HexaTech
VOL2024 ISSUE01 Published 13JAN2024
https://hexatimess.com/hexatech ESSN 2636-3968
https://doi.org/10.5281/hexatech.10501193
https://hexatimess.com

Evaluation of Obstetric Triage Program at Governmental Maternity Hospital in Gaza Strip, Palestine

Dr. Ayda Khader
Aydakh2512@hotmail.com

Dr. Arafat Qaoud
qaoud1986@hotmail.com

Abstract

Maternal morbidity and mortality remain pressing concerns in developing countries, often exacerbated by delays in receiving appropriate care. This study aimed to evaluate the effectiveness of the obstetric triage system within government maternity hospitals in the Gaza Strip, focusing on midwives' knowledge and practices. A descriptive, cross-sectional, observational design was employed to collect data from midwives working in obstetric emergency departments. The study assessed midwives' knowledge of obstetric triage, examined the appropriateness of their triage practices, and analyzed sociodemographic characteristics for potential differences. Additionally, the structure of obstetric emergency departments for triage purposes was evaluated.

The results indicated that the majority of midwives possessed knowledge of obstetric triage and recognized its significance in prioritizing care. They demonstrated understanding of evaluation mechanisms, safety measures, and documentation standards for obstetric triage, perceiving it as an enhancer of nursing care quality. Notably, the Emirate hospital exhibited higher knowledge levels among midwives. However, educational qualifications and hospital variables did not significantly affect knowledge and practice.

Overall, midwives held positive perceptions of the obstetric triage system, offering insights into areas for improvement and further support in its effective implementation. This study contributes to enhancing the quality of care for pregnant women, reducing waiting times, and prioritizing cases based on urgency. Addressing knowledge gaps and refining triage practices can ultimately lead to improved maternal and neonatal outcomes.

Keywords: obstetric triage; midwives; knowledge; practice; emergency department; Gaza Strip.

Introduction

Triage is an essential function of an emergency department (ED), and was first introduced in the 1950s in the USA (Melot, 2015), Triage is a term used to describe the sorting of patients for treatment priority in EDs.

The purpose and function of triage is to first identify patients with life-threatening or emergency conditions who cannot wait to be seen and initiate appropriate interventions, and then allocate the patient to the right area within the ED (Afaya et al., 2017).

Triage became part of obstetric health care, aiming to improve utilization of bed capacity, increase immediate and appropriate response to obstetric emergencies, decrease waiting time, prevent unnecessary admissions, and standardize assessment of cases (Angelini and Howard, 2014).

Obstetric triage (OT) is defined as the ability to appropriately prioritize and assess pregnant women in a timely manner, to improve patients' flow, and enhance patient safety (Paisley et al., 2011).

The implementation of a clinical practice guidelines and OT acuity scale would help direct midwives toward evidence-based standards of care that could improve workflow, reduce risk, and promote safety and increase quality of care (American Congress of Obstetricians and Gynecologists - ACOG, 2012).

The Palestinian Ministry of Health (MOH) in Gaza Strip (GS) adopted obstetric triage as a strategy to improve the quality of care for pregnant women in labor by decreasing maternal morbidity and mortality. MOH endorsed action plan for triage program in GS. The OT training program started in mid-2020 for governmental maternity hospitals.

Training sessions regarding OT for midwives focused on assessment of pregnant mothers, to categorize the mothers according to their acuity. The OT training program aimed to provide the midwives with knowledge and skills to enable them to identify the status of pregnancy and increase their ability to identify high risk pregnant mothers who are in need for prompt intervention.

In this study, the researcher is going to evaluate the OT through assessment the midwives' knowledge and skills of OT in governmental maternity hospitals in GS.

Research problem

Delay in receiving adequate and appropriate care is one of the major causes of maternal morbidity and mortality in obstetric care in developing countries (Calvello et al., 2015) and (Goodman et al., 2018).

Studies on the root causes of maternal mortality and obstetric risk management have shown that poor triage for pregnant women and defects in risk assessment are basic problems of maternal mortality and obstetric adverse events (Bahreini et al., 2017) and (Changizi et al., 2015). Midwives' weak knowledge and skills of triage system leads to inappropriate treatment. This practice does not create room for critical and emergency cases to be managed immediately.

Workload is high in the maternity departments due to high birth rate compared to the number of professional obstetricians and midwives. In GS, the population density is very high (5.531capita/km^2), the fertility rate among women during the reproductive age is 3.3, the crude birth rate is estimated to be about 27.7/1000 population, and the percent of risky pregnancy accounted for 32.9% of the total pregnancies (Ministry of Health, 2020).

From the researcher's experience in maternity hospitals in GS, the researcher noticed that the obstetric ED is crowded especially in the evening and night duties, and the pregnant mothers have to wait long time before being seen by the midwife or the obstetrician. This condition raised the need for a triage system that prioritizes the cases according to urgency, and to avoid unnecessary crowd in obstetric ED.

