Postpartum Quality of Life among Women after Vaginal Birth and Cesarean Section

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ABSTRACT

Context: Quality of life is a broad multidimensional, and dynamic concept. It influences the performance of the individual in physical, social, and spiritual aspects of life. Despite the postpartum period is accompanied by many physical, emotional, and social changes in women's health**,** it is often a neglected aspect of women's health care.
Aim: This study aimed to assess the postpartum quality of life among mothers regardless of their delivery model and assess the difference in life quality at the various modes of delivery.
Methods: A descriptive exploratory cross-sectional study was employed to achieve the aim of this study. A structured interview questionnaire and postpartum quality of life scale that includes assessing four health-related domains that were child care, physical, psychological, and social functioning, were used to achieve the aims of this study.
Results: The study revealed a fair and good quality of life among most of the studied women regardless of their mode of delivery. The quality of life subscales' assessment revealed a non-statistically significant difference between women in various delivery modes in childcare and physical functioning domains. While statistically significant differences were revealed between all groups regarding their physical and social functioning.
Conclusion: The study did not show a clear-cut benefit in favor of any delivery modes regarding postpartum life quality, and the research hypothesis is not fully supported. The study recommended further a longitudinal study to understand the magnitude, trajectory, and underpinning mechanisms of health-related quality of life outcomes following different delivery modes.

Keywords: Postpartum quality of life, vaginal birth, cesarean section

1. Introduction

Quality of life (QOL) has proven challenging *(Brazier et al., 2014),* and the existing approaches to defining the quality of life are broadly based on the phenomenological perspectives, subjective well-being, and personal expectations *(Bowling, 2005)*. Quality of life has described as "an overall general well-being that embraces objective and subjective evaluations of the individual physical, emotional, and social well-being while considering the extent of individual growth and meaningful activity, all prejudiced against the individual values" *(Felce & Perry, 1995; Karimi & Brazier, 2016).* Quality of life is a broad multidimensional and dynamic concept that influences the enactment of the individual in many aspects of life, such as physical, social, and spiritual dimensions *(Steger, Frazier, Oishi, & Kaler, 2006).*

Health-Related Quality of Life (HRQoL) has also been challenging to define. Four definitions at least mentioned in the literature. One of them was an estimation of the individual perception of his/her functions in life, his/her well-being across the three domains of health, namely physical, social, and emotional. Functioning denotes the personal capacity to perform a set of activities, while well-being states a personal subjective perception *(Hays & Reev, 2010).* Quality of life has become an area of interest and growing significance to the specialty of women and child health *(Mogos, August, Salinas-Miranda, Sultan, & Salihu, 2013)*.

An important measure of women's health care quality and efficiency is to assess the women's perception of their quality of life after any intervention *(Symon, MacKay, & Ruta, 2003)*. The postpartum period is accompanied by many physical, emotional, and social changes in women's health *(Rezaei et al., 2016)*. Inadvertently, the routine postpartum care and follow-up for six weeks typically concerned with the obstetric examination and family planning irrespective of their psychological and physical health *(Symon et al., 2003)*. Mistakably, postpartum care terminated while women still struggle to accommodate new life circumstances and role changes *(Ahmadi et al., 2014).*

Evidence from previous studies argued that postpartum quality of life is affected by the women's physical health

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problems experienced during the postpartum period. Inappropriately this aspect is often neglected in both practice and research *(Cheng & Li, 2008)*.

Studies from several countries reported postpartum-related morbidities *Torkan, Parsay, Lamyian, Kazemnejad, and Montazeri, (2009); Zubaran, Foresti, Schumacher, Muller, and Amoretti, (2009); Cheng, Fowles, and Walker, (2006)*. Among the most common postpartum physical comorbidities are fatigue and tiredness reported by more than half of mothers *(Van der Woude, Pijnenborg, & de Vries, 2015)*. *Cheng, Fowles, and Walker (2006)* reported a positive association between fatigue and breastfeeding problems, and postpartum depression. Body aches are another frequently reported symptom *(Van der Woude et al., 2015)*. Other reported disorders that much reflected on women physical and psychological health were constipation, incontinence, hemorrhoids, sleep disorders, and a variety of emotional changes such as depressive symptoms *(Van der Woude et al., 2015; Bodhare, Sethi, Bele, Gayatri, Vivekanand, 2015; Vinturache et al., 2015)*. These physical comorbidities affect women and their infant well-being *(Prick et al., 2015)*.

Nevertheless, health care providers often neglect these physical and emotional comorbidities *(Symon et al., 2003)* and similarly by the family members as results of concentration on childcare during the early postpartum period *(Shaw, Levitt, Wong, Kaczorowski, 2006)*. Consequently, insufficient exploration of these comorbidities can unfavorably affect the quality of life of both mothers and infants *(Mogos et al., 2013)*.

