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**Nurses' Perception of Emergency Departments
Overcrowding in Governmental Hospitals of Gaza Strip**

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Overcrowding in Governmental Hospitals of Gaza Strip**

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Jerusalem – Palestine

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Dedication

It's my genuine gratefulness and warmest regard that I dedicate this thesis to my beloved family and friends.

Ahmed H.AISufi

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

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Acknowledgment

In the name of Allah, the most merciful, the most compassionate all praise be to Allah, the lord of the worlds; and prayers and peace be upon Mohammed, his servant, and messenger. First and foremost, I must acknowledge my limitless thanks to Allah, the ever-magnificent; the ever-thankful, for his help and bless. I am totally sure that this work would have never become truth, without his guidance.

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Abstract

Overcrowding in emergencies has turned out to be one of the biggest problems in health systems around the world. Overcrowding represents a serious impediment to the ability of the Emergency Department (ED) to provide the public with quality emergency care. Prolonged waiting times and treatment delays can have substantial effects on patient outcomes. The study aimed to assess nurses' perceptions about ED overcrowding at governmental hospitals in the Gaza Strip in terms of its causes, effects and possible solutions. The design was a quantitative cross-sectional descriptive design. Census sample was used. 145 nurses that work in ED at governmental hospitals that have adult emergency department participated in the study with a response rate of 82.85%. The tool used in the study was a self-administered questionnaire that includes questions related to nurse's demographic characteristic data and included questions related to 3 domains (Factors that may cause ED overcrowding, effects of ED overcrowding, and possible solutions to the ED overcrowding). Cronbach's Alpha coefficient was (0.902) indicating high reliability. Results showed that the presence of a lot of patient escorts in the ED (weighted mean: 91.6%), presence of some patients for non-urgent reasons (weighted mean: 86.8%), and the shortage of healthcare providers (weighted mean: 86.2%) are the main factors of ED overcrowding as perceived by ED nurses. Results also showed that increased workload (weighted mean: 87.03%), verbal abuse of patients or their escorts (weighted mean: 86.62%), patient dissatisfaction (weighted mean: 78.62%), and increased patient waiting time (weighted mean: 87.21%) are the major effects of ED overcrowding from the nurses' perspective. Nurses believe that recruiting more health care providers (weighted mean: 93.4%) and educating people about the role of primary care (weighted mean: 90.3%) would help reducing ED overcrowding. The study concluded that emergency departments suffer from a shortage of healthcare providers with an increased flow of non-urgent cases and patient escorts which causes overcrowding and as a result of that, nurses suffer from an increased workload and patients suffer from increased waiting time and dissatisfaction about the provided care in the EDs. The study recommended expanding the role of primary care in dealing with non-urgent cases, expanding the area of EDs and offering more beds, and controlling the flow of patient escorts to the EDs.

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List of Abbreviations

BR	Bed Ratio
CDC	Centers for Disease Control and Prevention
DFM	Dixon Forecasting Model
DRS	Developmental Research Sequence
ED	Emergency Department
ENA	Ecole National Administration
GDP	Gross Domestic Product
GEDs	Gynecology Emergency Departments
GP	General Practitioner
HIC	Health Information Center
JCI	Joint Commission International
LOS	Length of Stay
MoH	Ministry of Health
MTE	Medical Team Evaluation
NEDOCS	National Emergency Department Overcrowding Scale
NGOs	Non-Governmental Organizations
NHS	National Health Service
NIH	National Institutes of Health
PCBS	Palestinian Central Bureau of Statistics
PHIC	Palestinian Health Information Center
POCT	Point-of-Care Testing
QIP	Quality Improvement Project
SPSS	Statistical Package for Social Sciences
TATs	Turnaround Times
UNRWA	The United Nations Relief and Works Agency for Palestine Refugees
USA	United States of America

Chapter One

Introduction

1.1 Background

Emergency department (ED) crowding has been described in health emergency literature as a concern for more than 20 years, and it has become a modern international health delivery problem. It has been previously demonstrated that ED crowding has a detrimental effect on quality of care and medical management, including a longer duration of hospital stay, a higher risk of mortality, subsequent hospital admission, lower levels of patient satisfaction, increased costs for admitted patients, and delays in the life-saving intervention and treatment of several crucial illnesses such as myocardial infarction, pneumonia, and painful conditions (Lee et al., 2017).

