functioning, RLPH: Role limitation due to physical functioning, RLEF: Role limitation due to emotional well-being, EF: Energy and fatigue, EW: Emotional well-being, SF: Social functioning, P: Pain, G: General health, *indicates significance at $p < 0.05$

Table 4: Independent sample *t*-test comparison of the various domains of health-related quality of life of postpartum mothers with different modes of delivery

Domains of HRQoL	Mode of delivery	Mean±SD	<i>t</i>	<i>P</i>
Physical functioning QoL	SVD	47.63±27.23	1.359	0.866
	CS	41.53±27.27		
Role limitation due to physical functioning QoL	SVD	27.86±37.70	-0.219	0.338
	CS	29.25±40.29		
Role limitation due to emotional well-being QoL	SVD	48.24±45.88	-1.084	0.849
	CS	56.46±46.74		
Energy and fatigue QoL	SVD	52.05±22.36	0.641	0.576
	CS	49.65±23.94		
Emotional well-being QoL	SVD	59.43±25.59	0.955	0.092
	CS	55.26±29.43		
Social functioning QoL	SVD	54.49±27.33	0.543	0.941
	CS	52.03±28.57		
Pain QoL	SVD	25.60±25.60	0.827	0.871
	CS	53.06±26.17		
General health QoL	SVD	62.03±23.36	2.269	0.410
	CS	53.13±25.34		

QoL: Quality of life, HRQoL: Health-related QoL, SD: Standard deviation, SVD: Spontaneous vaginal delivery, CS: Cesarean section

Our findings showed that, generally, postpartum women's HRQoL values were moderate in most domains. Findings in other related studies have similarly reported moderate postpartum HRQoL in such domain as PF, BP, GH, EF, SF, and perceived MH.^[2,36,37] However, work by Hitimana *et al.*^[16] to determine whether adequate antenatal care utilization is positively associated with women's postpartum HRQoL showed that most of their participants had no problems with mobility, self-care, usual activities, pain or discomfort, and anxiety or depression. Furthermore, AlShehri *et al.*^[30] reported significantly higher mean scores in the physical functioning, role physical, vitality, role-emotional, and MH subscales for both MOD while body pain was significantly lower in SVD. They further reported that women who underwent CS had

significantly worse mean scores for all HRQoL domains except for body ache, and these changes were from the effects of surgery and anesthesia.

On the other hand, the majority of the women in this present study showed low HRQoL values for role limitations because of physical problems and emotional problems. Previous studies^[2,36,37] have reported impaired PFs and MH in postpartum women. Physical problems are common in the postpartum periods.^[20] They usually include pregnancy-related physical problems, those that occurred during childbirth processes as well as others commencing in the postpartum periods. Physical problems may range from physiological to neuromusculoskeletal origin and typically downplay adequate functioning and performance of physical tasks.^[37] These

stretch into the woman's MH, which other psychological factors may have compromised most times. MH issues are common in the postpartum periods and may include, among other things, postpartum blues, depression, and stress-related mental issues.^[38] Several factors reported to be affecting postpartum HRQoL include maternal age at conception, time since childbirth, low household income, emergency CS and psychopathologic symptoms,^[18] and these have also been shown to impair PF, MH status, interpersonal relationships, social engagement, and overall postpartum QoL.^[36]

This study showed no significant variations in the HRQoL scores between women in both the groups across the various domains. This finding corroborates with previous studies,^[4,27] which reported that delivery mode did not affect the postpartum QoL. However, several studies^[18-20,37-40] suggest that SVD might result in a better QoL, as compared to cesarean births. Irrespective of the nonsignificant differences in HRQoL revealed in the current study, women with SVD predominantly showed higher values of HRQoL in five domains which included PF, EF, perceived MH, SF, and GH. In contrast, some studies indicated a higher mean score of vitality (VT) and EW subscale, explaining that since tiredness and decreased energy are less common in the case of CS, vitality is higher in CS.^[41] Moreover, relief from fear of labor pain and being concerned about the infant's safety higher in the women undergoing CS can be reasons for higher MH.^[42] Even though the women with recent CS showed better values of BP, RP, and emotional problems in the present study, there is still a need to intensify the support offered to women post CS to improve their HRQoL.

Furthermore, this study only revealed a relationship between MOD and postpartum women's GH, unlike other HRQoL domains. Previous studies^[14,25,43] have indicated suboptimal physical and mental HRQoL in women who had undergone CS. The relationship between MOD and GH in the current study further elucidated that women with CS showed slightly lower GH scores, as compared to the women with SVD. Previous studies were not clear on the mechanisms responsible for suboptimal physical and mental HRQoL in women with CS. In our opinion, the suboptimal physical and mental HRQoL reported by the CS group may be attributed to the fact that for some of those women, labor processes were not spontaneous which may affect the normal physiological processes of recovery.^[30] This study failed to investigate the indications of CS among women in this study. This finding would have enhanced the reliability of our findings through assessing these indicators of CS as possible determinants of postpartum HRQoL.

