

The Value of Prenatal Care in Ensuring Healthy Perinatal Outcomes

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Abstract: Background: Prenatal care is represented as the main element that contributes to reducing adverse pregnancy outcomes and high maternal mortality rates. Objective: This study aims to examine the role of prenatal care in improving perinatal health outcomes. Patients and methods: This study recruited 70 women, whose ages ranged between 20-45 years, and collected their data from different hospitals in Iraq for the period from July 4, 2022, to August 17, 2023, when the women were admitted to post-partum and post-operative wards. This study recorded the women's clinical improvement rates in terms of complications, quality of life assessment, and mortality determination. Results: Our study recorded clinical data of both mothers who underwent antenatal care and clinical data of the fetus. For maternal outcomes, gestational age was 39.5 ± 2.6 weeks; The percentage of women who underwent a cesarean section was 32.86%; the percentage of women who underwent vaginal delivery was 67.14%, and the percentage of women who had a previous pregnancy was 64.29% where some patients had hypertension with 23 women which include chronic hypertension included 5 cases, gestational hypertension got 6 cases, eclampsia got 4 cases, and preeclampsia got 8 cases. Some women gave birth to single children, including 68 women, and others gave birth to twins, including two women. The mother's medical and surgical conditions included 23 women; uterine rupture was 2 cases; respiratory and cardiovascular disorders included only one woman, and the mortality rate for pregnant women was only 4. For fetal outcomes, our data found that birth weight (2.5-3.9) kg was the highest for the fetus at 75.71%. The sex ratio of the fetus, which includes males and females, reached 30% and 70%, with low birth weight in 10 cases; the quality of births that included live births was 67 fetuses, while the stillbirth case was three fetuses. Clinical outcomes of antenatal care, including poor quality of antenatal care, were eight mothers and five fetuses; average quality of antenatal care was 54 mothers and 56 fetuses, and good quality of antenatal care was eight mothers and nine fetuses. Conclusion: Prenatal care is essential for improving health outcomes during the perinatal period, lowering the risk of maternal and child death and complications, and enhancing the quality of life for both mothers and children

Keywords: Prenatal care; Vaginal delivery; Postoperative complications; Healthy Perinatal Outcomes;.

INTRODUCTION

The evaluation of the quality of health services began in the first decades of the twentieth century, and from the second half of that century on, it became an indispensable tool in the transformation of health systems, responding to the claims of technical efficiency and social responsibility of its services (Renfrew, M. J. *et al.*, 2014; Kyei, N. N. *et al.*, 2012; McCarthy, C. M. *et al.*, 2019).

The periodic evaluation of the actions and results of the health system constitutes the best guarantee that its objectives are being met or are on the way to being met (World Health Organization). Due to that, the evaluation of health services represents a central activity of health research institutions (Onoh, R. C. *et al.*, 2012).

In the USA (Belayneh, T. *et al.*, 2014), the evaluation of the quality of health services began in the eighties, with the introduction of the concept

of quality assurance. From that moment on, multiple investigations have been carried out on the quality of health services for Americans, but most of them have been in the hospital space, with a reduced number of evaluations at the first level of care, a fundamental link to public health, especially where there is not enough information available, as happens in rural regions of the country.

The Unified System of Quality Assurance of Health Care of the General System of Social Security in Health defines health care as the set of services provided to the user, as well as the activities, procedures, and assistance interventions in the phases of promotion and prevention, diagnosis, treatment, and rehabilitation, which will be provided with quality, understood as the provision of accessible and equitable services, without delays that endanger life or health, with an

optimal professional level that takes into account the available resources and achieves the adherence and satisfaction of the user (Alkema, L. et al., 2016; Urassa, D. P. et al., 2002).

Maternal mortality directly correlates with the coverage and quality of prenatal care. Perinatal deaths are also related to the underlying diseases of the mother and the problems of pregnancy, childbirth, and puerperium, so complete and adequate prenatal care is extremely important to prevent the death of children (Saad-Haddad, G. et al., 2016).

In the last decade, contrary to expectations, given the marked increase in the coverage of prenatal and maternal services, maternal mortality reached figures of 6.3 per 11,000 registered live births (NVR) as an annual average and was concentrated in the poorest regions of the country, where 72% of maternal deaths occurred (Cumber, S. N. et al., 2016). Although, on average, 8 out of 10 births are attended to in the country's health institutions, in 2015, this figure reached only 2 per 10 births in some indigenous areas (Ndidi, E. P., & Oseremen, I. G. 2010).

The evaluation of the quality of the services at the first level of attention and the satisfaction of their users is strategic to identify the obstacles and opportunities for improvement in the planning, design, organization, and provision of these services, used by millions of Mexicans every year (Heaman, M. I. et al., 2014; Hodgins, S., & D'Agostino, A. 2014).

PATIENTS AND METHODS

We conducted a cross-sectional study of pregnant women who underwent prenatal care, which included 70 women whose ages ranged between 20 and 45 years. Their data was collected from hospitals and centers in different hospitals in Iraq during the follow-up period, which lasted from July 4, 2022, to August 17, 2023. This study recorded the women's socio-demographic and

clinical data and characteristics, which included age, body mass index, comorbidities, smoking status, attractiveness, education level, and employment level.

