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The Association Between Team Triage Method on Emergency Department Performance Indexes at KSA

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Abstract :

Background: The field of triage is a dynamic one where many persons may present. It poses a risky assessment point since a triage team has to evaluate a patient's level of urgency as well as their current health and anticipated resource requirements. Given how important triage is, it's important to comprehend the elements that affect patient safety. Using team triage, which involves doctors and nurses, is one of the most efficient ways to triage patients in the emergency department (ED). Given the lack of solid proof about team triage's efficacy, the purpose of this study was to look into how the team triage approach affected ED performance metrics.

Method : descriptive correlation research design was used .in the biggest hospital at Jaddah, KSA. Participants were randomly allocated and were evaluated. A three-part questionnaire comprising the Press-Ganey satisfaction survey, the five-level triage form, and the participants' demographic information was utilized to gather data. The statistical program SPSS.24 was used to examine the data. Findings: In team triage, the mean waiting time score for the initial doctor visit was statistically considerably lower (P = 0.001). Additionally, there was a statistically significant decrease in the mean waiting time score for the first treatment in team triage (P = 0.001). Lastly, there was a statistically significant increase in the mean patient satisfaction score in team triage (P = 0.001).

conclusion :

Conclusion: The results of the study showed that the team triage approach reduces the length of stay and waiting time for the first service when compared to traditional triage, but it also increases patient satisfaction. Therefore, hospital management are advised to implement the team triage strategy in order to improve the ED's performance indicators.

Introduction:

A major worldwide public health concern, patient safety is the foundation of high-quality healthcare (Tevžič et al., 2021). Depending on the level of the healthcare system, a number of elements affect patient safety (Klemenc-Ketiš et al., 2020). According to Marcozzi et al. (2018), the emergency department plays a vital function as a gateway to the healthcare system and is a vital contributor to population health. Due to its fast-paced, intricate, and dynamic environment, the emergency department's clinical setting is particularly vulnerable to patient safety hazards (Durgun & Kaya, 2018). Globally, the number of patients in emergency rooms is increasing and frequently surpasses the capacity to continuously give all the assistance required (Wireklint).

One of the most important parts of hospitalization and patient treatment in cases of serious accidents and high-risk medical conditions is the emergency department (ED), which serves as the hospital's entrance. Therefore, having highly qualified medical and nursing personnel on call around-the-clock guarantees that appropriate management and oversight have been used to handle urgent needs.[2]

Treating critically ill and seriously injured patients is without a doubt the ED's major and primary responsibility.[3] Overcrowding and lengthy wait times are two of the many variables that could cause patients' treatment in the ED to be delayed.[4,5] Research indicates that prolonged ED stays lead to worse outcomes, which in turn raise patient discontent. Referred patients should be triaged and treated right away in the ED to avoid these risks.[6]

Triage has emerged as a widely utilized working method to distribute scarce resources as effectively as feasible (Wireklint et al., 2018). Effective triage allows for undisturbed activity and presents a major emergency department task (Alumran et al., 2020; Bijani & Khaleghi, 2019). The safety and effectiveness of emergency patient treatment depend on this intricate and pressing procedure (Burström et al., 2014). Triage nurses evaluate patients' clinical conditions holistically when they arrive at the emergency room. This includes looking at the patient's medical history, clinical presentation of symptoms, personal information, vital signs, mode of transportation, presence and duration of symptoms, and overall appearance (Reay et al., 2020). Triage, which means prioritizing patients for urgent health care treatment, is derived from the French word "trier," which means to sort or allocate.[7] In order to minimize mistakes, distribute the workload, and provide prompt care, triage is an essential component of admission and patient management in an emergency department. After a rapid and accurate diagnosis, a desirable triage system could precisely determine acuity and offer the necessary urgent care.[8]

In addition to lowering associated expenses, an appropriate triage plan could improve overall satisfaction, lower hospital stays and waiting times, lower morbidity and mortality, and boost the effectiveness and efficiency of ED services. On the other hand, an ineffective triage plan may result in treatment delays, discontent, poor health outcomes, and the loss and waste of important resources. Thus, one of the fundamental elements for the effective administration of the ED is the implementation of an efficient triage system.[9].

