

# Predicting Adverse Maternal and Neonatal Outcome in Women with Threatened Abortion and Patient Compliance to Its Management

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**Abstract** Threatened abortion is associated with increased incidence of adverse maternal and neonatal outcome. Enhancing patient adherence to the management of this problem is tremendously needed. **Aim:** to assess maternal and neonatal outcome in women with threatened abortion and determine the level of patient compliance to its management. **Subjects and Methods:** Prospective and descriptive design was utilized in this study, which was conducted at labor and delivery unit of obstetrics and gynecology department in Mansoura University Hospital, 200 pregnant women diagnosed as having threatened abortion was legible to be selected for the study. Data collection includes; Structured Interviewing Questionnaire sheet, assessment, maternal follow up and patient level of compliance sheets. **Results:** Findings revealed that 70 (35.0%) women were exposed to different kinds of abortion and 130 (65.0%) continued the pregnancy until delivery. Where they encountered various antenatal complications, 67.7% underwent CS and 5.4% had severe birth asphyxia (0-3) at the 5<sup>th</sup> minute. Moreover, the majority of women did not adhere to the instruction given about measures used to control infection, reporting danger signals and maintaining good prenatal care (87.0%, 87.0% and 81.0% respectively). **Conclusion:** The majority of patients continued pregnancy until term and the rest was exposed to spontaneous abortion. Most of them were exposed to adverse maternal and neonatal outcome and the majority showed non-adherence to the prevention and management of threatened abortion. **Recommendations:** women with threatened abortion should be instructed about the adverse maternal and neonatal outcome of their condition and given an explicit counseling concerning compliance with healthy life style.

**Keywords:** *threatened abortion, patient compliance, adverse maternal and neonatal outcome*

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## 1. Introduction

First-trimester bleeding is a common complication which affects 20% - 25% of all pregnancies [1]. Threatened abortion is diagnosed on the basis of documented fetal heart activity on ultrasound with a history of vaginal bleeding in the presence of a closed cervix, it occurs in about 20% of pregnancies [2]. In the majority of cases, the bleeding is of unknown origin and usually slight. Ultrasonography confirms the diagnosis. It must reveal the fetus to show signs of life (e.g., heartbeat) [3]. USG may show subchorionic hematoma defined as a crescent shaped echo free area between the chorionic membrane and the myometrium [4].

The bleeding in a threatened abortion is mild to moderate (slight spotting). The abdominal pain may present as intermittent cramps or lower back pain, during the first half of pregnancy without cervical dilatation [5]. The

actual cause of a threatened abortion isn't always known. However, there are certain factors that may increase patient risk of having it. These include: a bacterial or viral infection during pregnancy, trauma to the abdomen, advanced maternal age (over age 35), exposure to certain medications or chemicals. Other risk factors for a threatened abortion include obesity and uncontrolled diabetes [6,7].

Threatened abortion having several complications such as; pelvic infection, incomplete abortion, blood clots in the uterus, heavy bleeding, perforation of the uterus wall, anesthesia-related complications, preterm labor, low birth weight and pre-eclampsia. Preterm premature rupture of membrane (PPROM), placental abruption and intrauterine growth restriction (IUGR) are also common complications [8]. Many women who experience a threatened abortion go on to deliver healthy babies. This is more likely if the cervix isn't already dilated and if the fetus is still securely attached to the wall of the uterus. If the women have abnormal hormone levels, hormone therapy can often help.

Outcomes of a threatened abortion involves, progress to a term viable pregnancy or may result in spontaneous, inevitable, incomplete, complete, missed or septic abortion. Threatened abortion is a very stressful experience and can lead to anxiety and depression. The maternity nurse plays a unique and important role in assisting patients' healthy behavior changes. However, the problem of poor adherence to medical treatment is a well-recognized problem in the literature [9,10].