The rate of cesarean deliveries adds another burden to the women's quality of life during the postpartum period. The rate has grown evidently in the industrial communities in recent years *(Nino, 2011)*, emphasizing a great need to investigate their probable adverse consequences. Many studies revealed that the women delivered by either elective or emergency cesarean section had high risks of blood transfusion, hysterectomy, ICU admission, postpartum infection, and increased maternal and infant mortality *(Villar et al., 2007*; *Kathpalia, Chawla, Harith, Gupta, & Anveshi, 2016)*. Besides, uterine rupture, placenta accrete, and placenta previa *(Kennare, Tucker, Heard, & Chan, 2007; Daltveit, Tollanes, Pihlstrom, &Irgens, 2008)* compared to women who deliver vaginally.

Thompson, Roberts, Currie, and Ellwood (2002) provided evidence of increased risk of exhaustion, sleep deprivation, and intestinal alterations after cesarean section compared to vaginal delivery. The previous studies remarkably noticed that the limited biomedical-based outcomes could not capture different aspects of life quality such as functional ability, psychological, and social functioning *(Brazier, Ratcliffe, Salomon, Tsuchiya, 2007)*.

2. Significance of the study

Despite the full involvement of health care professionals in antenatal care, women in the postpartum period are often mistreated. Awkwardly, the research is mostly concerned with medical and nursing aspects of care, treatment, and intervention efficacy for immediate postpartum physical outcomes. These shortcomings are reflected in research done to examine the postpartum quality of life from mothers' perspectives, exploring the various dimensions of life quality, such as childcare, psychological, and social functioning. A lot still to be done to meet the health needs of postpartum mothers.

While a plethora of information is available regarding the effect of delivery mode on mothers and infants' cost and clinical outcomes, little is known about the effect of delivery modes on various aspects of health-related quality of life after delivery. This study will fill the knowledge gap regarding studying various aspects of health-related quality of life at different delivery modes. Particularly with reported Egyptian skyrocketing rate of cesarean deliveries that approaching 52 percent. This alarming increase ranked Egypt as the third globally and the first in the Middle East after a steady increase from a low of 4.6% in 1992, 6.7% in 1995, and 10.3% in2000, to about 52% in 2014 *(Kandil, 2018)*. The reported increase was most significant between 2008 and 2014 that doubled from 26.7% to 51.8%. This increase signifies a four-times increase in C-section-associated complications, cost, and poor quality of life consequences compared to vaginal deliveries *(Elzanati and associates, 2015; Al Rifai, 2017; El-Behary, 2018)*.

3. Aim of the study

This study aimed to:

- Assess the postpartum quality of life among mothers regardless of their delivery mode.
- Assess the difference in the quality of life at various modes of delivery.

3.1. Research hypothesis

Statistically, significant differences will be present in the quality of life among mothers at different delivery modes regarding the four quality of life dimensions (childcare, physical, psychological, and social functioning).

3.2. Operational definitions

The quality of life defined in this study is the women's perception of the four domains of functioning: childcare, physical functioning, psychological functioning, and social functioning.

The postpartum period is defined in this study as the six to eight weeks after delivery.

4. Subjects & Methods

4.1. Research design

A descriptive exploratory cross-sectional research design was utilized to carry out the present study.

4.2. Research setting

The study was conducted at four Maternal and Child Health centers in Assiut city; El Arbeen, Quota, El Waleed, and Hay Gharb. These centers provide preventive services (such as; family planning, antenatal care, vaccination) and curative services (medical care services, investigations, follow-up) for six days a week. These services cover Assiut city and its neighboring villages.

4.3. Subjects

A convenient sample of women was recruited to achieve the aims of this study. They recruited during their follow-up at the previously mentioned clinical settings. They were selected according to the following inclusion criteria (delivered within 6 to 8 weeks, delivered vaginal or caesarian section, and agree to participate in the study). The following women were excluded from the study: those suffering from psychological or medical problems, infant death or defect, and separation or divorce from one's spouse.

The following sample size equation is used to demonstrate the included sample size.

$$\text{Ss} = \frac{Z^2(p) \times (1-p)}{e^2}$$

Z= Z value (e. g. 1.96 for 95% confidence level)
P= Percentage picking a choice expressed as a decimal
C= Confidence interval expressed as decimal (e. g., .04= ±4)
According to the sample size equation, 446 mothers were included in the study.

4.4. Tools of data collection

Two tools used for collecting data for this study,

4.4.1. Structured Interview Questionnaire

The researcher developed it to assess the women's demographics and health history. It included three parts. The first part included assessing women's socio-demographics (such as age, level of education, occupation, residence, economic status, husband's occupation). The second part included obstetric history (such as number of gravidities, number of parities, history of abortion, complications of previous pregnancies, and number of living males and females). The third part is concerned with the current pregnancy and labor history. It included pregnancy complications, mode of delivery, duration from the last delivery, newborn sex, newborn weight, and type of newborn feeding.