Furthermore, this study determined clinical data and outcomes for gestational age, mode of delivery (cesarean section, operative vaginal delivery), place of delivery, previous pregnancy, number of pregnancies, and type of pregnancy (singleton and twin). Also, our data recorded the clinical outcomes of maternal and fetal antenatal care. Regarding maternal outcomes, our study distributed and included clinical data that identified all parameters: history of preterm birth, general life stress, prenatal distress, maternal pregnancy complications, maternal medical and surgical conditions, other obstetric complications, anemia in late pregnancy, severe preeclampsia, eclampsia, uterine rupture, organ disorders, respiratory, cardiovascular, and maternal mortality. For fetal outcomes, our data provided a distribution and identification of fetal patient data that included birth weight (kg) (< 2.5 , $2.5-33.9$, ≥ 4), fetal sex, low birth weight, small for gestational age, birth gender, Apgar scores at 5 minutes and at 1 minute, and the start of breastfeeding, as well as the psychological and social outcomes.

In addition, this study evaluated the quality of prenatal care for women and distributed pregnant women according to this quality, which was defined among the criteria as poor, average, and good. This study also determined the rate of patient satisfaction with prenatal care and its impact on maternal health outcomes, which were classified as excellent, good, and poor. Our study evaluated the quality of life of mothers after childbirth, which included the physical aspects, the physiological aspects, pain function, the emotional and social aspects, and the role of activity. We designed and recorded all clinical data of pregnant women and the outcomes of antenatal care assessments using SPSES software, version 22.0.

RESULTS

Table 1: Determine the sociodemographic and clinical characteristics of the women observed in this study

Characteristics	Number of patients [70]	Percentage [%]
Age		
20 – 24	16	22.86%
25 – 29	14	20.0%
30 – 34	22	31.43%
35 – 39	9	12.86%
40 – 45	9	12.86%
BMI, [Kg/m2]		

< 25.0	30	42.86%
≥ 25.0	40	57.14%
Comorbidities		
Yes	42	60.0%
No	28	40.0%
Hypertension	23	32.86%
Chronic hypertension	5	7.14%
Gestational hypertension	6	8.57%
Preeclampsia	8	11.43%
Eclampsia	4	5.71%
Obesity	34	48.57%
Gestational diabetes	8	11.43%
Kidney diseases	3	4.29%
Thyroid disorders	2	2.86%
Asthma	5	7.14%
Heart disease	6	8.57%
Smoking status		
Yes	7	10.0%
No	63	90.0%
Gravidity		
1 – 4	49	70.0%
5 – 8	12	17.14%
8 – 11	7	10.0%
≥ 12	2	2.86%
Education level		
Primary	4	5.71%
Secondary	7	10.0%
College/university	59	84.29%
Occupation		
Employed	49	70.0%
Unemployed	21	30.0%

Table 2: Maternal characteristics outcomes

Variables	Number of patients [70]	Percentage [%]
Gestational age, weeks	39.5 ± 2.6	
Mode of delivery		
Cesarean section	23	32.86%
Operative vaginal delivery	47	67.14%
Place of birth		
Hospital	49	70.0%
Birth centers	15	21.43%
Home	6	8.57%
Previous pregnancy		
Yes	45	64.29%
No	25	35.71%
Number of pregnancies		
0	25	35.71%
1	20	28.57%
2	16	22.86%
3	6	8.57%
≥ 4	3	4.29%
Type of pregnancy		
Singleton	68	97.14%
Twin	2	2.86%

Table 3: Clinical outcomes of prenatal care associated with maternal and fetal

Variables	Number of patients [70]	Percentage [%]
Maternal outcomes		
History of preterm birth	3	4.29%
General life stress	17.5 ± 7.8	
Prenatal distress	16.68 ± 6.37	
Maternal complications of pregnancy	14	20%
Maternal medical and surgical conditions	23	32.86%
Other complications of delivery	26	37.14%
Anaemia in late pregnancy	7	10%
Eclampsia	3	4.29%
Uterine rupture	2	2.86%
Respiratory and cardiovascular disorders	1	1.43%
Maternal death		
Died	4	5.71%
Alive	66	94.29%
Foetal outcomes		
Birth weight (Kg)		
< 2.5	13	18.57%
2.5 - 3.9	53	75.71%
≥ 4	4	5.71%
Sex of Fetal		
Male	21	30.0%
Female	49	70.0%
Low birth weight	10	14.29%
Small for gestational age	2	2.86%
Birth type		
Live birth	67	95.71%
Stillbirth	3	4.29%
Apgar score		
Apgar, 1 minute, (mean ± SD)	8.9 ± 0.9	
Apgar, 5 minutes, (mean ± SD)	8.7 ± 1.0	
Admitted to NICU	5	7.14%
Breastfeeding initiation	47	67.14%
Psychosocial outcomes		
Prenatal knowledge (mean ± SD)	4.2 ± 7.5	
Prenatal distress (mean ± SD)	12.37 ± 6.9	
Readiness for labor and delivery (mean ± SD)	75.55 ± 31.28	
Readiness for infant care (mean ± SD)	94.3 ± 16.57	
Satisfaction with prenatal care (mean ± SD)	112.6 ± 10.5	

