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Health Status Using (SF)-36 Questionnaire in Postpartum Women with Placenta Accreta Spectrum: A Prospective Study

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ABSTRACT

Background: Placenta accreta spectrum (PAS) no longer uncommon in daily obstetrics practice. Incidence of PAS has increased because of cesarean section pandemic. It is accompanied by acute maternal morbidity and mortality and long-term complications. Regarding long-term consequences and quality of life (Qol), little evidence is available.
Objective: The aim of the current work was to evaluate short form (SF)-36 survey in women with PAS.
Patients and methods: A total of 80 women with confirmed diagnosis of PAS were recruited in the study. This study was conducted in Women Health Center, Assiut University, which is a tertiary care unit, between 2020 and 2021. The participants were subjected to thorough clinical and obstetric evaluation. SF-36 score was measured in those patients after 6-8 weeks and 12 months postpartum.
Results: Mean age of enrolled women was 30.86 (SD 4.68) years with range between 21 and 40 years old. A total of 12 (15%) women were complicated by hysterectomy, 23(28.7%) with bladder injury while just 2 (2.7%) with ureteric injury. Women with complications had significantly lower baseline vitality and general health and higher baseline bodily pain higher follow up bodily pain and role of limitation (emotional). Yet, in each separate all domains of SF-36 during follow up. **Conclusion:** Women after a pregnancy complicated by PAS had significant improvement in SF-36 domains after 1 year follow up. Domains of SF-36 weren't greatly affected by complications of PAS. Affection of patient quality of life following PAS should be in consideration.
Keywords: PAS, Qol, Questionnaire, Hysterectomy, SF-36.

INTRODUCTION

PAS describes a wide range of abnormally implanted placenta up to deep invasion to urinary bladder; it is associated with long list of maternal comorbidities or even mortality [(1-3)].

Nowadays placenta accreta is not uncommon in daily obstetrics practice. Incidence of PAS has been increased because of cesarean section pandemic [(4)]. A study was conducted at Women's Health Hospital, Assiut University in 2016 evaluated the incidence of accrete. In this study, placenta accreta incidence was 0.4%, which is higher than the published rate of 1/533 births, number of cesarean deliveries per year approximate to twenty thousand case [(5)].

Women with PAS are more likely to develop post-traumatic stress disorder, according to many studies. There are few researches regarding the long-term health status and Qol after PAS surgery, even though short-term PAS morbidity is frequently characterized [(6)].

The SF-36 is used in the general population to assess health status through eight domains (physical functioning (PF), role limitation due to physical problem (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role limitation due to emotional problem (RE), mental health (MH) [(7)].

With inadequate evidence on long-term PAS outcomes, doctors caring for patients with PAS lack essential knowledge for counseling patients on the long-term consequences of this catastrophic and more prevalent condition of pregnancy [(8)]. Thus, we aimed to describe the quality of life in women with PAS by using SF-36 score.

PATIENTS AND METHODS

This study was a part of research project that evaluated quality of life and health status in patient complicated by PAS.

Study design and setting: A cross sectional study was conducted at Assiut Woman's Health Hospital in the period between October 2020 and October 2021.

Inclusion criteria:

Any woman with confirmed diagnosis of PAS above 36 weeks of gestation with the following criteria were enrolled; peripartum hysterectomy for PAS, complicated cesarean section (CS) without hysterectomy, Maternal age between 18 and 45 years with no other medical diseases.

Exclusion criteria:

Any woman with one or more of the following criteria was excluded; emergency CS before confirming PAS diagnosis, preterm delivery (before 36 weeks in case of PAS), peripartum hysterectomy for any cause other than PAS, other medical diseases that affect the quality of life, and/or postpartum depression.

Sample size calculation: Using the G power programme version 3.1.3, a sample size was computed. To find a substantial difference in the study's two independent groups' average quality of life (placenta accreta developed post-partum complication and those who do not), and based on the next parameters one tailed, effect size 0.8(largest effect size), alpha error 0.05, and power 0.95, a total of 80 women were enrolled.