4.4.2. Postpartum Quality of Life Scale (PQoL)

It is a 5-point Likert scale adapted from *Zoho, Wang, and Wang (2009)* to evaluate the quality of life of postpartum women. It incorporates four domains that are childcare (eight statements/questions), physical functioning (twelve statements/questions), psychological functioning (eight statements/questions), and social functioning (twelve statements/questions). The stated statements and questions were classified as seven subscales.

The seven subscales scored as follows: the first subscale includes 14 statements/questions covering the four assessed domains. The scoring ranged from [never (1), rarely (2), sometimes (3), often (4), and always (5)]. Among the fourteen statements/questions, there were six reversed statements. The second subscale included eight statements/questions covering the domains of child care, physical, and social health. The scoring ranged from [very satisfied (1), satisfied (2), neither satisfied nor dissatisfied (3), dissatisfied (4), and very dissatisfied (5)].

The third subscale consists of one question concerning the childcare domain. The scoring ranged from [always enough (1), enough (2), sometimes (3), not enough (4), and not enough at all (5)]. The fourth subscale includes ten statements/questions covering physical, psychological, and social health domains. The scoring ranged from [not at all (1), slightly (2), rarely (3), very (4), and extremely (5)]. Among the ten statements, there were five statements negatively stated. The fifth subscale consisted of one question related to social health. The scoring of this subscale ranged from [very good (1), good (2), neither bad nor good (3), bad (4), and very bad (5).

The sixth subscale consisted of 5 statements/questions regarding the domains of childcare, psychological, and social health. The scoring ranged from [a great deal (1), very much (2), moderate amount (3), a little (4), and not at all (5)]. The last subscale consisted of one question concerning social functioning. The scoring of this subscale ranged from [very enough (1), enough (2), just enough (3), a little short (4), and not enough (5). The total score ranged from 40 to 200 (good= 40-93; faire=94-146; poor=147- 200). The higher the score, the lower the quality of life.

4.5. Procedures

The operational design for this study included the preparatory phase, ethical considerations, validity and reliability of the tools, pilot study, and fieldwork. The preparatory phase included reviewing the relevant literature to develop and validate data collection instruments. A jury of seven experts was recruited to judge the designed questionnaire's content validity and adopted scale. They were faculty members specialized in Obstetrics and Gynecology Medicine, Mental Health Nursing, and Maternity and Child Health Nursing. Tool reliability was tested using test-retest. Cronbach's alpha coefficient ranged from 0.73 to 0.92, indicating a good internal consistency.

Official permission was obtained from the Maternal and Child Health Centers to conduct the proposed study. A pilot study was conducted on a sample of 46 women (10%) to test the clarity, applicability, and difficulties with the study tools, the time needed to fill in the study questionnaire and QoL scale, and the feasibility of the study process. Modification of the tools has been done according to the pilot study results. Subjects who shared in the pilot study excluded later from the study subjects.

The fieldwork started by introducing the researcher to the participants. The researcher explained the aim, nature, and benefits of the study. Women were interviewed individually to collect the study data. Informed oral consent was obtained from the mothers before the beginning of the study. The anonymity of the study tool and confidentiality of the participant's personal information assured. Participation was optional, and women are allowed to withdraw at any time without reasoning. Each questionnaire was completed between 20-30 minutes. The data collected at a period of five months starting from May to September 2017.

4.6. Limitation of the study

A possible limitation for the current study that stressful life events were not considered in the present study. These

events could influence women's health perception and quality of life. However, the present study excluded the women who suffered from psychological or medical problems, infant death, or defect, and those separated or divorced.

4.7. Data analysis

The obtained data were reviewed, set for computer entry, coded, analyzed, and tabulated. Descriptive statistics presented as (frequencies and percentages). The test of significance (chi-square test) has done using the computer program SPSS version 20. The probability of less than 0.05 was considered significant for all statistical tests.

5. Results

Table 1 illustrates women's sociodemographic characteristics. It reveals that 58.1% of them their age group was 25-35 year. The age ranges between 16-38 years, with a mean age of 28±5.1. Also, 65% of them live in an urban area. The women's level of education reveals that 55.6% have secondary education, followed by 19.7% have a university education, and only 13.7% cannot read and write. Most of them (73.8%) were employed regarding mother's occupations compared to 34.5% of their husbands. Regarding the family income, 87.2% of the samples' income varied between 1000 to 2000 EP/ month.

Table 2 shows that 66.4% of the sample had 2-4 pregnancies, followed by 29.8% primigravida. Regarding the number of parities, the highest percentage (64.6%) of women had 2-4 labors. Regarding the history of abortion, 86.8 of the sample has no previous abortion. The number of living males illustrates that most of the sample (83.9%) had 1-3 living male children, and 71.5% of them had 1-3 living female children.