General objective

The general objective of the study is to evaluate the effectiveness of the obstetric triage system in obstetric emergency departments at governmental hospitals in Gaza Strip

Specific objectives

1. To assess the level of knowledge about obstetric triage system among midwives in obstetric emergency departments at governmental hospitals in Gaza Strip.

2. To assess appropriateness of practicing obstetric triage for the pregnant mothers in obstetric emergency departments at governmental hospitals.

3. To identify differences in knowledge about obstetric triage system related to sociodemographic characteristics (hospital, age, experience, and qualification).

4. To determine differences in practice of obstetric triage related to sociodemographic characteristics (hospital, age, experience, and qualification) .

5. To examine the appropriateness of the structure of the obstetric emergency department for triage

Questions of the study

1- What is the overall level of knowledge about the obstetric triage system among midwives in obstetric emergency departments at governmental hospitals in the Gaza Strip?

2- To what extent is the practice of obstetric triage for pregnant mothers in obstetric emergency departments at governmental hospitals deemed appropriate by midwives?

3-Are there any significant sociodemographic factors, such as hospital location, age, experience, or qualification that influence midwives' knowledge and practice of the obstetric triage system?

Definition of terms Triage

Triage is a process of prioritizing patients based on the severity of their condition and the urgency of their need for medical care. It involves a rapid assessment of the patient's clinical status to determine the appropriate level of care and resources required to manage the patient's condition.

According to the American College of Emergency Physicians (ACEP), triage is "a process of rapidly screening patients to determine their level of acuity and the most appropriate intervention" (ACEP, 2021). This process involves assessing the patient's vital signs, chief complaint, medical history, and other relevant factors to determine the patient's level of urgency.

Triage is commonly used in emergency departments, where patients with lifethreatening conditions are prioritized for immediate care. However, triage can also be used in other healthcare settings, such as obstetrics, where it is used to prioritize pregnant women based on their clinical status and the urgency of their need for care.

Definition of terms Midwife

A midwife is a person who has successfully completed a midwifery education program that is recognized in the country where it is located and that is based on the International Confederation of Midwives (ICM) Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title "midwife"; and who demonstrates competency in the practice of midwifery (International Confederation of Midwives, 2011).

Definition of terms Triage midwife

A triage midwife is a healthcare professional who assesses and prioritizes care for pregnant women who present for emergency care or assessment in a hospital or birthing center. They are trained to identify high-risk pregnancies, manage emergency situations, and provide emotional support and counseling to patients and their families (American College of Nurse-Midwives, 2021).

Definition of terms Triage room

A triage room is a designated area in a hospital, clinic, or emergency department where patients are initially assessed to determine the severity of their condition and the appropriate level of care. The triage room is staffed by healthcare professionals, such as nurses or physicians, who use a standardized system to prioritize patients based on the urgency of their medical needs. (Wuerz, R., & Milne, L. 2011).

Definition of terms Knowledge

Knowledge is often defined as a belief that is true and justified. This definition has led to its measurement by methods that rely solely on the correctness of answers. A correct or incorrect answer is interpreted to mean simply that a person knows or does not know something (Hunt, 2010).

Literature review

The concept of triage comes from the military, where workers in field hospitals use systematic principles to evaluate and prioritize how quickly wounded soldiers are fully evaluated and treated. Triage is the process of prioritizing patients based on the acuity of the problem to take the best treatment in the shortest possible time (Forshaw et al., 2016). It includes brief and focused assessment and patient allocation to an acuity level, which determines the length of time a patient can safely wait for therapeutic screening examination and treatment (Angelini and LaFontaine, 2017).

The first-time triage was used to prioritize medical care during the Napoleonic Wars in the late eighteenth century (Nakao et al., 2017). Later in the 1950s, triage was introduced in the United States as an answer to the problem of overcrowding in the emergency department (ED) of hospitals (Safari et al., 2015).

Triage in hospitals typically is associated with emergency departments that aim to categorize and prioritize patients who present for emergent or urgent care before detailed evaluation and management. Although labor and delivery units frequently serve as emergency units for pregnant women, the appropriate structure, location, timing, and timeliness for hospital-based triage evaluations of obstetric patients are not always clear (ACOG, 2016).

The birth rate continues to be high in GS ranging between 27.7 to 32.9 live birth per 1000 population (MOH, 2020). The high birth rate means that resources such as staff and beds are under pressure, which will result in decreasing the quality of obstetric health care. Providing a standardized triage process could improve the quality and safety of obstetric services with appropriate assessment, support, and continuity of care (Easterbrook, 2013).

Triage in obstetric health facilities

From 1986 to 2010, labor and delivery units triaged pregnant women based on standardized emergency acuity scales such as the Canadian Triage Acuity Scale (CTAS) or the Emergency Severity Index (ESI) (Gratton et al., 2016). Over time, these scales showed limited applicability in OT due to the following reasons.

1. Firstly, OT is beyond the concise estimate and entails a thorough assessment of the mother and fetus (Killion, 2016).

2. Secondly, the acuity determinants do not reflect the variation of pregnancy manifestations or the specialized needs of obstetric patients (Gratton et al., 2016). These reasons led to the development of the first OT acuity scale in 2010 (Brown, 2014).

