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 mode and to assess the difference in the quality of life at the various mode of delivery.

***Methods****:* A descriptive exploratory cross-sectional study employed to achieve the aim of this study. A structured interview questionnaire and postpartum quality of life scale that include assessment of 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 a good level of 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 the domains of child care and physical functioning. While statistically significant differences revealed between all groups regarding their physical and social functioning*.*

***Conclusion****:* The study did not show a clear-cut benefit in favor of any modes of delivery in respect of 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 modes of delivery.

**Keywords:** Postpartum Quality of Life - Vaginal Birth – Cesarean Section

## Introduction:

Quality of life (QOL) has proven challenging ***(Brazier et al., 2014)*** and the existing approaches to defining the quality of life 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).***

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Health-Related Quality of Life (HRQoL) has also been challenging to define. Four definitions at least mentioned in the literatures. One of them was an estimation of the individual perception to his/her functions in life, his/her well-being across the three domains of health namely physical, social and emotional. Functioning denotes to 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 the quality and efficiency of women health care is to assess the women perception to their quality of life after any intervention ***(Symon, MacKay, & Ruta, 2003)***.

The postpartum period 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

to 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 affected by the women physical health problems experienced at 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, & Montazeri, 2009; Zubaran, Foresti, Schumacher, Muller, & Amoretti, 2009; Cheng, Fowles, & Walker, 2006).*** Among the most common postpartum physical comorbidities are fatigue and tiredness that are reported by more than half of mothers ***(Van der Woude, Pijnenborg, & de Vries, 2015)***. ***Cheng, Fowles, & Walker, (2006)*** reported a positive association between fatigue and both 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 are affecting women as well as their infant well-being ***(Prick et al., 2015).***

Nevertheless, these physical and emotional comorbidities often neglected by health care providers ***(Symon, et al., 2003)***, and similarly by the family members as results of concentration on child care 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 quality of life at 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, & Ellwood, (2002)*** provided evidence of increased risk of exhaustion, sleep deprivation, and intestinal alterations after cesarean section compared to vaginal delivery. Based on the previous studies, it noticed remarkably 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)***.

## The significance of the study

Despite full involvement of health care professional in antenatal care, women in the postpartum period often mistreated. Awkwardly, the researches mostly concerned with medical and nursing aspect of care, treatment and intervention efficacy for immediate postpartum physical outcomes. These shortcomings reflected in researches done to examine the postpartum quality of life from mothers’ perspectives, exploring the various dimension of life quality such as child care, psychological and social functioning. A lot still to be done to meet the health needs of postpartum mothers.

While a plethora of information available in respect to the effect of delivery mode on the cost and clinical outcomes of mothers and infants, 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 modes of delivery. Particularly with reported Egyptian skyrocketing rate of cesarean deliveries that approaching 52 percent. This alarming increase ranked Egypt as the third in the world and the first in the Middle East after a steadily increasing from a low of 4.6% in 1992, 6.7% in 1995, and 10.3% in

2000, 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 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).***

## The aim of the Study

The aims of this study were:

* To assess the postpartum quality of life among mothers regardless of their delivery mode
* to assess the difference in the quality of life at various mode of delivery

## Research hypothesis:

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

## Subjects and methods:

### Research design:

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

### Research setting:

The study conducted at four Maternal and Child Health centers in Assiut city; El Arbeen, Qulta, El Waleed and Hay Gharb. These centers provide both preventive services (such as; family planning, antenatal care, vaccination) and curative services (medical care services,

investigations, follow up…etc) for six days a week. These services cover Assiut city and its neighbor villages.

### Subjects:

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

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

Ss= Z2(p)×(1-p)

e2

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 included in the study.

### Tools of data collection:

Two tools used for collecting data for this study,

### Structured interview questionnaire

It developed by the researcher to assess the women demographics and health history. It included three parts. The first part included the assessment of women 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 parity, history of abortion, complications of previous pregnancies, and number of living males and females). The third part is concerned with the current pregnancy and labour history. It included the existence of pregnancy complication, mode of delivery, duration from the last delivery, newborn sex, newborn weight, and type of newborn feeding.

### Postpartum quality of life scale (PQoL)

It is a 5-point Likert scale adopted from ***Zoho, Wang, & 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 include 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 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 the domains of physical, psychological, and social health. 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 child care, 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.