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Methodology:

All women were subjected to;

- Thorough history evaluation (age, parity, gravidity, abortion, and any risk factor for PAS) with full clinical assessment included history of medical disorders or previous CS, together with fundal height and presentation, uterine activity, and tenderness.
- Abdominal ultrasound with full assessment of fetal status with Duplex assessment of placental invasion.
- Short form-36 questionnaire to assess Qol.

After 6-8 weeks and 12 months postpartum face to face interview conducted in the health center and cope of SF-36 scoring was fulfilled by patients. There are eight health domains in the SF- 36. Higher scores indicate greater health; scores range from 0 to 100. The mean scores were determined for each of the survey's domains. Mean scores were compared between groups based on whether complications were present or not.

Ethical approval:

The Faculty of Medicine at Assiut University in Egypt's Institutional Review Board gave its approval to this study (IRB no. 17101345). All participants gave their informed permission in accordance with the Helsinki statement. The study was registered at Clinical trial.gov (NCT04583540).

Statistical analysis

The collected data were introduced and statistically analyzed by utilizing the Statistical Package for Social Sciences (SPSS) version 20 for windows. Qualitative data were defined as numbers and percentages. Chi-Square test and Fisher's exact test were used for comparison between categorical variables as appropriate. Quantitative data were tested for normality by Kolmogorov-Smirnov test. Normal distribution of variables was described as mean and standard deviation (SD). Student's t test (different two means) and Paired t test (baseline and follow data) were used for comparison between groups. SF-36 domains at baseline and follow-up were compared using a Paired t test. Since the level of confidence was maintained at 95%, a P value of $\leq$0.05 was deemed significant.

RESULTS

Mean age of enrolled women was 30.86 (SD 4.68) years with range between 21 and 40 years old. A total of 38 (47.5%) women developed different forms of complications as urinary bladder injury (28.7%), ureteric injuries (2.7%), hysterectomy (15%), rehospitalization (5.2%) and other complications (1.3%) **(Table 1)**.

Table (1): Demographic characteristics of the studied patients.

Variable	**N= 80**
Age (years)	30.86 ± 4.68
Range	21-40
Class	
18-24 years	7 (8.8%)
25-34 years	52 (65%)
> 34 years	21 (26.3%)
Gestational age (weeks)	36.83 ± 0.65
Previous cesarean section	3 (1-6)
Parity	3 (1-7)
Type of placenta previa	
Anterior	45 (56.3%)
Centralis	35 (43.8%)
Bladder injury	23 (28.7%)
Ureteric injuries	2 (2.7%)
Hysterectomy	12 (15%)
Intensive care unit	14 (17.5%)
Other complications	1 (1.3%)
Re-hospitalization	4 (5.2%)

Both groups based on complications had insignificant differences as regard baseline and follow up different parameters of SF-36 score with except of significantly lower baseline vitality and general health and higher baseline bodily pain among those women with complications. Also, women with complications had significantly higher follow up bodily pain and role of limitation (emotional) **(Table 2)**.

Table (2): Baseline and follow up SF- 36 domains based on complications.

Variable	**Complications**		**P-value**
	Yes (n= 38)	**No (n= 42)**	
Baseline			
Physical functi	50.39 ± 16.24	53.21 ± 16.26	0.44
RLP	51.31 ± 23.92	42.26 ± 30.98	0.15
RLE	33 ± 5.67	37.13 ± 11.27	0.16
Vitality	41.57 ± 6.58	47.86 ± 8.98	**<0.001**
MH	60.36 ± 13.88	60.09 ± 13.61	0.92
Social function	69.21 ± 9.69	70.95 ± 9.32	0.41
Bodily pain	59.12 ± 13.02	48.80 ± 11.31	**<0.001**
General health	58 ± 8.14	63.13 ± 9.11	**<0.001**
Follow up. Physical function	91.05 ± 3.32	90.95 ± 3.86	0.09
RLP	12.50 ± 3.93	8.33 ± 5.65	0.20
RLE	17.36 ± 6.69	5.52 ± 4.56	**<0.001**
Vitality	82.76 ± 5.41	83.92 ± 5.42	0.33
MH	85.78 ± 6.23	85.17 ± 6.17	0.68
Social function	91.31 ± 10.44	95 ± 8.62	0.08
Bodily pain	25 ± 19.28	12.67 ± 7.34	**<0.001**
General health	81.97 ± 3.20	81.09 ± 2.99	0.20