Table 3 clarifies the current pregnancy and labor history. 97.5% of the studied women had no complications during pregnancy. The table also shows that 91.1% of women were at 1-3 years from their last delivery. 67.2 % delivered a normal weight baby. Regarding the type of newborn feeding, it was observed that most of the newborns (95.1%) were breastfeeding.

Figure 1 illustrates the distribution of different modes of delivery among the studied women. The figure shows that 51% of the women deliver spontaneous vaginal delivery, 38.8 % delivered by cesarean section, 6.5% deliver through spontaneous vaginal delivery, plus 3.8% of them deliver vaginally with instrumental assistance.

Table 4 shows the frequency distribution of quality-of-life levels among women with vaginal delivery and cesarean section. The table shows that none of the women in both groups have a poor quality of life regarding childcare or psychological domain. The table also shows that 10% of the women with vaginal delivery have poor physical function compared to no one in the cesarean section group. Besides, 4.8% of women with vaginal delivery than 0.6% of women in the cesarean section group have poor social functioning.

Table 5 clarifies the overall level of postpartum quality of life among the women under study. It reveals that 78% of them had a fair level of postpartum life quality, and 21.5% reported a good postpartum life quality with a mean score of 131.3±6.8.

Table 6 demonstrates the relationship between quality-of-life levels and modes of delivery among the studied women. The result shows a non-significant difference between the women at different delivery modes regarding childcare and the psychological domain. At the same time, there are statistically significant differences between different modes of delivery and quality of life level at the physical and social domains. The table also shows a higher percentage of women with instrumental delivery got lower life quality compared to women in other groups regarding childcare (58.8% of them have a fair quality of life), 11.8% of them have a poor quality of life regarding their physical functioning, 5.9% have the fair quality of life at the psychological domain, and 17.6% regarding the social domain.

Table (1): Frequency distribution of the studied women according to their sociodemographic characteristics.

Characters	No. 446	%
Age group		
16-<25	163	36.5
25-35	259	58.1
>35	24	5.4
Age range	16-38	
Age (Mean±SD)	28±5.1	
Residence		
Rural	156	35.0
Urban	290	65.0
Mother's educational level		
Cannot read and write	61	13.7
Read & write	7	1.6
Preparatory education	42	9.4
Secondary	248	55.6
University	88	19.7
Mother's occupation		
Employed	329	73.8
Housewife	117	26.2
Father's occupation		
Employment	154	34.5
Not employed	292	65.5
Family income		
Less than 1000 EP	7	1.6
1000-2000 EP	389	87.2
More than 2000 EP	50	11.2

Table (2): Frequency distribution of the studied women according to their obstetric history.

Parameter	N0. 446	%
Gravidity		
Primigravida	133	29.8
2-4	296	66.4
5 and more	17	3.8
Parity		
Once	143	32.1
2-4	288	64.6
5 and more	15	3.3
History of abortion		
Yes	59	13.2
No	387	86.8
Complications in a previous pregnancy		
Yes	11	2.5
No	435	97.5
No. of living males		
No.	70	15.7
1-3	374	83.9
More than 3	2	0.4
Range	0-4	
Mean±SD	2.3±1.2	
No of living females		
No.	126	28.3
1-3	319	71.5
More than 3	1	0.2

Table (3): Frequency distribution of the studied women according to their current pregnancy and labor history.

Parameter	N 446	%
Pregnancy complications		
Yes	11	2.5
No	435	97.5
Duration from last delivery (n=303)		
1-3 years	276	91.1
More than 3	27	8.9
Newborn sex		
Male	254	56.9
Female	192	43.1
Newborn weight		
Low birth weight	93	20.9
Normal weight	300	67.2
Macrocosmic	53	11.9
Type of newborn feeding		
Breastfeeding	424	95.1
Bottle feeding	22	4.9