Studies have shown that in the United States alone, non-adherence to medications causes 125,000 deaths annually and accounts for 10% to 25% of hospital and nursing home admissions [11]. This makes non-adherence to medications one of the largest and most expensive disease categories. Moreover, patient non-adherence is not limited to medications alone. It can also take many other forms; these include the failure to keep appointments, to follow recommended dietary or other lifestyle changes, and to report danger signals or to follow recommended preventive health practices. The scientific literature regarding threatened abortion and patient adherence to medical instructions is relatively limited on the subject of outcomes and viability at term in Mansoura. Therefore, the current study was conducted to explore this problem and increase the efficacy of adherence-enhancing strategies.

#### Aim of the study:

This study aims to assess maternal and neonatal outcome in women with threatened abortion and determine the level of patient compliance to its management.

## 2. Subjects and Methods

Prospective and descriptive design was utilized in this study which was conducted at labor and delivery unit of obstetrics and gynecology department in Mansoura University Hospital, Mansoura city, Dakahlia governorate, Egypt. Any woman diagnosed as having threatened abortion attending the above mentioned study setting was legible to be selected for the study. A purposive sample comprised 200 pregnant women from the above mentioned setting who fulfilled the following criteria: Period of amenorrhea was less than 20 weeks, positive pregnancy test and mild pain and bleeding were selected during a study period of 8 months. Data collection was done through the use of the following tools: 1) Structured Interviewing Questionnaire sheet, which collect information about socio-demographic characteristics, medical, obstetric and current pregnancy history. 2) Assessment sheet, which include information about signs and symptoms of patient with threatened abortion, in addition to the result of the pregnancy test and ultrasound finding. 3) Maternal follow up sheet was used to record information about the outcome of threatened abortion whether it ended with spontaneous abortion or pregnancy continued until delivery. 4) Assessment of women condition on admission to labor room to collect data about maternal and newborn outcome. 5) Patient level of compliance to nurse's instruction regarding the prevention and management of threatened abortion was also sought. The level of patient compliance to nurse's instruction was scored as good ( $\geq 60.0\%$ ) or poor ( $\leq 60.0\%$ ). The study protocol was

approved by the pertinent committees (seminar and ethical research committee) at the Faculty of Nursing-Mansoura University. Then at the time of data collection, a verbal consent for participation was taken from each participant after full explanation of the aim of the study. Tool was validated by experts' opinions, and pilot-tested. The fieldwork lasted from March to December 2017. Assessment of patient condition was done during the initial visit where the diagnosis of threatened abortion was ensured by the on duty physician. Then follow up schedule was arranged and woman was asked to contact the researcher 3 times during the end of the first and second trimester as well as during the admission to labor room. At these meeting the assessment was repeated to find out the outcome of the threatened abortion whether it was completed until delivery or end with spontaneous abortion. Complications encountered and patient's compliance to nurse's instructions were also recorded.

## 3. Results

Table 1 shows the characteristics of the studied women. Their age ranged between 17 and 40 years, and more than half of women (55.5%) were between 25-35 years of age with a mean of  $27.1 \pm 5.6$ . Meanwhile, more than two fifths (44.0%) completed secondary school and had high level of education. More than two thirds (68.5%) were not able to estimate their working hours per day, but, 13.0% of them were working up to 40 hours and 53.0% used to stand more than 3 hours per day. Those who were carrying a heavy load (10 kg and more) per day constituted 13.0%.

**Table 1. Number and percent distribution of the studied women according to their characteristics (n=200)**

Variables	No.	%
<b>Age (years)</b>		
17–25	77	38.5
25–35	111	55.5
35 and above	12	6.0
Mean $\pm$ SD	27.1 $\pm$ 5.6	
<b>Education</b>		
Illiterate & Read and write	33	16.5
Primary school & Preparatory school	79	39.5
Secondary school& above	88	44.0
<b>Occupation</b>		
House wife	146	73.0
Working	54	27.0
<b>Weekly working hours</b>		
Cannot estimate working hours	137	68.5
<30	9	4.5
30	28	14.0
40 or more	26	13.0
<b>Period of using standing position/ day</b>		
<3 hours	94	47.0
3 & above	106	53.0
<b>Carrying loads/day</b>		
None	91	45.5
5 – kg	83	41.5
10 kg+	26	13.0

The total studied sample was 200 pregnant women who were diagnosed with threatened abortion. Of those 70 (35.0%) women were exposed to different kinds of abortion and 130 (65.0%) women continued the pregnancy until delivery (Figure 1).