Any typical triage system need to be easy to use and intended to boost patients' confidence in the medical professionals.[10] There are several different ED triage systems in use around the world, and the Emergency Severity Index (ESI), a five-level system, is one of the most widely utilized ones. In hospital emergency departments, patients are categorized into five disease severity levels using the ESI system [11]. The following levels are identified: Level 1 (immediate, life-saving

intervention needed immediately), Level 2 (high risk of deterioration or indications of a time-critical issue), Level 3 (stable, requiring multiple types of resources for investigation or treatment), Level 4 (stable, requiring only one type of resource), and Level 5 (stable, requiring no resources other than prescription drugs or oral or topical medications).[13] In this manner, we can give the patient prompt medical attention and lower the possibility of a negative health outcome from prolonged treatment waiting (Alumran et al., 2020). Since neither undertriage (underestimating the urgency or severity of a patient's illness) nor overtriage (overestimating the urgency or severity of a patient's illness) are undesirable outcomes of triage (Ausserhofer et al., 2021), proper triage is essential and a means of ensuring patient safety (Moon et al., 2019).

The duration of stay, patient satisfaction, and wait time for emergency treatments are some of the most crucial metrics for assessing the effectiveness of a five-level triage system.[16,17] Specifically, one of the key factors that significantly affected patients' satisfaction with ED treatment was the length of the wait time.[17, 18] Additional research has demonstrated a direct correlation between patient satisfaction and ED treatment wait times.[6,19]

Although using the five-level triage approach improves the process's accuracy, it does not always yield the greatest outcomes, particularly when the "triage nurse" is given sole responsibility for triage.[20] Rapid patient assessment is frequently necessary for ED nurses' traditional triage strategy. As a result, innovative approaches are required to enhance the duration of patient evaluation at admission and arrival.

Instead than using a single triage nurse, one strategy is the fast track or a speedy method of triage teamwork.[21] Research indicates that when health care is delivered in a team environment, patients will have better health outcomes.[22]

The issue of ED overcrowding has been addressed by the introduction of several triage approaches. Numerous studies have demonstrated that increasing the number of doctors during the initial phase of therapy can enhance both the effectiveness and standard of care In contrast, the idea of team triage involves ED nurses as well as physicians and/or nurse practitioners in the triage process.[23]

Given the significance of length of stay, waiting time for services, and patient satisfaction in the emergency department, researchers looked at a number of interventions and concluded that the optimal strategy was to form a triage team consisting of doctors and nurses.[20, 24] According to these research, a triage team consisting of doctors and nurses met performance standards by reducing patient satisfaction, duration of stay, and waiting times Nevertheless, conflicting findings have been found by other research in this field.[25–27]. By integrating prompt health status evaluation with therapies, an efficient triage system limits the amount of time patients must wait in the emergency room (Forsman et al., 2012). Nurses play a crucial role in triage systems by accurately determining patient urgency and minimizing mistakes (Ausserhofer et al., 2021). Patient safety at triage and systemic issues related to increased patient flow through the emergency department, interdisciplinary team communication, and various nurse competencies in triage are also influenced by the nurse's interviewing style and capacity to accurately assess patient health based on observation (Reay et al., 2020). Accordingly, the patient, the particular urgent work environment, and the personality qualities of the triage nurse all have an impact on triage (Ausserhofer et al., 2021).

Significant of the study:

Given the significance of length of stay, waiting time for services, and patient satisfaction in the emergency department, researchers looked at a number of interventions and concluded that the optimal strategy was to form a triage team consisting of doctors and nurses.[20, 24] According to these research, a triage team consisting of doctors and nurses met performance standards by reducing patient satisfaction, duration of stay, and waiting times. Nevertheless, conflicting findings have been found by other research in this field.[25–27] Since the topic of the team triage model has not been studied in KSA, the purpose of this study was to look into how the team triage method affects ED performance. Innovative, evidence-based methods can be used to accomplish the importance of patient triage in ED for a better patient outcome.