### Operational definition:

* The quality of life defined in this study as the women perception to the four domains of functioning which are childcare, physical functioning, psychological functioning, and social functioning.
* The postpartum period is defined in this study as the six to eight weeks after delivery.

### Procedures:

The operational design for this study included preparatory phase, ethical considerations, validity and reliability of the tools, pilot study, and field work. 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 content validity of the designed questionnaire 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 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 done according to the pilot study results. Subjects who shared in the pilot study excluded later from the study subjects.

The field work 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 obtained from the mothers before the beginning of the study. The anonymity of the study tool and confidentiality of the participant personal information assured. The participation was optional, and women are allowed to withdraw at any time without reasoning. Each questionnaire completed between 20-30 minutes. The data collected at a period of five months starting from May to September 2017.

### Limitation of the study:

A possible limitation for the current study that stressful life events were not considered in the present study. As these events could influence women 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.

### Data Analysis:

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

# Results:

Table 1 illustrates women socio-demographic 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%) has a university education and only 13.7% cannot read and write. As regard to mother’s occupation, most of them (73.8%) were employed 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% was primigravida, as regards to the number of parity majority (64.6%) of women had 2-4 labors. Regarding history of abortion (86.8) of the

sample has no previous abortion. The number of living males illustrates that the majority 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. As regards the type of newborn feeding, it observed that the majority of the newborn (95.1%) were on breastfeeding.

Figure 1 illustrates the distribution of different modes of delivery among the studied women. The figure shows that 51% of the women delivery by spontaneous vaginal delivery, 38.8 % delivered by cesarean section, 6.5% of them deliver through spontaneous vaginal delivery plus and 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 of the cesarean section group. Beside 4.8% of women with vaginal delivery compared to 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% of them 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 modes of delivery regarding child care and psychological domain. While there are statistically significant differences between different modes of delivery and quality of life level at the physical and social domain. The table also shows a higher percentage of women with instrumental delivery got lower life quality compared to women in other groups regarding child care (58.8% of them have a fair quality of life), 11.8% of them have poor quality of life regarding their physical functioning, 5.9% have fair quality of life at the psychological domain, and 17.6% regarding social domain.

## Table (1): Frequency distribution of the studied women according to their socio-demographic characteristics.

|  |  |  |
| --- | --- | --- |
| **Characters** | **N 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 E.P. | 7 | 1.6 |
| 1000-2000 E.P. | 389 | 87.2 |
| More than 2000 E.P | 50 | 11.2 |

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

|  |  |  |
| --- | --- | --- |
| **Parameter** | **N 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 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): Distribution of various modes of delivery among the studied women**

38.8%

spontaneous vaginal delivery

51%

spontaneous vaginal delivery +

episiotomy

instrumental delivery

6.5%

ceserean section

3.8%

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Domain** | **Vaginal delivery** |  | **Cesarean section** |
| **N 273** | **%** | **N 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** | **%** | **N 17** | **%** | **N 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 |  |

## 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, their 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 the best practice of either vaginal delivery or cesarean section is the best in minimizing postpartum morbidities still a matter of controversy ***(Anderson, 2004).*** The current study conducted to assess the postpartum quality of life among mother regardless of their delivery mode, and to assess the difference in the quality of life at various modes of delivery.

The current study revealed 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 had 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). Majority of the studied women had family income between one thousand and two thousand Egyptian bounds. These findings reflect that the studied women in childbearing age had moderate education, low family income, and 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 the studied women had at least secondary education, and one-third of them was employed. These similarities allow the comparison of findings between this study and the current study as they study the quality of life at the period of 2 to three months postpartum ***(Moawad & Yakout, 2015).***

Similar findings 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, the majority of their studied women had secondary education, and more than one-third of them were employed. Women age, number of children, educational level, and employment status were the factors with a significant impact on the health-related quality of life in this study.

The present study revealed an obstetric history of women under study. More than two-thirds of the studied women had two to four pregnancies, about two thirds of them had two to four labours, and more than four-fifths had 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 one to 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 labour history, the present study showed that most of the studied women had no pregnancy complications, had one to three years period from last delivery, and feed 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 displayed 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 this skyrocketing rate to a mixture of reasons among them were increased maternal request for cesarean section, women afraid of the associated pain and long hours of labour in vaginal delivery, a panic stories from her neighborhood, adverse effect of media, and obstetricians desire for safe delivery. This high rate of cesarean section is also reported in Iran by ***Moini, Riazi, Ebrahimi, 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 exhibited a total postpartum quality of life for the studied women regardless of their mode of delivery. The current study revealed 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 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 primiprous were near one third of the current study women).