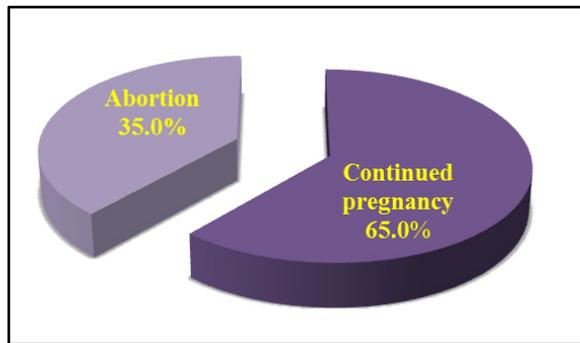


Figure 1. The outcome of threatened abortion among the studied women (n=200)

Figure 2 shows that the types of abortion that women were encountered. The most common type was incomplete abortion (45.7%) followed by missed and complete abortion (25.7% and 24.0% respectively).

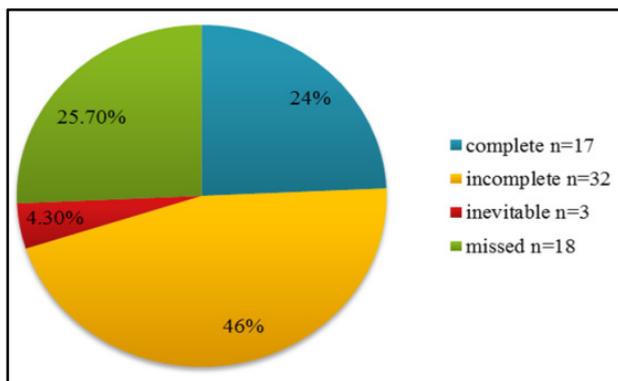


Figure 2. Number and percent distribution of the studied women according to the types of spontaneous abortion they encountered (n=70)

Table 2 shows that the most common type of abortion for the 70 women were incomplete abortion (45.7%) that usually occurred in the 15th week (15.7%), nine and six weeks respectively (11.4% and 10.0% respectively). Moreover, missed abortion was encountered among one fourth of the sample (25.7%) and occurred mostly at the 15th week of pregnancy (20.0%).

Table 2. Number and percent distribution of women according to the types of spontaneous abortion they encounter and weeks of gestation (n=70)

Variables	Types of abortion (n=70)							
	Complete		Incomplete		Inevitable		Missed	
	No.	%	No.	%	No.	%	No.	%
<b>Weeks of gestation:</b>								
<3	0	0.0	2	2.9	0	0.0	0	0.0
3-	0	0.0	0	0.0	2	2.9	1	1.4
6-	1	1.4	7	10.0	0	0.0	0	0.0
9-	6	8.6	8	11.4	0	0.0	0	0.0
12-	2	2.9	4	5.7	0	0.0	3	4.3
15+	8	11.4	11	15.7	1	1.4	14	20.0
<b>Total of each type of abortion</b>	17	24.3	32	45.7	3	4.3	18	25.7

Table 3 shows that preterm labor (28.5%) was the most common associated problem followed by Oligohydramnious, PROM and Preeclampsia (20.0%, 12.3% and 7.7% respectively). Meanwhile, more than one tenth (11.5%) was exposed to IUGR.

Table 3. Number and percent distribution of parturient women on admission to labor room according to the associated complications (n=130)

Variables	No.	%
<b>Associated complications:</b>		
Pre-Term	37	28.5
Full-Term	23	17.7
Post-Term	3	2.3
PROM	16	12.3
Oligohydramnious	26	20.0
Preeclampsia	10	7.7
IUGR	15	11.5

Concerning the maternal and neonatal outcome of the 130 women who continued their pregnancy until delivery Table 4 shows that 67.7% underwent CS and 5.4% had severe birth asphyxia (0-3) at the 5th minute. More than half of the newborn (55.4%) had normal birth weight and the rest had abnormal birth weight and 44.6% were exposed to NICU admission (Table 4).