Method :

A descriptive, cross-sectional design was utilized.

Setting:

The study was carried out in the emergency rooms of several of the largest public hospitals in Jedah, Saudi Arabia, which treat a wide range of patients with various ailments. These medical facilities are recognized as educational hospitals and have administrative ties to the Ministry of Health.

Sample:

Systemic random sampling was employed in the recruitment process. According to the G* Power software estimate, the minimal sample size was 200 participants (power of 0.95, $\alpha = 0.05$, medium effect size 0.2) [18].

Inclusion criteria:

The ability and attentiveness to fill out the questionnaires, as well as admission to the emergency department and triage for treatment, were requirements for inclusion in the study.Reluctance to continue participating in the study, deterioration of the clinical state, incapacity to respond to questions, were other exclusion factors.

Tools

The emergency index registration form, the demographic characteristics questionnaire, and the Press-Ganey patient satisfaction questionnaire were among the instruments used to collect the data.

Gender, age, marital status, education level, primary complaint, and other demographic variables were evaluated using a demographic characteristics questionnaire. A 22-item registration form created by the researcher for the emergency indexes asks questions based on the ESI's five-level standard triage. The questions included emergency indices like the number of triage cases during the shift, the triage unit and emergency physician's agreement, the patient's waiting time for the first doctor's appointment (per minute), the time of receiving the first service (per minute), personalized discharge, and leave of emergency care without treatment.

Press-Ganey patient satisfaction questionnaire to assess the Patient satisfaction questionnaire, according to Press-Ganey obtained patient satisfaction data. The main part consists of 20 questions in three parts: assessment of satisfaction when attending the emergency room (8 questions), physician visits (9 questions), and care provider's satisfaction (3 questions). Its scoring was based on a Likert scale (very good = 5, good = 4, average = 3, poor = 2, and very poor = 1 point). The range of scores was 20–100 and higher scores indicated higher satisfaction.[28].

The agreement evaluation approach was applied to assess the emergency index registration form's dependability. In this instance, the agreement coefficient between the observers (Kappa = %98) was computed after data extraction and recording on the form occurred during a pilot research. Additionally, face and content validity served as the foundation for the questionnaire's validity. Using the Content Validity Index (0.780), ten professors and research professionals from Tabriz University assessed the questionnaires to determine what needed to be changed. Prior research in Iran employed Cronbach's alpha coefficient (0.87–0.896) to evaluate the reliability of the patient satisfaction questionnaire after it was translated into Persian.[28]

The Cronbach's alpha coefficient using the test-retest method demonstrated patient satisfaction questionnaire reliability of (0.85) in this study, which was achieved by piloting the instrument among 40 patients who were referred to the emergency department.

Ethical consideration:

The Ethics Committee gave its approval to this project. All participants gave their informed consent, with special attention paid to data security, privacy, confidentiality, and the ability to join or leave the study at any moment.

Statistical analysis:

The SPSS statistical software (SPSS for Windows, version 24.0; SPSS Inc., Chicago, Illinois, USA) was used to analyze the data. It included both inferential (Chi-square and independent t-test) and descriptive (number, percentage, mean, and standard deviation) statistics. The data distribution was found to be normal by the Kolmogorov-Smirnov test.

Results:

Table 1 illustrated that 67 % of participants were male , while only 33% were female. Regarding their triage level they were distributed nearly equal in the 2nd , and 3rd level (29%) while their were no participant classified as 5th level. The majority came the emergency on their own car (89%). And also 90% of them response to verbal stimuli.