Since then, different OT acuity scales have been developed and validated, including the Florida Hospital System (FHS), Obstetric Triage Acuity Scale (OTAS), Maternal-Fetal Triage Index (MFTI), and Birmingham Symptom-Specific Obstetric Triage System (BSOTS) (Ruhl et al., 2015) and (Kenyon et al., 2017).

Triage in maternity hospitals is newly adopted in GS

Typical triage protocols involve an initial assessment and decision about the priority level for evaluation. In the case of the pregnant women, this assessment may be conducted by a registered or certified midwife. The midwife performing triage should identify the mother's acuity during the first encounter. Triage is followed by the complete evaluation of the woman and the fetus by a health care provider with skills and training appropriate to evaluate the issues identified during triage (American Academy of Pediatrics, and American College of Obstetricians and Gynecologists, 2012).

Since labor and delivery units often serve as emergency units for pregnant women, the use of obstetric triage systems with poor or inadequate quality can lead to unintended consequences such as over and under-triage and so a waste of humans and financial resources.

A study assessed the impact of OT improvement program on reducing hospitalbased delay in a referral hospital in Ghana. A triage training course and monitoring of quality improvement tools occurred in 2013 and 2014. Data were collected at three-time intervals following the opening of triage room and compared with baseline including: referral indications, patient and labour characteristics, waiting time from arrival to assessment and the documentation of a care plan. An obstetric triage improvement program reduced the median patient waiting time from facility arrival to first assessment by a midwife from 40 minutes to 5 min over the 5-year intervention.

The triage system enhanced performance resulting in the elimination of previous delays associated with the time of admission and disease acuity. Care plan

documentation increased from 51% to 96%. OT when properly implemented, reduced delay in a busy, lowresource hospital (Goodman et al., 2018).

Knowledge and practice of obstetric triage

1- A quasi-experimental study aimed at evaluating the effect of triage education on emergency nurses' performance in diverse emergency departments. The sample of the study included 150 emergency nurses worked at pediatric, Obstetric, and adult emergency departments affiliated to three major governmental hospitals in Beni-Suef Governorate, Egypt. Assessment of the nurses' knowledge, practice, and attitude have been done using a self-administered questionnaire, triage competencies observational checklist, and nurses' attitude measuring scale. The results indicated poor nurses' triage knowledge, practice, and negative attitude before triage education, but there was significant improvement after triage educational program, with a statistically significant difference among the three implementation phases "pre, post, and one month follow up" (Faheim et al., 2019).
2- Another study evaluated the effectiveness of triage tools. A novel guideline was developed and implemented in a tertiary maternity hospital of Sierra Leone. A triage system was implemented using a quality improvement approach. A novel triage guide, mentorship, improved patient flow and training were introduced. Data was collected at three points over 5 months. The number of patients correctly triaged was 43.22% before implementation, 81.82% two weeks after training and 87.85% two months after training. There was strong evidence for the increase in correct triage. The study concluded that implementation of OT system increased the amount of correctly triaged patients (Best and Sesay, 2020).
3- A qualitative study carried out in a teaching tertiary referral hospital in Iran. The study aimed to identify factors influencing the OB triage implementation. The sample of the study consisted of 37 professional midwives, nurses, gynecologists, and specialists of emergency medicine, and 6 patients. Semi-structured interviews were conducted individually and face-to-face. Interviews were audio recorded, transcribed, and analyzed using conventional content analysis. Four overarching categories and nine themes emerged from the content analysis of the interviews and observations. Overarching categories

were the guideline, individual, cultural and social context, and organization. The development and structure were themes of the guideline. Knowledge, attitudes, and behaviors were related to the category of individuals. The cultural and social context included cultural and social changes. Implementation and monitoring strategies and executive infrastructure were organizational themes. Participants had differences and similarities in understanding influencing factors (Moudi et al., 2021).

Methods and materials

- **Design of Study:** The design of the study will be descriptive, cross-sectional, observational design.
- **Setting of the study**: The study will be conducted in obstetric emergency departments at all the governmental maternity hospitals in Gaza Strip (Kamal Odwan, Al-Shifa, Al Aqsa, Al Tahreer, and Al-Helal Al Emaraty hospital).
- **Study population:** The population of the study will consist of all midwives currently working in the obstetric departments at governmental maternity hospitals in Gaza Strip. Their total number is about 150 midwives.
- **Sample and Sampling**: All the licensed midwives who are currently working in obstetric emergency departments at governmental maternity hospitals were invited to participate in the study. Their total number is about 110 midwives.

Inclusion criteria

1. Licensed midwives with bachelor degree in midwifery.
2. Working full-time in obstetric emergency department.
3. Received formal training about obstetric triage system.

Data collection tools:

For data collection, the researcher will use the following tools:

1. Self-administered questionnaire to assess knowledge and practice of midwives about obstetric triage.
2. Observation checklist to assess the practice of triage in obstetric emergency department.
3. Observation checklist to assess the structure of the obstetric emergency department.