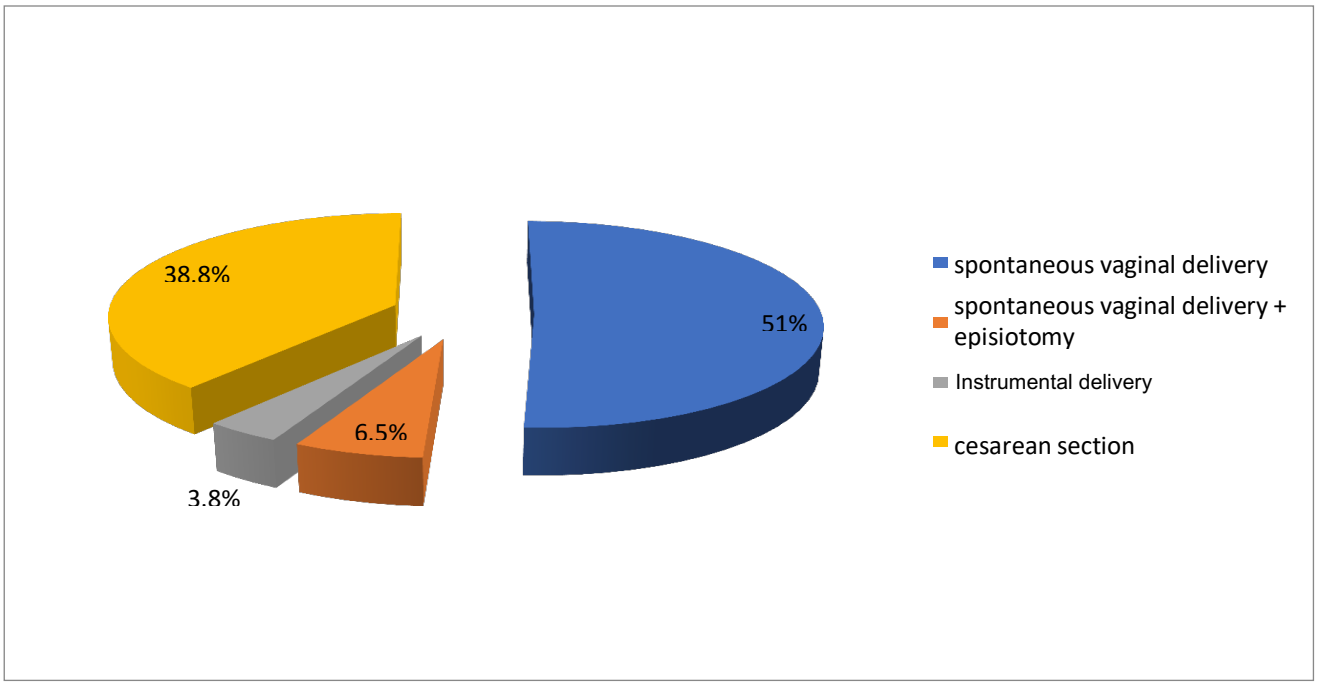

Figure (1): Percentage distribution of various modes of delivery among the studied women.

Table (4): Frequency distribution of quality of life levels among the studied women with vaginal and cesarean section.

Domains	Vaginal delivery		Cesarean section	
	No. 273	%	No. 173	%
Childcare				
Good	155	56.8	89	51.4
Fair	118	43.2	84	48.6
Physical functioning				
Good	19	7	17	9.8
Fair	244	89.4	156	90.2
Poor	10	3.6	0	0.0
Psychological functioning				
Good	267	97.8	171	98.8
Faire	6	2.2	2	1.2
Social functioning				
Good	15	5.5	13	7. 5
Fair	245	89.7	159	91.9
Poor	13	4.8	1	0.6

Table (5): Overall level of postpartum quality of life.

Quality of life level	N 446	%
Poor	2	0.6
Fair	348	78
Good	96	21.5
Mean±SD	131.3±6.8	
Range	97-149	

Table: (6) Relationship between the quality of life level and mode of delivery among women under study.

Domain	Spontaneous vaginal delivery		Spontaneous vaginal delivery + episiotomy		Instrumental delivery		Cesarean section		P-value
	N 227	%	N 29	%	No. 173	%	No. 173	%	
Childcare									
Good	130	57.3	18	62.1	7	41.2	89	51.4	0.357
Faire	97	42.7	11	37.9	10	58.8	84	48.6	
Physical functioning									
Good	19	8.4	0	0.0	0	0.0	17	9.8	
Faire	200	88.1	29	100.0	15	88.2	156	90.2	0.007
Poor	8	3.5	0	0.0	2	11.8	0	0.0	
Psychological functioning									
Good	222	97.8	29	100.0	16	94.1	171	98.8	0.431
Faire	5	2.2	0	0.0	1	5.9	2	1.2	
Social functioning									
Good	14	6.2	0	0.0	1	5.9	13	7. 5	
Faire	204	89.9	28	96.6	13	76.5	159	91.9	0.006
Poor	9	4.0	1	3.4	3	17.6	1	0.6	

6. Discussion

The postpartum period is a critical life event for mothers. It carries many physiological, psychological, and social fluctuations. These changes could affect mothers' quality of life, future health, and their infants' health *(Sadat, Taebi, Saberi, & Kalarhoudi, 2013).* The delivery mode is one of the most significant factors affecting the postpartum quality of life**.** The improvement in the postpartum period will lead to generally improving QoL of
mothers, children, family members, and the community *(Kavosi et al., 2015)*. However, the debate on either vaginal delivery or cesarean section's best practice is the best in minimizing postpartum morbidities still a matter of controversy *(Anderson, 2004).* The current study assesses the postpartum quality of life among mothers regardless of their delivery model and assesses the difference in the quality of life at various delivery modes.