Table 1 the frequency distribution of socio demographic data of the study participant according to team triage methods :

Variables	**Team triage, *n* (%)**
Gender	
Male	134 (67.0)
Female	66 (33.0)
How to refer	

Personal car	178 (89.0)
Ambulance	22(11.0)
Previous referral	
Yes	6 (3.0)
No	194 (97.0)
Consciousness status	
Alert	18(9.0)
Response to verbal stimuli	182(91.0)
Triage level	
Level 1	40 (20.0)
Level 2	58(29.0)
Level 3	58(29.0)
Level 4	44 (22.0)
Level 5	-
Age (year), mean ±SD	45.66±18.13

Figure 1 illustrated that the average waiting time of patent received triage using team based triage was 30 min, moreover 45 min was the waiting time for receiving nursing intervention.

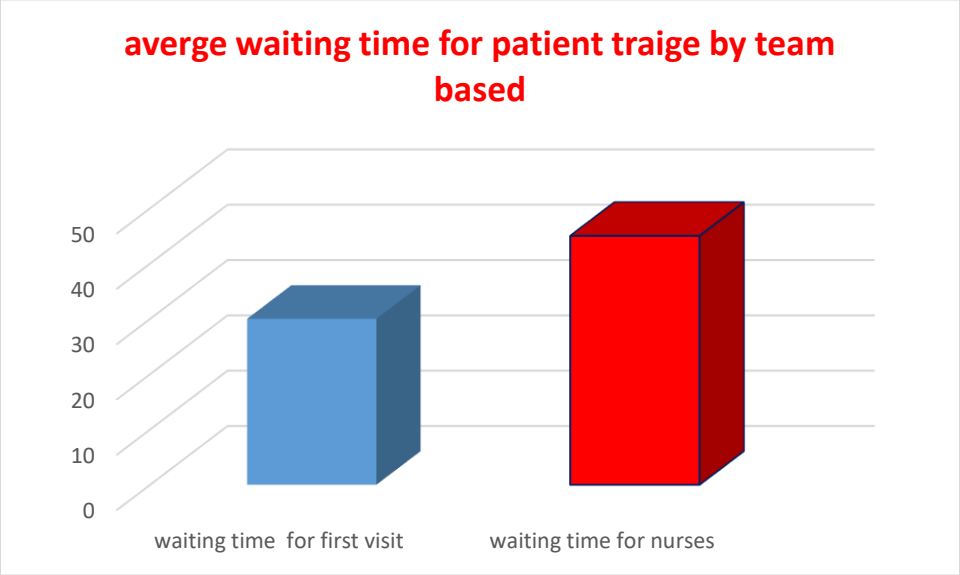

Figure 1 the average of waiting time of patient in emergency room using team based triage

Table 2 pointed that the level of participant satisfaction regarding team based triage at emergency department. It indicated that patient had high level of satisfaction with mean score= 91.16±2.32, also their related dimension; Physician's visit time satisfaction; Attending satisfaction; and Care provider's satisfaction (41.49±3.49; 35.42±3.25; 11.24±1.65)

Table 2: the level of participant satisfaction regarding team based triage at emergency department.

Item	Mean ± SD
Physician's visit time satisfaction	41.49±3.49
Attending satisfaction	35.42±3.25
Care provider's satisfaction	11.24±1.65
Total satisfaction	91.16±2.32

Discussion:

The necessity of implementing excellent health practices aimed at delivering comprehensive treatment has been highlighted by the development of public health policy in recent decades. In this sense, triage improves medical facility care. A tool for raising the standard of emergency services, triage technique permits and promotes beneficial modifications to medical procedures. In order to enhance care quality and adhere to the humanization policy in health services, the Ministry of Health advises its adoption in emergency rooms within the unified health system. Additionally, it encourages managers, employees, and patients to get involved, which helps to make the services that the public receives fairer and more equitable (20).

Triage should be used to reorganize health services in order to emphasize the patient's importance in the healthcare system, according to a study on the evaluation of the care process in emergency rooms (21). One crucial metric for assessing the quality of health services is the measurement of patient satisfaction with the system. This indicator has been linked to increased community involvement in public service planning and evaluation in Brazil since the latter part of the 1990s. Research has shown that treatment compliance and health service utilization are linked to patient satisfaction (16,22-24).