Table 4: Assessment of quality of prenatal care for women participating in this study

Scale	Maternal	Fetal
Poor	8 [11.43%]	5 [7.14%]
Average	54 [77.14%]	56 [80%]
Good	8 [11.43%]	9 [12.86%]

Table 5: Determining satisfaction rate of patients with prenatal care and its effect on health outcomes of mothers

Satisfaction level	Number of patients [70]	Percentage [%]
Excellent	50	71.43%
Good	14	20.0%
Fair	4	5.71%
Poor	2	2.86%

Table 6: Assessment of quality of life for patients with prenatal care

Items	QOL score
Physical aspect	72.82 ± 8.93
Psychological aspect	77.56 ± 12.74
Pain function	67.68 ± 5.06
Emotional and social aspects	75.53 ± 4.49
Activity role	81.56 ± 3.89

DISCUSSION

Clinical data recorded those patients in the age group between 20 and 24 years had the highest percentage and included 16 patients, followed by the age group between 25 and 29 years, and including 14 patients. Patients with a body mass index less than 25 kg/m² included 30 patients, while those with an index greater than 25 kg/m² included 40 patients. The rate of patients who had concomitant diseases was 60%, and the rate of women who did not have concomitant diseases was 40%, the most prominent of which was hypertension, which included 23 patients in terms of chronic hypertension included 5 cases, gestational hypertension got 6 cases, preeclampsia got 8 cases, and eclampsia got 4 cases., and obesity, which included 34 patients.

Clinical characteristics of the mothers were recorded, including gestational age was 39.5 ± 2.6 weeks; the percentage of women who underwent cesarean section was 32.86%; the percentage of women who underwent vaginal delivery was 67.14%; the percentage of women who had a previous pregnancy was 64.29%; and percentage of women who had no previous pregnancy was 35.71%. Some women gave birth to singleton babies, including 68 women, and others gave birth to twins, including two women. Our data showed the clinical outcomes of prenatal care related to the mother and fetus, which included the mother's data. History of premature birth included three women; general life stress was 17.5 ± 7.8; prenatal suffering was 16.68 ± 6.37; complications of pregnancy on the mother included 14 women; medical and surgical conditions of the mother included 23 women; and complications. Other cases of obstetrics included 26 women; anemia in late pregnancy included seven women; uterine rupture included 2 cases; respiratory and cardiovascular disorders included only one woman, and the death rate for pregnant women was only 4.

Regarding fetal outcomes, clinical data showed that the birth weight (2.5–3.9) kg was the highest percentage of fetuses at a rate of 75.71%, the sex

of the fetus, which included the percentage of males, was 30% of total patients, and females was 70% of total patients, low birth weight was in 10 cases, and a small gestational age was in two cases. The type of birth, which included a live birth, was 67 fetuses, while the stillbirth case was three fetuses. Where Apgar scores were recorded, which included both Apgar, 1 minute was 8.9 ± 0.9, and Apgar, 5 minutes was 8.7 ± 1.0. The percentage of solvers who There were five patients admitted to the NICU, and the percentage of infants who started breastfeeding was 47. Furthermore, our study evaluated the quality of antenatal care for women and fetuses where the poor quality of prenatal care included eight mothers and five fetuses, the average quality of prenatal care was 54 mothers and 56 fetuses, and the good quality of prenatal care was 8 cases of maternal and 9 of fetuses.

An American study was conducted and pointed out that one out of every six births occurs in children under 19 years of age, and estimates that 40% correspond to unplanned and even unwanted pregnancies (Beeckman, K. 2011). The last studies showed that this is the case, which puts the safety of the mother and baby at risk because teenage pregnant women are not mentally or physically ready for pregnancy. This makes it more likely that they will experience problems during their pregnancy. (Patricia, K. M. *et al.*, 2019; Ghana Maternal Health Survey 2017; Enos, J. Y. *et al.*, 2019).

Other studies found that in high-risk pregnancies, the outcome for the mother and/or the baby may not be as good as it would be in a normal pregnancy (Wang, W., & Hong, R. 2015; Wemakor, A. 2019). They estimated that about 20% of pregnancies are high-risk and are responsible for more than 80% of bad perinatal outcomes (Anlaaku, P., & Anto, F. 2017). However, a Polish study noticed a high and very high rate of marginalization and geographical-social isolation in Poland, increasing the risk of maternal death up to nine times in the least

communicated municipalities (Banchani, E., & Tenkorang, E. Y. 2020).

CONCLUSION

This current study indicates that prenatal care has a significant impact on ensuring successful clinical and health outcomes for the mother and child and significantly improves the quality of life and complications in the perinatal period as well as after birth.

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