Women with threatened abortion in the studied sample were asked about their compliance to the prevention and management of threatened abortion. Thus Table 5 revealed that the majority of the sample did not adhere to the instruction given about measures used to control infection, reporting danger signals and maintaining good prenatal care (87.0%, 87.0% and 81.0% respectively). Moreover, a sizable proportion was poorly complied to receive the prescribed medication and avoiding sexual intercourse (77.0% and 75.5% respectively). In total more than two thirds (67.5%) of the sample received poor score of compliance to these important instructions.

Table 4. Maternal & neonatal outcome of the studied women who continued their pregnancy until delivery (n=130)

Variables	No.	%
<b>Type of delivery:</b>		
Vaginal	42	32.3
CS	88	67.7
<b>Neonatal outcome:</b>		
<b>APGAR 1 minutes:</b>		
Normal (7-10)	89	68.5
Mild to moderate asphyxia (4-6)	33	25.4
Severe asphyxia (0-3)	8	6.1
<b>APGAR 5 minutes:</b>		
Normal (7-10)	91	70.0
Mild to moderate asphyxia (4-6)	32	24.6
Severe asphyxia (0-3)	7	5.4
<b>Birth weight:</b>		
Extremely low birth weight (<1.000g)	2	1.6
Very low birth weight (1.000 - < 1.500g)	28	21.5
Low birth weight (1.500 - < 2.500g)	28	21.5
Normal birth weight (2.500 - < 4.000g)	72	55.4
<b>Admission to NICU</b>	58	44.6

**Table 5. Number and percent distribution of the studied women according to their compliance to nurse's instruction about the prevention and management of threatened abortion (n=200)**

Variables	Good		Poor	
	No.	%	No.	%
1. Restrict activity and avoid hard work & heavy lifting.	114	57.0	86	43.0
2. Have a good balanced diet.	60	30.0	140	70.0
3. Avoid positive and negative smoking & caffeine intake.	146	73.0	54	27.0
4. Avoid sexual intercourse.	49	24.5	151	75.5
5. Control any medical illness & infection.	26	13.0	174	87.0
6. Have good and regular prenatal care.	37	18.5	163	81.5
7. Report danger signal.	26	13.0	174	87.0
8. Received the prescribed medication.	46	23.0	154	77.0
Total knowledge	65	32.5	135	67.5

#### 4. Discussion

Threatened abortion, defined as vaginal bleeding before 24 weeks of gestation, is a common complication affecting about 20% of pregnancies. In this regard [11] reported that spontaneous abortion after first-trimester bleeding is 50% before so no graphic evaluation for fetal viability. If a viable fetus is observed at ultrasound examination after first-trimester vaginal bleeding, 95% to 98% of such pregnancies will still continue beyond 20 weeks of gestation. Threatened abortion has been shown to be associated with an increased risk of poor obstetric outcomes. Therefore, it is necessary to be diagnosed and managed to prevent maternal or fetal mortalities and morbidities [12].

Recently, studies demonstrated that pregnant women with threatened abortion can understand their conditions and medical management according to the amount and type of information they had from their caregiver. Also, the scientific literature regarding threatened abortion and patient adherence to medical instructions is relatively limited on the subject of outcomes and viability at term [13]. Therefore, the present study was conducted to explore this problem and increase the efficacy of adherence-enhancing strategies. The aim of the present study was to assess maternal and neonatal outcome in women with threatened abortion and determine the level of patient compliance to its management.

According to the present study finding the rate of threatened abortion increased with the increase of age and heavy work. This may be due to the increased risk of chromosomal abnormalities among women with advanced age and increased load on the pregnant women. In agreement with the present finding [13] randomized controlled study in U.S during the period that started from the beginning of 2013 to the end of 2015, found that there was 1358 cases of threatened abortions their ages range between 25-30 years of age with a mean of 27.0 ±3.1. This corresponds well with the finding of [14] in Japan who has indicated that limiting the hours of hard physical work for pregnant women is an important issue targets for the prevention of early spontaneous abortions.