Validity and reliability

To examine validity of the questionnaire, the researcher will distribute the questionnaire to a group of experts in health field and research methodology to ensure clarity and validate the contents of the questionnaire. Their comments and advices will be considered in finalization of the questionnaire.

Then a pilot study will be conducted (pre-test of the questionnaire) on 30 participants to test internal consistency and reliability of the questionnaire. Cranach Alpha coefficient will be used, and the minimum acceptable level of alpha coefficient will be 0.7.

To ensure the validity of the questionnaire, Pearson correlation coefficient was used and equal to 0.758, and to test the reliability of the questionnaire Cronbach's Alpha was used and equal 0.832 which is considered relatively high values reflecting high reliability of questionnaire paragraphs. This indicates excellent reliability value for the entire questionnaires.

Data Collection

The researcher will explain the purpose of the study to the eligible participants and will give them instructions about the questionnaire before filling the questionnaire. Each questionnaire will have a consent form in the first page that asks the midwives to participate in the study voluntary. Time allocated for each questionnaire will be about 20 minutes. The midwives will receive explanation about the purpose of the study before filling the questionnaire.

For observation checklist, the researcher will make three observations in each obstetric ED. Time for each observation will be about 2 – 3 hours in each visit to obstetric triage room.

For the structure of obstetric ED, the researcher will use a structured observation checklist for the construction of the triage room, availability of equipment and supplies, access, size of the room, availability of examination beds, wheel chairs, waiting area, light, ventilation, and privacy.

Period of the study

The study will be carried out during the period from April 2022 to April 2023.

Limitation of the study:

The study will be limited to midwives who are working in the obstetric EDs at governmental maternity hospitals in Gaza Strip.

Study Tools

1- The questionnaire has three parts: Demographic characteristics included hospital, educational level, age, number of years of service, working period, training, policy.
2- The second part is 38 questions constituting 6 dimensions: (1) The concept of obstetric triage system (items 1 to 4), (2) Quality measures of obstetric triage benefits (items 5 to 11), (3) Components of obstetric triage system (items 12 to 19), (4) Evaluation mechanism for obstetric triage system (items 20 to 30), (5) Safety measures during obstetric triage (items 31 to 35), and (6) Documentation standards for obstetric triage (items 36 to 38).
3- The third part related to Midwives' perception of the obstetric triage system, constituting of 12 questions ((items 1 to 12).
4- The responses are measured on 3-point Likert scale: (1) = no; (2) = neutral; (3) = yes.

Statistical Analysis

The statistical package for social sciences (SPSS) version 25 was used for analysis. Data were presented in form of frequencies, means, standard deviation, and percentage for quantitative variables. t-test was used to make comparison between two groups and one-way ANOVA among three groups and $p < 0.05$ was considered statistically significant. Person correlation analysis was used for the assessment of the interrelationships among quantitative variables.

Results

Sociodemographic characteristics of participants

Fifty-eight (69.9%) were Bachelor, and 77 (92.8%) their workplace have a written policy on the obstetric triage system. Majority of midwives had attended a course on obstetric triage. 65 (78.3%) their shift (working period) are varied.

(Table 1)

Table (1): Sociodemographic characteristics of participants (N =83)

Variable	N (%)
Shift (working period)	
Evening	2 (2.4)
Morning	14 (16.9)

Night	2 (2.4)
Varied periods	65 (78.3)
Education Level	
Diploma	22 (26.5)
Bachelor	58 (69.9)
Master	3 (3.6)
Workplace have a written policy on the obstetric triage system	
Yes	77 (92.8)
No	6 (7.2)
Attended a course on obstetric triage (Training)	
Yes	73 (88.0)
No	10 (12.0)
Hospital	
Shifa Medical Hospital	18 (21.7)
Kamal edwan Hospital	20 (24.1)
Al-Aqsa Martyrs Hospital	12 (14.5)
Nasser Medical Hospit	15 (18.1)
AL emirate Hospital	18 (21.7)

***Knowledge of midwives about the obstetric triage system*:**

To determine the level of midwives' knowledge about the obstetric triage system, frequency, percentage, mean, and standard deviation were extracted for each of the items.

The concept of obstetric triage system

Table (2): The concept of obstetric triage system

Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
1 Obstetric triage means triage of pregnant women to their clinical needs starting from the - woman arrives at the emergency department	79 (95.2)	4 according (4.8)		1.05 (0.22)
2 obstetric triage system is place, not a dynamic 5 (6.0) process	38 (45.8)	40 (48.2)	1.60	(0.60)
3 Obstetric triage is a brief assessment of the mother and fetus to determine the priority of care	73 (88.0)	10 (12.0)	-	1.12 (0.33)
4 The triage system at birth is the role of the doctor 74 1 (1.2) and not the responsibility of the midwife (0.32)	8	(9.6)	(89.2)	1.92
Total				

M: Mean SD: standard deviation Coding: (1): Yes, (2): No, (3): I don't know.