N: number; **SF**: short form; **RLP**: role limitation (physical); **RLE**: role limitation (emotional); **MH**: mental health.

In each separate group either with or without complications, there was significant improvement in different parameters of SF-36 questionnaire **(Tables 3 and 4)**.

Table (3): Baseline and follow up short form- 36 domains in patients with complications.

Variable	**Baseline**	**Follow up**	**P value**
Short form-36 domains Physical function	50.39 ± 16.24	91.05 ± 3.32	**<0.001**
Role limitation (physical)	51.31 ± 23.92	12.50 ± 3.93	**<0.001**
Role limitation (emotional)	33 ± 5.67	17.36 ± 6.69	**<0.001**
Vitality	41.57 ± 6.58	82.76 ± 5.41	**<0.001**
Mental health	60.36 ± 13.88	85.78 ± 6.23	**<0.001**
Social function	69.21 ± 9.69	91.31 ± 10.44	**<0.001**
Bodily pain	59.12 ± 13.02	25 ± 19.28	**<0.001**
General health	58 ± 8.14	81.97 ± 3.20	**<0.001**

Table (4): Baseline and follow up short form- 36 domains in patients without complications.

Variable	**Baseline**	**Follow up**	**P-value**
Short form-36 domains Physical function	53.21 ± 16.26	90.95 ± 3.86	**<0.001**
Role limitation (physical)	42.26 ± 30.98	8.33 ± 5.65	**<0.001**
Role limitation (emotional)	37.13 ± 11.27	5.52 ± 4.56	**<0.001**
Vitality	47.86 ± 8.98	83.92 ± 5.42	**<0.001**
Mental health	60.09 ± 13.61	85.17 ± 6.17	**<0.001**
Social function	70.95 ± 9.32	95 ± 8.62	**<0.001**
Bodily pain	48.80 ± 11.31	12.67 ± 7.34	**<0.001**
General health	63.13 ± 9.11	81.09 ± 2.99	**<0.001**

There were insignificant correlations between different domains of SF-36 scoring system with other variables **(Table 5).**

Table (5): Correlation of baseline short form- 36 scoring with other variables.

Variable	Age	Cesarean section	Parity	Gest-ational age	Transfused units
SF-36 domains Physical function	-0.06 (0.59)	0.14 (0.19)	0.12 (0.28)	-0.04 (0.68)	-0.07 (0.53)
Role limitation (physical)	0.02 (0.84)	-0.10 (0.35)	0.01 (0.90)	-0.08 (0.45)	0.01 (0.89)
Role limitation (emotional)	0.08 (0.66)	0.06 (0.71)	0.01 (0.93)	0.06 (0.71)	-0.04 (0.98)
Vitality	-0.08 (0.43)	-0.01 (0.87)	-0.06 (0.58)	0.03 (0.77)	-0.01 (0.93)
Mental health	0.01 (0.99)	0.02 (0.83)	0.08 (0.43)	0.01 (0.88)	0.06 (0.56)
Social function	-0.07 (0.48)	-0.15 (0.16)	-0.19 (0.09)	0.10 (0.34)	0.01 (0.88)
Bodily pain	0.07 (0.49)	0.02 (0.81)	-0.01 (0.88)	-0.03 (0.98)	-0.08 (0.46)
General health	-0.06 (0.57)	0.01 (0.89)	-0.01 (0.98)	0.04 (0.66)	0.12 (0.26)

DISCUSSION

PAS patients are more liable to severe hemorrhage that sometimes warrant massive blood transfusion, PAS associated with maternal morbidity or even deaths. hysterectomy is one of the available options for management during delivery or even after with prolonged hospital stay All these events can greatly affect the Qol of those women [8,9].