This study set out to look into how team triage affected the ED performance metrics. The findings demonstrated that, in comparison to the conventional triage method, the average wait times for the first visit and the first treatment in team triage were statistically significant and shorter. This is in line with the findings of our study, which indicate that team triage will decrease ED crowding, patient waiting times, the duration of the first doctor's visit, and adverse patient outcomes like morbidity and mortality [20,25,26]. Shea and Hoyt, for example, found that the triage team model significantly decreased the amount of time patients had to wait in the emergency department.[21].

In a similar vein, Heslin et al. discovered that team triage shortened the duration of patient discharge and increased the rate of patient discharge as compared to traditional triage.[20] Similar to our study's findings, Lauks et al.'s study found that using a physician-nurse evaluation team in the ER greatly decreased patients' wait times [26].

In addition: Patients from the adult emergency unit's (HC/UFTM) triage sector had high patient satisfaction ratings, as evidenced by their "very good" and "good" rankings for the variables surveyed. From the data, it can be deduced that these high rates might be related to the fact that this is a highly regarded public tertiary care hospital in the area, where patients, who are primarily young and have little education, are guaranteed medical care with a greater chance of having their health issues successfully resolved. However, as negative replies could imply a conflicting relationship between the services and the patient, these patients may have claimed satisfaction with the services out of fear of losing access to care.

In the emergency department, Hwang et al. found that when they employed the fast-track approach of team triage, which consists of an emergency technician and a nurse, the patient satisfaction level was much higher in the team triage group than in the conventional group.[32]. Patients were unhappy with a lengthy wait time to see a doctor at the emergency department as well as a prolonged stay there, according to a study conducted in Iran by Reihani et al.[19]. Similar experiences were also described by study participants. Our study's findings are inconsistent with French et al.'s finding that triage type had no effect on ED patient satisfaction [27].

The significance of having a doctor on the triage team has been emphasized by several studies. According to Travers and Lee, a senior emergency physician and triage nurse team shortened wait times for prompt ED treatment.[29] In a similar vein, Oredsson et al. discovered that utilizing a physician for triage and the fast-track system in the ED helped shorten patient wait times and stays.[30]

Choi et al. showed a significant decrease in patient waiting times when they included physician intervention in patient triage, which is consistent with our findings.[31] On the other hand, Ming et al. recommended more research and found no conclusive proof that team triage can enhance patient flow in the emergency department [25]. Contrary to our findings, French et al. found that triage type had no effect on patients' ED waiting times [27]. These discrepancies can result from each study's unique methodology and participant makeup. When compared to this study, the findings of the literature review and their interpretations show that the majority of studies support the idea that ED wait times and patient satisfaction are inversely correlated.[6,18] Because the doctor and nurse in the triage room assess and carry out patient interventions in collaboration and consultation with one another, this conclusion can make sense. Put differently, it might be argued that a more accurate patient triage results from the collaboration of a skilled nurse and doctor. Consequently, patients are seen and treated more quickly using this approach than with the conventional one. Given that the team triage approach can shorten wait times and boost patient satisfaction, astute hospital managers ought to take these results into account to enhance ED services by lowering wait times, hospital stays.

Conclusion

An essential component of assessing health care is understanding the expectations and viewpoints of those undergoing triage. Accordingly, this study discovered that these individuals were highly satisfied with the following variables: the hospital's cleanliness and signage, the health team's attention and trust, and their kindness and respect.

The results of the current study demonstrate that team triage can improve patient satisfaction and decrease wait times for the initial doctor visit and treatment when compared to traditional ED triage. Therefore, it is advised that hospital administrators support the team triage method's use in emergency departments by holding workshops and training sessions for knowledgeable staff members. This will enhance the quality of ED indexes and patient health outcomes.

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