The results of the study showed that the midwifery nurses have knowledge about the concept of obstetric triage system, as 95.2% of them have knowledge that the triage system means triage of pregnant women according to their clinical needs starting from the woman arrives at the emergency department, and 88.0% believe that the Obstetric triage is a brief assessment for the mother and fetus to determine the priority of care, and 89.2% believe that the triage system at birth is the responsibility of the midwife.

- Quality measures of obstetric triage benefits

Table (3): Quality measures of obstetric triage benefits

Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
bstetric triage allows for rapid response to emergency 73 8 1.14 2 (2.4) deliveries				o
2 Obstetric triage does not enhance communication 1.2) between health care providers			1 (	
3 Obstetric triage does not improve patient safety	(88.0)	(9.6)	-	(0.42)
4 Obstetric triage increases the workload in the	24 (28.9)	58 (69.9)	2 (	1.72 (0.48)
2.4) emergency department	9 (10.8)	74 (89.2)		1.89 (0.31)
5 Obstetric triage improves clinical delivery among	17 (20.5)	64 (77.1)	-	1.82 (0.45)
healthcare providers	65 (78.3)	18 (21.7)		1.22 (0.42)
6 Obstetric triage increases the waiting time for women	33 (39.8)	50 (60.2)	-	1.60 (0.49)
7 Obstetric triage increases maternal morbidity and	12	68	3 (	1.89
3.6) mortality (14.5) (81.9) (0.41) Total				

M: Mean SD: standard deviation Coding: (1): Yes, (2): No, (3): I don't know.

Quality measures of obstetric triage benefits

The results of the study showed that there are many benefits to the triage system, as it allows a rapid response to emergency deliveries by 88.0%, and improves clinical delivery among healthcare providers by 78.3%, and reduces waiting time for women by 60.2%, in addition to reduces maternal morbidity and

mortality rates by 81.9%, also reduces the workload in the emergency department by 77.1%.

Table (4): Quality measures of obstetric triage benefits

	Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
1	Obstetric triage consists of the clinical track and categorical levels of triage	70 (84.3)	10 (12.0)	3 (3.6)	1.19 (0.48)
2	The clinical track of obstetric triage describes the patient flow process from assessment through treatment to the health care provider and its final evaluation	66 (79.5)	14 (16.9)	3 (3.6)	1.24 (0.51)
3	Emergency, urgent and non-urgent are the basic categorical 1.2) levels of the obstetric triage system	79	3	1 (	1.06
4	Very urgent, urgent and non-urgent are classified 1.2) according to the seriousness of the situation			1 (	
5	The emergency is not life threatening 1.2)	(95.2)	(3.6)	1 (	(0.29)
6	Urgent is a category that must be intervened within one to two hours	77 (92.8) 9 (10.8)	5 (6.0) 73 (88.0)	-	1.08 (0.32) 1.90 (0.34)
7	Emergency is the second level category that must deal with 1.2) critical obstetric care	26 (31.3) 37 (44.6)	57 (68.7) 45 (54.2)	1 (	1.69 (0.47) 1.57 (0.52)
8	Not urgent means not dealing with or taking any priority (2.4) from assessment and care Total	18 (21.7)	63 (75.9)	2 (0.45)	1.81

M: Mean SD: standard deviation Coding: (1): Yes, (2): No, (3): I don't know.

Evaluation mechanism for obstetric triage system

The results of the study showed that 89.2% of midwives believe that hands should be washed before assessment to ensure safety, and (91.6%) believe that setting priorities; Privacy is an essential element to ensure patient safety during obstetric triage, and 84.3% the initial assessment includes accurate subjective and objective data for obstetric patients, and 95.2% the physical assessment should be quick

and include vital signs, and (94.0%) skills are necessary contact to obtain sufficient information to determine the patient's severity.

Table (5): Evaluation mechanism for obstetric triage system

	Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
1	Before evaluation hands should be washed to ensure safety	74 (89.2)	7 (8.4)	2 (2.4)	1.13 (0.41)
2	Set the priorities; Privacy is an essential component of ensuring patient safety during obstetric triage	76 (91.6)	7 (8.4)	-	1.08 (0.28)
3	The initial assessment is the final step for obstetric triage	20 (24.1)	61 (73.5)	2 (2.4)	1.78 (0.47)
4	The initial assessment should take in 20 to 40 minutes	48 (57.8)	35 (42.2)	-	1.42 (0.50)
5	The initial evaluation includes accurate subjective and objective data of obstetric patients	70 (84.3)	10 (12.0)	3 (3.6)	1.19 (0.48)
6	The time from initial assessment to health care provider treatment to re-evaluation is the same as in three Categorical levels of obstetric triage	44 (53.0)	33 (39.8)	6 (7.2)	1.54 (0.63)
7	The time from healthcare provider treatment to reinvasiveness is the same as in Three technical levels of obstetric triage.	45 (54.2)	35 (42.2)	3 (3.6)	1.49 (0.57)
8	The physical evaluation should be fast and include vital signs	79 (95.2)	3 (3.6)	1 (1.2)	1.06 (0.29)
9	No need to reassess for non-urgent cases	34 (41.0)	48 (57.8)	1 (1.2)	1.60 (0.52)
10	Communication skills are necessary to obtain sufficient information to determine the patient's severity	78 (94.0)	4 (4.8)	1 (1.2)	1.07 (0.30)
11	SBAR It is a communication tool used by the midwife during the assessment	55 (66.3)	23 (27.7)	5 (6.0)	1.40 (0.60)
	Total				

M: Mean SD: standard deviation Coding: (1): Yes, (2): No, (3): I don't know.