Another justification 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 showed the quality of life domains for the studied women in both vaginal delivery and cesarean section group. The study revealed 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 be referred to that giving birth of 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

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 were similar among vaginal delivery and cesarean section groups. ***Ples, et al., (2018)*** also stated that the majority 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 were not influenced by the mode of delivery in their study.

This was not the case with ***Halbreich & Karkun, (2009)*** 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 between ten to twenty percent of mothers affected with postpartum depression following delivery. Conversely, only fifty percent of them who have prominent symptoms are diagnosed. The current study findings were also inconsistent with ***Jansen, Essink-Bot, Duvekot & van Rhenen, (2007)*** who reported a psychometric evaluation of HRQoL measures in women following various mode of delivery. The study reported better health-related quality of life in women after vaginal delivery compared with elective or emergency cesarean section. The current study was 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. Also, less than one-tenth perceived 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 mother 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 decision 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 reported by ***Jansen, et al., (2007).*** Their study compared the postpartum quality of life among women 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 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 compared to 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 group 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 ***(Jansen et al., 2007; Jansen, 2007a, Torkan et al., (2009), Baghirzada, Downey, Macarthur, 2013, Mousavi, Mortazavi, Chaman, Khosravi, 2013, Sadat et al., 2013)***, mental (***Torkan et al., (2009)***, ***Mousavi et al., 2013***, ***Sadat, Taebi, Saberi, Kalarhoudi 2013***), social (***Mousavi, Mortazavi, Chaman, Khosravi, 2013***) and pain (***Baghirzada et al., 2013)*** aspect of HRQoL subscale, as well as higher energy levels (***Baghirzad et al., 2013***) and vitality (***Torkan et al., 2009***), comparing 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 & 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 at seven of the eight SF-36 subscales for the postpartum vaginal delivery group after a few weeks of their delivery. Their scores were significantly higher in the physical domain, vitality, role physical, role emotional, and mental functioning domain.

A mixed pattern of results was also shown by ***Petrou, Kim, McParland, Boyle, (2017)*** 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 primiparae 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 time periods. 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, & 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 scores of physical and mental subscales in the cesarean section were lower than those of the vaginal delivery group. ***Amatya & Acharya, (2015)*** in a study examined the postpartum quality of life after normal vaginal delivery and a cesarean section on 468 primiparas.

The study showed a better quality of life score for women with vaginal delivery compared to c section.

The difference in outcomes between those studies and the current study may be referred to 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 period. As some studies measure the quality of life immediately after birth and other measured at six months or even one-year form birth. It is expected that as far 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 some studies conducted in Iran, Spain, India, and Saudi Arabia

The current study also displayed a higher percentage of women with instrumental delivery had lower life quality compared to women in other groups regarding childcare, their physical functioning, psychological, and social domain. These findings may be referred to the prolonged delivery time, improper analgesia, and fear of poor consequences for the mother and the baby, and the increased incidence of trauma due to instrumental manipulation. These findings were in agreement with ***Skinner, Barnet, and Dietz, (2018)*** who 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 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. Besides high percentage of women reported that they were terrified and had a painful experience during vacuum extraction when 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. Although 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 that are child care, physical,

psychological, and social functioning at six to eight weeks after delivery regardless of the women delivery mode. 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.

## 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 regarding each subscale of child care, physical, psychological, and social functioning six to eight weeks after delivery regardless their delivery mode. The study also revealed non-statistically significant difference among all groups in respect to child care, and psychological functioning, while there are statistically significant differences between all groups regarding physical and social functioning. These findings were partially supporting the research hypothesis.

## Recommendation:

Although the study did not show a clear-cut benefit in favor of either method of delivery. 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 modes of delivery.
* Further researches considering culture variations may help in understanding the cultural differences**.**
* Further researches that address the on-request cesarean section to investigate the reasons behind mothers' selection for this mode of delivery regardless of a medical indication.
* The development of health education programs to increase prospect mothers on the safety, benefits versus risks of different modes of delivery, thus to raise the women awareness and potentiate informed decision regarding delivery modes.
* Further prospective studies are recommended to further assess the impact of different factors that could relate or affect the quality of life and to overcome the shortcomings accompanying the previous researches
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