The current study reveals that the age range for the studied women was 16-38 years, with their mean age of 28±5.1. Also, more than half of them have secondary education, followed by about one-fifth had a university education. About three-quarters of the studied women were employed compared to about one-third of their husbands, which may substantially affect their quality of life (but this was beyond the aim of this study). Most of the studied women have family income between one thousand and two thousand Egyptian bounds. These findings reflect that the studied women of childbearing age have moderate education, low family income, and a high level of employment compared to their husbands. All these factors can affect their quality of life.

These findings were comparable to an Egyptian study entitled "Quality of life after vaginal and cesarean deliveries among a group of Egyptian women." The study revealed an age range between 21-40 years old for their studied women with a mean age of 25.5 ± 3.80 years. Besides, a high proportion of the studied women had at least secondary education, and one-third was employed. These similarities allow the comparison of findings between this study and the current study as they study the quality of life between 2 to three months postpartum *(Moawad & Yakout, 2015).*

Similar findings were reported by *AlShehri et al. (2015)* in a study entitled "relationship between health-related quality of life determinants and type of delivery in Saudi women." The study revealed an age range of 21-40, with a mean score of 26.5±2.80 years. Also, most of their studied women had secondary education, and more than one-third of them were employed. Women' s age, number of children, educational level, and employment status were the factors that significantly impacted the health-related quality of life in this study.

The present study reveals an obstetric history of women under study. More than two-thirds of the studied women have two to four pregnancies, about two-thirds of them have two to four labors, and more than four-fifths have no previous history of abortion. Also, the study revealed that more than four-fifths of the studied women have between one to three living males, and more than two-thirds have oneto three living females. *Moawad and Yakout (2015)* reported similar findings that more than four-fifths had one to three living male children, and more than two-thirds had one to three female children.

Regarding the current pregnancy and labor history, the present study shows that most of the studied women have no pregnancy complications, have one to three years from last delivery, and fed their newborn by breastfeeding. This finding reflects a high level of awareness and proper medical and nursing care provided to those women in the antenatal period. On the other hand, the study displays that more than half of the sample deliver their baby by spontaneous vaginal delivery and near than two-fifths delivered by cesarean section.

This reported rate is consistent with an Egyptian study conducted by *Kandil (2018*) in Menoufia University entitled "The skyrocketing rate of cesarean section in Egypt." The study reported a progressive increase in cesarean section in Egypt since 1992 to reach 52% in 2014. The study referred to this skyrocketing rate for a mixture of reasons: increased maternal request for cesarean section, women afraid of the associated pain

and long hours of labor in vaginal delivery, panic stories from her neighborhood, adverse effects media, and obstetricians desire for safe delivery. This high rate of cesarean section is also reported in Iran by *Moini, Riazi, Ebrahimi, and Ostovan (2007),* who mentioned that the cesarean section increased from 35.4% of deliveries in 1999 to 42.3% in 2003.

This high rate of cesarean section is not consistent with WHO recommendations. World health organization recommended a rate of 5-15% of all deliveries as a reasonable rate. WHO stated that the rate of more than fifteen percent is unacceptable as it does not induce better health outcomes. Inappropriately the rate increases beyond WHO recommendations in most countries, particularly in developing countries, despite no association with any decline in the reported maternal morbidity and mortality *(McCourt et al., 2007).*

The present study exhibits a total postpartum quality of life for the studied women regardless of their mode of delivery. The current study reveals that more than three-quarters of women perceived their total postpartum quality of life level as fair, and one-fifth of them perceived their total postpartum quality of life as good. This finding may reflect the advanced, well-distributed medical, nursing, and follow up care in the remote Egyptian governorates, the family support provided for the newly delivered mothers, and care provided by families to the newborns, especially for the primiparous (as evidenced by the current study findings that the primiparous were near one-third of the current study women).

Another justification was provided by *Moawad and Yakout (2015).* They reported a positive influence of having a baby on the mothers' quality of life. The women in their study had a positive perception of their quality of life concerning physical and emotional aspects after having a baby compared to before. This positive perception of the mothers' health-related quality of life could be explained by what is called a response shift. This theoretical model argued that the improvement in HRQoL could be a consequence of the accommodation process that involves changing internal standards and values *(Spranger & Schwartz, 1999)*.

The present study also shows the quality-of-life domains for the studied women in vaginal delivery and cesarean section groups. The study reveals that none of the women perceived their quality of life as poor in the domain of childcare and psychological functioning in both groups, with a non-statistically significant difference between all groups. This finding may indicate that giving birth to a new baby is expected to be a pleasurable and satisfactory experience. In addition to the family support mothers received from their husbands, families, and neighborhood in child care in the immediate period following delivery which might be reflected in their psychological state. This finding also reflected the level of health care the mother could easily obtain for herself and her baby in maternal and child health centers.