The present study finding revealed that the overall rate of abortion, after the demonstration of fetal cardiac activity was 35.0 % and the rest of women continued the pregnancy until delivery. This is significantly higher than previously reported miscarriage rates of 4.5%, 2.6%, 5.5% and 2.3% [15,16,17,18] respectively. Moreover, Ben Haroush et al., [19] found the incidence of term delivery

in threatened abortion to be 86.5% which was dissimilar to the present results. Also, Dongol et al., found the incidence of term delivery incases of threatened abortion to be up to 75.8% in their study [20].

The majority of the women with threatened abortion presented in the first trimester, between 5 to 12 weeks' gestation, similar to other investigators findings [15,16,21]. Among those whose pregnancies ended with abortion the most common type was incomplete abortion which constitute about one half of the sample and is usually occurred in the 15th week, nine and six weeks respectively. However, missed abortion was encountered among one fourth of the sample at the end of the first trimester of pregnancy. This is partially in agreement with [22] who reported that 86 cases clinically diagnosed as threatened abortion, only 50 (58.1%) women continued as live pregnancy and the rest 36 (41.5%) cases diagnosed clinically were as follows: 12 cases of complete abortion, 12 cases of incomplete abortion, one case of inevitable abortion, 11 cases of missed abortion. In the same line [23] study in India pointed out that there was 12 (17.1%) patients who spontaneously aborted after diagnosis of threatened abortion during hospital stay, 5 (7.1%) aborted on subsequent visits while 53 (75.8%) continued pregnancy. Also this agrees with [24] study about outcome of Threatened Abortion in a Series of 100 Cases in RMCH who showed that the highest type of abortion was incomplete abortion (26%) followed by missed abortion (11%).

Furthermore, the present study findings illustrated that adverse pregnancy outcomes are associated with threatened miscarriage. This study finding is in-agreement with another study who reported that threatened abortion is associated with an increased risk of certain pregnancy-adverse outcomes, such as preterm labor, accidental hemorrhage, low birth weight infants and premature rupture of membrane [24,25,26]. Also, the present study finding revealed that, intrauterine growth retardation is associated with threatened abortion. Haddow et al., reported that an increased risk for low birth weight in pregnancies that were complicated by vaginal bleeding [27].

A caesarean section rate of 67.7%, observed in this study, is extremely high than that reported by [28,29]. The low birth weight in the present study was more than two fourths which is higher than the rate (11.0%) reported by Mantoni [30]. Fuderburk et al., [31], Hertz and Heisterberg [21], Tongsong et al., [17] and Verma et al., [32] reported higher rates of low sbirth weight of 17.37%,14%, 16.5% and 23.8% respectively. The

incidence of low birth is closely related to the frequency of preterm delivery [15].

Finally the present study was aiming to determine women compliance to the instructions given pertaining to the prevention and management of threatened abortion. It was not expected to find out that the majority of the sample was not complied to the instruction given about measures used to control infection, reporting danger signals and maintaining good prenatal care. Moreover, a sizable proportion was poorly complied to receive the prescribed medication and avoiding sexual intercourse. Researches have shown that 40% of women with threatened abortion still do not adhere to medical instruction [33,34]. Patient adherence is a complex issue leading to huge burden on the healthcare system. Although many strategies had been developed to enhance patient adherence to the medical regimen present in the literature, they are often too complex and not applicable for busy maternity nurses. If a healthcare professional is unable to detect non-adherence, it is impossible for him or her to correct the problem. Hence, it becomes imperative to measure and evaluate patient adherence reliably. Moreover, regular assessment of patient adherence by itself can lead to increased patient adherence.

## 5. Conclusion

Based on the findings of the present study, it can be concluded that the rate of threatened abortion seems to increase with increasing maternal age and heavy maternal work. The majority of patients continued pregnancy until term and the rest was exposed to spontaneous abortion. Most of them were exposed to adverse maternal and neonatal outcome and the majority showed non-adherence to the prevention and management of threatened abortion.

## 6. Recommendations

Women with threatened abortion should be instructed about the adverse maternal and neonatal outcome of their condition and given an explicit counseling concerning compliance with healthy life style. Further research is recommended to study the effect of an educational program for the management of threatened abortion.

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