In our study, we used SF-36 survey for quality-of-life assessment in women with PAS. SF-36 scoring physical and mental health domains affected almost equally and both have significant improvement after 1 year follow up.

Our results showed that mean parity of our participants was 3 or more; this is the same as reported by **Tuzović *et al.*** [10]**,** moreover multiparity was thought as a major risk factor for development of PAS. The primary risk factor for PAS is the uterine surgery, The CS reported in 100 % of our study participants with mean number of previous CS 3 or more.

Betrán *et al.* [11] reported a high CS rate reaching about 52 %. Many prior studies have established that the most frequent risk factor for the development of PAS is CS, supporting our current situation [12-15].

In our study, we discovered that most PAS women (56.3%) had a placenta previa centralis, whereas the remaining PAS women (43.7%) had an anterior positioned placenta. In line with the findings of **Kumari *et al.*** [16] study, which indicated that most PAS women had an anterior placenta? In our study, a greater CS incidence might explain a larger number of anterior placentae previa.

According to this study, all SF-36 physical and mental health areas for women whose pregnancies were complicated by PAS are better over the long run

than they are in the immediate postpartum period. Physical health is greater for women whose pregnancy was affected by PAS in the long run in comparison to the postpartum phase, according to a prior research of 142 women with PAS [17].

Although physical and mental health ratings were the same for all pregnancy outcomes, except for overall health, which was worse among women who had a postnatal readmission for an infection, mental health lags and remains low for many months after birth [17].

Additionally, SF-36 questionnaire was used by **Keenan *et al.*** [18] with unfair comparison between 14 PAS cases and 38 complicated caesarean section (three or more caesarean sections or previa) and they discovered that women with PAS reported more pain and anxiety at six months after giving birth, but there were no other significant differences between the other SF-36 domains, and by two years the differences between the groups had disappeared.

When SF-36 results from our study are compared to those from **Keenan *et al.* study** [18]**,** The mean scores reported in our study are lower across practically all areas, which might be attributed to our study's larger sample number or the shorter follow-up time (6 weeks vs. 2 years in their study). Poor physical and mental health in the early postpartum period is a typical observation in the postnatal period, according to our results.

There were disparities in quality of life (social function) in the hysterectomy and conservative groups, according to a different study that employed the SF-36 questionnaire for women with PAS (n= 35). The mean scores reported in our study are lower across practically all areas when compared to those of **Lubis *et al.*** [19]**,** which may be due to the higher proportion of women in our sample.

The main strength point in this study was that this is the first study of health- related quality of life domains among postpartum women with placenta accrete spectrum in Egypt and middle east. And yet, the study had some limitations; 1) relatively small sample and conducted in single center, 2) recall bias might have been introduced since the questionnaire was completed at 6th week and 1 year after childbirth.

Another constraint was the absence of a control group. However, due to the distinctive nature of PAS, it becomes challenging to identify a suitable control group. Although, in other research studies, women with a prior caesarean birth who underwent an elective repeat caesarean or those with a complicated caesarean birth were compared, these studies failed to consider the fact that women with PAS commonly undergo a prolonged hospital stay, separation from family, and must reflect upon their own mortality, high-risk pregnancy, and loss of fertility.

CONCLUSION

When examining the quality of life for women who experienced a pregnancy complicated by PAS, there may be an impact on Qol one year after giving birth, as measured by the SF-36 score system. However, it is important to note that these findings should not be overinterpreted, as this was an exploratory study and not designed to identify potential differences between groups. However, the findings can serve as a guide for further investigation. Further trials should be conducted with larger sample size, more pregnancy outcomes, and different control groups with longer follow up period.