Similar findings reported by *Jansen et al. (2007)* that the mental health-related quality of life was similar among vaginal delivery and cesarean section groups. *Ples, et al. (2018)* also stated that the highest percentage of their studied women could take care of the newborn in the first 24 hours after delivery (29.7%) and indicated that mode of delivery did not impact their baby care (90.5%). The presence of negative feelings, taking care of the baby, and lactation was not influenced by the mode of delivery in their study.

This finding was not the case with *Halbreich and Karkun (2006),* who declared increases in postpartum depression when measured at the first 59 days after delivery, and it lasts for about two years. The study also reported that between ten to twenty percent of mothers were affected with postpartum depression following delivery. Conversely, only fifty percent of them who have prominent symptoms are diagnosed. The current study findings are also inconsistent with *Jansen, Essink-Bot, Duvekot, and van Rhenen (2007),* who reported a psychometric evaluation of HRQoL measures in women following various delivery modes. The study reported better health-related quality of life in women after vaginal delivery than elective or emergency cesarean section. The current study also disagreed with *Alshehri (2015),* who reported a marked difference in mental health and role emotional subscale between women in vaginal delivery and cesarean section groups.

Although most of the women in the current study perceived their physical and social functioning as fair and less than one-tenth perceive their physical and social quality of life as poor in the vaginal delivery group compared to the cesarean section group, with statistically significant differences between all groups regarding physical and social functioning of quality-of-life subscales. This finding may argue that mothers after cesarean section received more medical care and hospital attention; thus, they exhibited better HRQoL regarding physical and social subscales. That is why the women may ask for a cesarean section as a preferred mode of delivery. The women's decision is built on personal and societal factors, including inequity and incompetent care after vaginal delivery. This view is supported by *(McCurt et al., 2007)*.

A contradictory finding was reported by *Jansen et al. (2007).* Their study compared women's postpartum quality of life after three delivery modes (elective and emergency cesarean section and vaginal). The results indicated a higher mean score of physical HRQoL subscale after vaginal birth compared to cesarean section. This finding was also emphasized in a study conducted by *Torkan et al. (2009)*. The study assessed HRQoL using SF-36 after six to eight weeks of delivery. The results indicated better physical HRQoL of women after vaginal delivery than the cesarean section group and a better psychological HRQoL among women delivered by cesarean section compared to a vaginal delivery group.

Moreover, *AlShehri, (2015*) reported a worse mean score for all HRQoL subscales except for body pain among mothers delivered by cesarean section compared to

mothers with vaginal delivery with a statistically significant difference between both groups regarding the eight subscales at ($p<0.001$), indicating a strong correlation between HRQoL and mode of delivery.

Several studies have shown that, over the first few months postpartum, women delivering vaginally have significantly better scores on physical dimension *Jansen et al. (2007); Jansen (2007a); Torkan et al. (2009); Baghirzada, Downey, Macarthur (2013); Mousavi, Mortazavi, Chaman, and Khosravi (2013); Sadat et al. (2013)*; mental *Torkan et al. (2009)*; *Mousavi et al. (2013)*; *Sadat, Taebi, Saberi, and Kalarhoudi (2013)*, social *Mousavi, Mortazavi, Chaman, and Khosravi (2013)* and pain aspect of HRQoL subscale *Baghirzada et al. (2013)* as well as higher energy levels *Baghirzad et al. (2013*) and vitality *Torkan et al. (2009*), compared to mothers in cesarean section group.

Quality of life was significantly lower in women with cesarean section, compared to women with vaginal delivery in all periods, including one week (42.44 vs. 68.77), two months (54.76 vs.69.11), four months (53.02 vs. 78.19), six months (54.94 vs. 75.62.), and one year (53.77 vs. 78.43) after delivery *Majzoobi, Majzoobi, Nazari-pouya, Biglari, Poorolajal, (2014)*. These findings are consistent with *Moawad and Yakout (2015),* who studied HRQoL among Egyptian women. The study claimed a difference in postpartum HRQoL between women after cesarean section and vaginal delivery. Favorable HRQoL scores revealed seven of the eight SF-36 subscales for the postpartum vaginal delivery group after a few weeks of delivery. Their scores were significantly higher in the physical domain, vitality, role physical, role emotional, and mental functioning domains.