Safety measures during obstetric triage

The results of the study showed that 85.5% of midwives believe that infection control precautions are taken as the first priority for obstetric triage, and (78.3%) believe that timely assessment and completed assessment is essential, and 79.5% believe that early identification of clinical events or obstetric emergencies is important.

However, 72.3% see clinical non-delivery and a breakdown in teamwork as a problem.

Table (6): Safety measures during obstetric triage

	Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
1	Failure to take infection control precautions in the first	11	71	1.88	
	1.2) priority of obstetric triage			1 (	
2	The timeliness of the assessment and the completed				
	1.2) assessment is not an issue			1 (	
3	Error in judgment and misdiagnosis are not important to	(13.3)	(85.5)		(0.36)
	1.2) the midwife	17 (20.5)	65 (78.3)	1 (	1.81 (0.43)
4	Early recognition of clinical events or obstetric	22 (26.5)	60 (72.3)		1.75 (0.46)
	1.2) emergencies is important.	66 (79.5)	16 (19.3)	1 (	1.22 (0.44)
5	Clinical non-delivery and breakdown of teamwork are	21	60		1.77
	(2.4) not an issue	(25.3)	(72.3)	2	(0.48)
	Total				

M: Mean SD: standard deviation Coding: (1): Yes, (2): No, (3): I don't know.

Documentation standards for obstetric triage

The results of the study showed that there are several important criteria for documenting obstetric triage, as 89.2% of midwives believe that the documents should include the patient's complaint and the first triage evaluation. They also believe that documentation is an important step during obstetric triage system, while 94.0% believe that the documentation process should include the date and time of assessment and screening - re-evaluation notes and Midwife's name.

Table (7): Documentation standards for obstetric triage

	Items	Yes N(%)	No N(%)	I don't know N(%)	M(SD)
1	The documents must include: - the patient's complaint;	74	9	1.11	
3	Documentation includes date and time of assessment			-	
	and screening - re-evaluation notes. Midwife's name.	(94.0)	(6.0)		(.24)

	Total				
	- and The first triage evaluation	(89.2)	(10.8)	-	(0.31)
2	Documentation is not an important step during obstetric triage system	19 (22.9)	64 (77.1)		1.77 (0.42)
M: Mean SD: standard deviation Coding: (1): Yes, No, (3): I don't know.		78	5	(2):	1.06

Midwives' perception of the obstetric triage system

This section of the study deals with 12 items related to Midwives' perception of the obstetric triage system.

The results showed that the obstetric triage system affects 89.2% of the quality of maternity and emergency care significantly, and that 94.0% of midwives believe that obstetric triage is one of the foundations of patient safety in the emergency department, and the obstetric triage system improves the effectiveness of dealing with crowding and reducing workload in the maternity emergency department with a rate of 96.4%.

The foundation of the obstetric triage system depends on the accuracy of using the levels of the triage process with great accuracy.

The midwife has a major role in the effective implementation of the obstetric screening system with a rate of 90.4%. On the other hand, the majority of midwives (97.6%) believe that overcrowding can be controlled by activating the triage system for birth cases, and the possibility of dividing care into immediate clinical evaluation and then postpartum extra care.

Finally, the results showed that the majority of midwives (98.8%) believe that the birth triage system improves the quality of nursing care provided in the maternity department.

Table (8): Midwives' perception of the obstetric triage system

	Items	Yes N(%)	Neutral N(%)	No N(%)	M(SD)
1	The obstetric triage system affects the quality of	74			1.17
2	Obstetric triage is one of the foundations of patient safety in the emergency department	78 (94.0)	4 (4.8)	1 (1.2)	(0.30)
3	The obstetric triage system is an effective way to deal with congestion and reduce workload in the maternity emergency department	80 (96.4)	2 (2.4)	1 (1.2)	1.05 (0.27)
4	The foundation of the obstetric triage system rests on the accuracy of the use of the triage process levels accurately.	71 (85.5)	12 (14.5)	-	1.14 (0.35)
5	The midwife has a major role in effectively implementing the obstetric triage system	75 (90.4)	8 (9.6)	-	1.10 (0.30)
6	The main role of the obstetric triage system in the provision of health care obstetric emergency as a priority in the emergency department	73 (88.0)	9 (10.8)	1 (1.2)	1.13 (0.38)
7	Triage at birth plays a major role in satisfying pregnant women	62 (74.7)	16 (19.3)	5 (6.0)	1.31 (0.58)
8	Early intervention through obstetric triage system reduces the incidence of events severe maternal morbidity and mortality	76 (91.6)	6 (7.2)	1 (1.2)	1.10 (0.34)
	4 (4.8) 5 (6.0) maternity care and emergency greatly (89.2)	(0.51) 1.07			
9	The use of categories and time frames is not helpful	20	39	2.05	
10	Midwives can control overcrowding by activating obstetric triage system	81 (97.6)	1 (1.2)	1 (1.2)	(0.24)
11	Obstetric triage is useful in dividing care into immediate clinical evaluation and then postpartum extra care	81 (97.6)	2 (2.4)	-	1.02 (0.15)
12	obstetric triage system improves the quality of nursing care provided in the Obstetrics department	82 (98.8)	1 (1.2)	-	1.01 (0.11)
	Total				
	24 (28.9) in clinical evaluation (24.1) (47.0)	(0.73) 1.04			