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REFERENCES

1. **Bartels H, Postle J, Downey P *et al.* (2018):** Placenta accreta spectrum: a review of pathology, molecular biology, and biomarkers. Disease Markers, 18:1507674. doi: 10.1155/2018/1507674.
2. **Fitzpatrick K, Sellers S, Spark P *et al.* (2014):** The management and outcomes of placenta accreta, increta, and percreta in the UK: a population- based descriptive study. BJOG: An International Journal of Obstetrics & Gynaecology, 121:62-71.
3. **Silver R, Barbour K (2015):** Placenta accreta spectrum: accreta, increta, and percreta. Obstetrics and Gynecology Clinics, 42:381-402.
4. **Jauniaux E, Chantraine F, Silver R *et al.* (2018):** FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology. Int J Gynaecol Obstet., 140(3):265-73.
5. **Zakherah M, Abdel-Aziz M, Othman E *et al.* (2018):** Maternal and neonatal outcomes of placenta previa and accreta at Assiut women's health hospital, Egypt. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 7:3024-9.
6. **Tol I, Yousif M, Collins S (2019):** Post traumatic stress disorder (PTSD): the psychological sequelae of abnormally invasive placenta (AIP). Placenta, 81:42-5.
7. **Ware Jr J, Sherbourne C (1992):** The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. Medical Care, 30:473-83.
8. **Grover B, Einerson B, Keenan K *et al.* (2022):** Patient-reported health outcomes and quality of life after peripartum hysterectomy for placenta accreta spectrum. American Journal of Perinatology, 39:281-7.
9. **Cahill A, Beigi R, Heine R *et al.* (2018):** Placenta accreta spectrum. American Journal of Obstetrics and Gynecology, 219:2-16.
10. **Tuzović L, Djelmis J, Ilijic M (2003):** Obstetric risk factors associated with placenta previa development: case-control study. Croat Med J., 44:728-33.
11. **Betrán A, Ye J, Moller A *et al.* (2016):** The increasing trend in caesarean section rates: global, regional and national estimates: 1990-2014. PloS One, 11:e0148343. doi: 10.1371/journal.pone.0148343.
12. **Usta I, Hobeika E, Musa A *et al.* (2005):** Placenta previa-accreta: risk factors and complications.

American Journal of Obstetrics and Gynecology, 193:1045-9.

13. **Bowman Z, Eller A, Bardsley T *et al.* (2014):** Risk factors for placenta accreta: a large prospective cohort. American Journal of Perinatology, 31:799-804.
14. **Silver R, Landon M, Rouse D *et al.* (2006):** Maternal morbidity associated with multiple repeat cesarean deliveries. Obstetrics & Gynecology, 107:1226-32.
15. **Gilliam M, Rosenberg D, Davis F (2002):** The likelihood of placenta previa with greater number of cesarean deliveries and higher parity. Obstetrics & Gynecology, 99:976-80.
16. **Kumari S, Bhavani V, Himabindu S *et al.* (2016):** Placental migration in mid trimester low-lying placenta. IOSR Journal of Dental and Medical Sciences, 15:150-6.
17. **Bartels H, Terlizzi K, Cooney N *et al.* (2021):** Quality of life and sexual function after a pregnancy complicated by placenta accreta spectrum. Australian and New Zealand Journal of Obstetrics and Gynaecology, 61:708-14.
18. **Keenan K, Einerson B, Gibbins K *et al.* (2018):** 980: Patient-reported health outcomes and quality of life after peripartum hysterectomy for placenta accreta spectrum (PAS). American Journal of Obstetrics & Gynecology, 218:579-80.
19. **Lubis M, Barus M, Yaznil M *et al.* (2021):** Quality of Life and Sexual Function of Placenta Accreta Spectrum Disorder Patients after Surgery. Indonesian Journal of Obstetrics and Gynecology, 21:95-101.