Petrou, Kim, McParland, and Boyle (2017) also showed a mixed pattern of results, who reported assessments of early postnatal health-related quality of life conducted in specific clinical contexts. A longitudinal prospective study in Spain reported different results included 546 healthy primiparas that were evaluated postpartum regarding sociodemographic and clinical characteristics during the sixth week and sixth month. The study compared HRQoL by mode of delivery. There was no difference in HRQoL by mode of delivery at either period. Method of birth was not directly or indirectly associated with HRQoL in the short term *(Bălălău, Sima, Bacalbașa, Pleș, Stănescu, 2016; Holden, Hockey, Ware, Lee, 2018; Triviño-Juárez et al., 2017).* These results might support our study findings.

Several studies have been conducted to assess the outcomes of various delivery modes. *Nikpoor, Abedian, Mokhber, Ebrahimzadeh, and Khani (2011*) evaluated the HRQoL of 290 women at eight weeks after delivery, based on the standards established by WHO. The study disclosed that the physical and mental subscales scores in the cesarean section were lower than those of the vaginal delivery group. *Amatya and Acharya (2015),* in a study, examined the postpartum quality of life after normal vaginal delivery and a cesarean section on 468 primiparas.

The study shows a better quality of life score for women with vaginal delivery than the cesarean section. The difference in outcomes between those studies and the current study may be referred to as the research instruments used as most of these studies used the Short Form 36 questionnaire to measure the quality of life among postpartum women. Another reason may be the different postpartum periods. Some studies measure the quality of life immediately after birth, and others measured at six months or even one year from birth. It is expected that as far as the delivery date was, the mother may be more accommodated with their new circumstances of childcare, better improvement of physical functioning, psychological adaptation, and social adjustment. Other variables that could not be underestimated are different sample sizes and diverse cultures, as in some studies conducted in Iran, Spain, India, and Saudi Arabia.

The current study also displays that a higher percentage of women with instrumental delivery have lower life quality than women in other groups regarding childcare, physical functioning, psychological, and social domain. These findings may refer to prolonged delivery time, improper analgesia, fear of poor consequences for the mother and the baby, and increased incidence of trauma due to instrumental manipulation. These findings were in agreement with *Skinner, Barnet, and Dietz (2018)*. They reported that vaginal birth could cause damage to the levator ani muscle with pelvic floor dysfunction and associated psychological problems. *Skinner et al. (2018)* also reported a strong association between these somatic injuries and psychological symptoms. In such situations, the obstetrician may underestimate the psychological impact. In this study, women reported feeling traumatized because such morbidities were not discussed before or after birth.

Martinez-Galiano, Hernandez-Martinez, Rodriguez-Almagro, Delgado-Rodriguez, Rubio-Alvarez, and Gomez-Salgado, (2019) reported similar findings when examining the postpartum quality of life in 2990 women at six weeks postpartum. Among discomforts that affect the postpartum quality of life were problems with sexual intercourse after childbirth, urinary incontinence, infected wound, perineal pain, and burning during urination. Consequently, these discomforts presented within the first six weeks after delivery reflected profoundly on the women's postpartum quality of life. *Nolens et al. (2018*) stated that more than 50% of women delivered through instrumental vaginal delivery had been very apprehensive and worried about their newborn compared to mothers in the cesarean section group. A high percentage of women reported that they were terrified and had a painful experience during vacuum extraction compared with those in the cesarean section group.

Women in the current era of medical practice are expecting more consideration to their quality of life. However, the current study did not reveal a precise advantage of either delivery mode. The results suggest a good and fair postpartum quality of life levels in the four measured domains: child care, physical, psychological, and

social functioning at six to eight weeks after delivery regardless of the women's delivery model. Also, the study has shown various findings in comparing the quality of life with different modes (vaginal, vaginal with episiotomy, instrumental vaginal delivery, and cesarean section), which is not fully supporting the research hypothesis.

7. Conclusion

The present study concluded that most of the studied women have either fair or good health-related quality of life regarding the total quality of life scores and each subscale of child care, physical, psychological, and social functioning six to eight weeks after delivery regardless of their delivery modes. The study also revealed a non-statistically significant difference among all groups regarding child care and psychological functioning. At the same time, there are statistically significant differences between all groups regarding physical and social functioning. These findings were partially supporting the research hypothesis.

8. Recommendations

Although the study did not show a clear-cut benefit in favor of either delivery method, expectantly, the present study findings could help the healthcare policymakers in reviewing policies to control the cesarean rate.

- Further longitudinal studies are needed to understand the magnitude, trajectory, and underpinning mechanisms of health-related quality of life outcomes following different delivery modes.
- Further researches considering cultural variations may help in understanding the cultural differences.
- Further research that addresses the on-request cesarean section investigates the reasons behind mothers' selection for this mode of delivery regardless of a medical indication.
- The development of health education programs increases prospective mothers' safety, benefits versus risks of different delivery modes, raising women's awareness, and potentiating informed decisions regarding delivery modes.
- Further prospective studies are recommended to further assess the impact of different factors that could relate to or affect the quality of life and overcome previous research shortcomings.

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