M: Mean SD: standard deviation Coding: (1): Yes, (2): Neutral, (3): No.

Differences in knowledge about obstetric triage system related to *sociodemographic characteristics (hospital, age, experience, and qualification)?*

To identify differences in knowledge about obstetric triage system related to sociodemographic characteristics (hospital and qualification) One Way ANOVA were used, as shown in table (9).

Table (9): differences in knowledge about obstetric triage system related to sociodemographic characteristics (hospital and qualification)

Variable	Class	Sum of Squares	df	Mean Square	F	Sig.
Education Level	Between Groups	0.014	2	0.007	0.368	0.693
	Within Groups	1.481	80	0.019		
	Total	1.495	82	-		
Hospital	Between Groups	0.338	4	0.084	5.687	0.000*
	Within Groups	1.157	78	0.015		
	Total	1.495	82	-		

* Differences is significant at 0.05

The results shown in Table (9) showed that no differences in knowledge about obstetric triage system due to the educational qualification variable, while there were differences in knowledge about obstetric triage system due to hospitals, and the differences were in favor of the Emirate hospital.

Differences in practice of obstetric triage related to sociodemographic characteristics (hospital, age, experience, and qualification)?

To identify differences in practice of obstetric triage related to sociodemographic characteristics (hospital and qualification) One Way ANOVA were used, as shown in table (10).

Table (10): differences in practice of obstetric triage related to sociodemographic characteristics (hospital and qualification)

Variable	Class	Sum of Squares	df	Mean Square	F	Sig.
Education Level	Between Groups	0.015	2	0.008	0.293	0.747
	Within Groups	2.116	80	0.026		
	Total	2.131	82	-		
Hospital	Between Groups	0.118	4	0.029	1.141	0.343
	Within Groups	2.014	78	0.026		
	Total	2.131	82	-		

* Differences is significant at 0.05

The results shown in Table (10) showed that no differences in practice of obstetric triage due to the educational qualification and Hospital variables.

Conclusion

This study the findings related to midwives' perceptions of the obstetric triage system are presented clearly. It's evident that a significant percentage of midwives have positive perceptions of the system and differences in knowledge and practice related to the obstetric triage system.

References

- ACOG, (2016), Hospital-based triage of obstetric patients, committee opinion, 667.
- Afaya, A, Azongo, T. B and Yakong, V. N, (2017), Perceptions and knowledge on triage of nurses working in emergency Departments of Hospitals in the Tamale Metropolis Ghana. *IOSR JNHS*, *6*(3), 59-65.
- American Academy of Pediatrics, & American College of Obstetricians and Gynecologists, (2012), Guidelines for perinatal care, 7th ed. Elk Grove Village (IL): AAP; Washington, DC: American College of Obstetricians and Gynecologists.
- American College of Emergency Physicians, (2021), Triage Retrieved from https://www.acep.org/how-we-serve/sections/disaster-medicine/toparticles/triage/
- American Congress of Obstetricians and Gynecologists – ACOG, (2013), Hospital disaster preparedness for obstetricians and facilities providing maternity care. Committee Opinion No. 555. Obstet Gynecol, 121: 696-699.
- Angelini, DJ. & Howard, E, (2014), Obstetric triage: A systematic review of the past fifteen years: 1998–2013, American Journal of Maternal Child Nursing, 39(5), 284–297.
- Angelini, DJ & LaFontaine, D, (2017), Obstetric triage and emergency care protocols, New York: Springer Publishing Company.
-
- Augustyn, J. E., Ehlers, V. J & Hattingh, S. P, (2009), Nurses' and doctors' perceptions regarding the implementation of a triage system in an emergency unit in South Africa. Health SA Gesondheid (Online), 14(1): 104-111.
- Bahreini, S., Beigi, M., Rahimi, M., Valiani, M, (2017), Analysis of maternal mortality in Isfahan, Iran: a case series study, ATMPH, 10(6):1591.