These findings persistently emphasize the importance of the recommendations above (i.e., the need for increasing health attentions in women who underwent CS). However, our statistics suggested that only 2.5% of the variations in the women's GH were attributable to MOD. Therefore, further intensified studies to elucidate other determinants of postpartum HRQoL in a Nigerian population become paramount.

Limitation to the interpretation of this study's findings may come from two significant factors, the cross-sectional study design, and narrowness of its geographical scope. A longitudinal cohort study and inclusion of women from various geographical settings will better offer more reliable and generalizable findings in this study area. Future studies should also encompass the influence of perceptions of CS in an African context as a potential factor of suboptimal HRQoL in postpartum women.

CONCLUSION

In general, postpartum women in this study exhibited low-to-moderate HRQoL. As much as there were no significant differences in HRQoL between groups, women with SVD showed higher HRQoL scores in most domains. MOD was a determinant of GH among these women, with those with CS reporting lower GH scores. Follow-up care after childbirth for maintaining HRQoL, particularly in women with cesarean births, is recommended.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. World Health Organization. WHO Recommendations on Postnatal Care of the Mother and Newborn. World Health Organization; 2013.
2. Rezaei N, Azadi A, Zargousi R, Sadoughi Z, Tavalae Z, Rezayati M. Maternal health related quality of life and its predicting factors in the postpartum period in Iran. *Scientifica (Cairo)* 2016;2016:8542147: 1-7.
3. Dennis CL, Heaman M, Vigod S. Epidemiology of postpartum depressive symptoms among Canadian women: Regional and national results from a cross-sectional survey. *Can J Psychiatry* 2012;57:537-46.
4. Huang K, Tao F, Liu L, Wu X. Does delivery mode affect women's postpartum quality of life in rural China? *J Clin Nurs* 2012;21:1534-43.
5. Assarag B, Dubourg D, Maaroufi A, Dujardin B, De Brouwere V. Maternal postpartum morbidity in Marrakech: What women feel what doctors diagnose? *BMC Pregnancy Childbirth* 2013;13:225.
6. Ferdous J, Ahmed A, Dasgupta SK, Jahan M, Huda FA, Ronsmans C, *et al.* Occurrence and determinants of postpartum maternal morbidities and disabilities among women in Matlab, Bangladesh. *J Health Popul Nutr* 2012;30:143-58.
7. Daisy AA, Woude VD, Johanna MA, Jnenborg P, Vries JD. 'Health status and quality of life in postpartum women: A systematic review. *Fectal Euro J Obstetrics Gynecol Repro Biol* 2015;185:45-52.
8. Tenfelde S, Tell D, Brincat C, Fitzgerald CM. Musculoskeletal pelvic pain and sexual function in the first year after childbirth. *J Obstet Gynecol Neonatal Nurs* 2019;48:59-68.
9. Webb DA, Bloch JR, Coyne JC, Chung EK, Bennett IM, Culhane JF. Postpartum physical symptoms in new mothers: Their relationship to functional limitations and emotional well-being. *Birth* 2008;35:179-87.
10. Vesga-López O, Blanco C, Keyes K, Olfson M, Grant BF, Hasin DS. Psychiatric disorders in pregnant and postpartum women in the United States. *Arch Gen Psychiatry* 2008;65:805-15.
11. Domingo-Salvany A, Lamarca R, Ferrer M, Garcia-Aymerich J,