- Best, R., & Sesay, J. T. N, (2020), Implementation of a novel obstetric triage tool in the tertiary maternity hospital of Sierra Leone: A quality improvement project. International Journal of Nursing and Midwifery, 12(3): 90-96.
- Brown, BJ, (2014), Improving quality in obstetrical triage through prioritization and standardization of patient care: Frontier Nursing University.
- Bruijns, S., Wallis, L., Burch, V, (2008), Effect of introduction of nurse triage on waiting times in a South African emergency department. Emerg Med J. 25:395–7.
- Calvello, EJ., Tenner, AG., Wallis, LA, (2015), Applying the lessons of maternal mortality reduction to global emergency health. Bull World Health Organ, 93(6): 417–423
- Changizi, N., Babaee, F., Ravaghi, H., Farahani, Z, (2015), Obstetrics risk management in 5 Iranian hospitals (Tehran-2012). Open J Obstet Gynecol, 5(05): 259.
- Easterbrook, J.F, (2013), the introduction of the new symptom specific obstetric triage system (SOTS) in an acute care trust: An examination of the views and experiences of midwives, Master Thesis, School of Health and Population Sciences, University of Birmingham, UK.
- Faheim, S., Ahmed, S., Aly, E., Hegazy, S, (2019), Effect of triage education on nurses' performance in diverse emergency departments, Evidence-Based Nursing Research, 1(2): 53-63.
- Forshaw, J., Raybould, S., Lewis, E., Muyingo, M., Weeks, A., Reed, K., et al,

  (2016), Exploring the third delay: an audit evaluating obstetric triage at Mulago National Referral Hospital. BMC Pregnancy Childbirth, 16(1):300.
- Goodman DM, SE, Ramaswamy, R, Bryce, F, Floyd, L, Olufolabi, A, Tetteh, C, Owen, MD, (2018), Addressing the third delay: implementing a novel obstetric triage system in Ghana. BMJ Glob Health 3 (2): 8
- Gratton, RJ., Bazaracai, N., Cameron, I., Watts, N., Brayman, C., Hancock, G., et al, (2016), Acuity assessment in obstetrical triage. J Obstet Gynaecol Can, 38(2):125-133.

- Haghigh, S., Ashrafizadeh, H., Mojaddami, F., & Kord, B, (2017), A survey on knowledge level of the nurses about hospital Triage. Journal of Nursing Education, 5(6): 46-52.
- Hunt, D, (2010), The concept of knowledge and how to measure it. Journal of intellectual capital, 4(1): 100-113.
- International Confederation of Midwives, (2011), ICM International Definition of the Midwife. (www.internationalmidwives.org/who).
- Kenyon, S., Hewison, A., Dann, S.A., Easterbrook, J., Hamilton-Giachritsis, C., Beckmann, A., et al, (2017), The design and implementation of an obstetric triage system for unscheduled pregnancy related attendances: a mixed methods evaluation. BMC Pregnancy Childbirth, 17(1):309.
- Killion, MM, (2016), the maternal fetal triage index: a standardized approach to OB triage. MCN Am J Matern Child Nurs, 41(6):372.
- Matteson, K., Weitzen, S., LaFontaine, D & Phipps, M, (2008), Accessing care: Use of a specialized women's emergency care facility for non-emergent problems. Journal of Women's Health, 17(2), 269–277.
- Melot, C, (2015), to score or not to score during triage in the emergency department, Intensive Care Med. Pediatric and international child health, 41:1135–7.

  Ministry of health, (2020), Annual report 2019, Palestinian Health Information Center, Gaza Strip.
- Moudi, A., Iravani, M., Najafian, M., Zareiyan, A., Forouzan, A., Mirghafourvand, M, (2021), Factors influencing the implementation of obstetric triage: a qualitative study, Midwifery, 92:102878. doi: 10.1016/j.midw, 2020, 102878.
- Nakao, H., Ukai, I., Kotani, J, (2017), A review of the history of the origin of triage from a disaster medicine perspective, Acute Med Surg, 4(4):279-384.
- Paisley, K. Wallace, R. and Durant, P, (2011), the development of an obstetric acuity tool, The American Journal of maternal/child nursing, 36 (5):290-296.
- Ruhl, C., Scheich, B., Onokpise, B., Bingham, D, (2015), Interrater reliability testing of the maternal fetal triage index, J Obstet Gynecol Neonatal Nurs, 44(6):710-716.

- Safari, SRF. Baratloo, AR., Motaamadi, M., Foruzanfar, MM., Hashemi, B., Majidi, AR, (2015), Hospital and pre-hospital triage systems in normal and disaster conditions; a review article. Iran Emerg Med J, 2(1) :9.
- Sedgwick, P, (2014), Cross sectional studies: Advantages and disadvantages. BMJ, 348.
- American College of Nurse-Midwives, (2021), the role of the midwife in emergency and disaster management. Retrieved from https://www.midwife.org/ACNM/files/ccLibraryFiles/Filename/00000000200 7/T he-Role-of-the-Midwife-in-Emergency-and-Disaster-Management.
- Wuerz, R., & Milne, L, (2011), Triage in emergency departments. In K. J. Knoop, L. B. Stack, & A. J. Storrow (Eds.), The Atlas of Emergency Medicine (3rd ed., pp. 16-18). McGraw-Hill Medical.