- Alonso J, Félez M, *et al.* Health-related quality of life and mortality in male patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2002;166:680-5.
12. Williams RE, Levine KB, Kalilani L, Lewis J, Clark RV. Menopause-specific questionnaire assessment in US population-based study shows negative impact on health-related quality of life. *Maturitas* 2009;62:153-9.
 13. Li J, Mao J, Du Y, Morris JL, Gong G, Xiong X. Health-related quality of life among pregnant women with and without depression in Hubei, China. *Matern Child Health J* 2012;16:1355-63.
 14. The WHOQOL Group. WHOQOL-BREF: Introduction, Administration, Scoring and Generic Version of the Assessment. Geneva: World Health Organization; 1996.
 15. World Health Organization. 'The world health organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Soc Sci Med* 2013;41:1403-9.
 16. Ferrans CE. Definitions and conceptual models of quality of life. In: Lipscomb J, Gotay CC, Snyder C, editors. *Outcomes Assessment in Cancer*. Cambridge, England: Cambridge University; 2005. p. 14-30.
 17. Jansen AJ, Duvekot JJ, Hop WC, Essink-Bot ML, Beckers EA, Karsdorp VH, *et al.* New insights into fatigue and health-related quality of life after delivery. *Acta Obstet Gynecol Scand* 2007;86:579-84.
 18. Bai G, Korfage IJ, Mautner E, Raat H. Determinants of maternal health related quality of life after childbirth: The generation R study. *Int J Environ Res Public Health* 2019;16: 1-12.
 19. Hitimana R, Lindholm L, Krantz G, Nzayirambaho M, Condo J, Sengoma JPS, *et al.* (2018). Health related quality of life determinants among Rwandan women after delivery: Does antenatal care utilisation matter? A cross sectional study. *J Health Populat Nutr* 2018;37:12.
 20. Akyn B, Ege E, Kocodlu D, Demiroren N, Vylmaz S. Quality of life and related factors in women, aged 15-49 in the 12 months postpartum period in turkey. *J Obstet Gynecol Res* 2009;1:86-93.
 21. Ajuzieogu V, Amucheazi A. Re: A five-year survey of cesarean delivery at a Nigerian tertiary hospital. *Ann Med Health Sci Res* 2011;1:227.
 22. Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, Torloni MR. The increasing trend in caesarean section rates: Global, regional and national estimates: 1990-2014. *PLoS One* 2016;11:e0148343.
 23. Ushie BA, Udoh EE, Ajayi AI. Examining inequalities in access to delivery by caesarean section in Nigeria. *PLoS One* 2019;14:e0221778.
 24. Zakerihamidi M, Latifnejad Roudsari R, Merghati Khoei E. Vaginal delivery vs. cesarean section: A focused ethnographic study of women's perceptions in the North of Iran. *Int J Community Based Nurs Midwifery* 2015;3:39-50.
 25. Sadat Z, Taebi M, Saberi F, Kalarhoudi MA. The relationship between mode of delivery and postpartum physical and mental health related quality of life. *Iran J Nurs Midwifery Res* 2013;18:499-504.
 26. Adams SS, Eberhard-Gran M, Sandvik ÅR, Eskild A. Mode of delivery and postpartum emotional distress: A cohort study of 55,814 women. *BJOG* 2012;119:298-305.
 27. 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.
 28. Yamane T. *Statistics, an Introductory Analysis*. 2nd ed. New York: Harper and Row; 1967.
 29. Rowlands IJ, Redshaw M. Mode of birth and women's psychological and physical wellbeing in the postnatal period. *BMC Pregnancy Childbirth* 2012;12:138.
 30. Alshehri NM, Alanazi AQ, Alanazi MQ, Alanazi WQ, Alanazi JQ, Alenazi BQ, *et al.* Relationship between health related quality of life determinants and type of delivery in Saudi women. *Fam Med Med Sci Res.* 2015;4(1):1-4.
 31. Da Costa D, Dritsa M, Rippen N, Lowensteyn I, Khalifé S. Health-related quality of life in postpartum depressed women. *Arch Womens Ment Health* 2006;9:95-102.
 32. Evans MK, Patrick LJ, Wellington CM. Health behaviours of postpartum women with a history of gestational diabetes. *Canadian J Diabetes* 2010;34:227-32.
 33. El Sayed SL, Emarah HA. Relationship between the mode of birth and quality of life for women's health during the postpartum period. *Am J Nurs* 2019;8:75-80.
 34. Mbada CE, Adeogun GA, Ogunlana MO, Adedoyin RA, Akinsulore A, Awotidebe TO, *et al.* Translation, cross-cultural adaptation and psychometric evaluation of yoruba version of the short-form 36 health survey. *Health Qual Life Outcomes* 2015;13:141.
 35. Symon A, McGreavey J, Picken C. Postnatal quality of life assessment: Validation of the Mother-Generated Index. *BJOG* 2003;110:865-8.
 36. Chinweuba AU, Okoronkwo IL, Anarado AN, Agbapuonwu NE, Ogbonnaya NP, Ihudiebube-Splendor CN. Differentials in health-related quality of life of employed and unemployed women with normal vaginal delivery. *BMC Womens Health* 2018;18:13.
 37. Emmanuel E, St John W. Maternal distress: A concept analysis. *J Adv Nurs* 2010;66:2104-15.
 38. Prick BW, Bijlenga D, Jansen AJ, Boers KE, Scherjon SA, Koopmans CM, *et al.* Determinants of health-related quality of life in the postpartum period after obstetric complications. *Eur J Obstet Gynecol Reprod Biol* 2015;185:88-95.
 39. Grossman HA, Sullivan PS, Wu AW. Quality of life and HIV: Current assessment tools and future directions for clinical practice. *AIDS Read* 2003;13:583-90, 595-7.
 40. Franchi D, Wenzel RP. Measuring health-related quality of life among patients infected with human immunodeficiency virus. *Clin Infect Dis* 1998;26:20-6.
 41. Kavosi Z, Keshtkaran A, Setoodehzadeh F, Kasraeian M, Khammarnia M, Eslahi M. A Comparison of mothers' quality of life after normal vaginal, cesarean, and water birth deliveries. *Int J Community Based Nurs Midwifery* 2015;3:198-204.
 42. Ranae F. Reasons for choosing cesarean among women referred to Bea'sat Hospital of Sanandaj. *Behood* 2004;10:277-86.
 43. John JH. Postpartum psychiatric disorders: A review. *Comp Psychiatry* 1989;30:109-12.