Overcrowding in emergencies has turned out to be one of the biggest problems in health systems around the world. In this case, a short and accessible solution could not be reached. In fact, several basic reasons play a role in such a problem and eliminating each of them would require long-term planning. This issue not only has a negative effect on the quality of services presented to the patients but also produces both psychological and physical effects on the emergency staff such as physicians and nurses. In addition, it also causes increased dissatisfaction among referees as well as imposing excessive exhaustion on medical staff (Baratloo & Maleki, 2015). According to Asplin's conceptual model, factors of ED crowding can be classified mainly into three categories; input factors, throughput factors, and output factors. Input factors usually reflect sources and aspects of increased patient inflow, throughput factors reflect bottlenecks and slow processes within the ED and output factors reflect bottlenecks in other next parts of the health care system

that might affect the ED, such as availability of hospital inpatient beds for ED patients to be admitted (Jan et al., 2012).

The effects of ED crowding can be classified generally into four main categories; adverse clinical outcomes, reduced healthcare quality, impaired access to care and healthcare provider losses. Adverse clinical outcomes reflect health-related and clinical patient complications. Reduced healthcare quality reflects below benchmarks quality of care delivery process. Impaired access to care reflects the inability of patients to receive timely care at their preferred institutions. Healthcare provider losses reflect the consequences borne by the health care system itself (Khalifa, 2015).

1.2 Problem Statement

Overcrowding in emergency departments (EDs) is internationally recognized as one of the greatest challenges to healthcare provision. Numerous studies have highlighted the ill-effects of overcrowding, including increased length of stay, mortality and cost per admission (Strada et al.2019).

Crowding is a serious issue that emergency departments face globally and it poses major safety risks with the potential for several adverse clinical outcomes (Carlson, 2016). It limits timeous access to emergency care, prolongs patient suffering, compromises the quality of clinical care, increases staff frustration and chances of exposing staff to patient violence and is linked to unnecessary preventable fatalities. The literature shows that a better understanding of this phenomenon may contribute significantly in coming up with solutions (Pascasie, 2014). So, the researcher conducted this study in order to find factors that cause overcrowding in emergency departments and its effects from the nurses' perspectives, which may help to find a solution to this problem.

Extended length of stay and overcrowding in emergency departments are described internationally as one of the most comprehensive challenges of modern emergency care. An emergency department is not designed, equipped or staffed to provide care for prolonged periods of time. This context, combined with a high workload, poses a risk to patient safety, with additional medical errors and an increased number of adverse events. From this perspective, it is important to extend our knowledge and to describe registered nurses' experiences of safe practice (Eriksson et al.2018).

Regardless of the underlying reason, ED overcrowding can lead to negative patient outcomes, such as possible delays in access to care and diagnosis and increased mortality for patients transferred to hospital wards (for both adult and pediatric patients) and for those discharged from the ED (Pines et al.2011).

1.3 Justification of the Study

Overcrowding represents a serious impediment to the ability of the ED to provide the public with quality emergency care. Prolonged waiting times and treatment delays can have substantial effects on patient satisfaction and outcomes. Increased mortality rates in the ED suggest that overcrowding should be treated as a serious public health concern and not solely as a problem of departmental efficiency. Being of multifactorial origin, overcrowding should be seen as a problem of hospital-wide patient flow and could be influenced by improved diagnostic protocols. Rapid turnaround times (TATs) from point-of-care testing (POCT) represent one means by which clinical decision making and patient management might be expedited to counteract several of the negative effects of overcrowding on ED performance (Rooney & Schilling, 2014). Governmental hospitals in Gaza Strip suffer from increased ED visits compared to other EDs around the world, where the number of visits per 100 persons was 68.6 (PHIC 2017), while it was 45.8 per 100

persons in the United States (CDC 2017) and 41.8 per 100 persons in the United Kingdom (NHS 2017). Comparing ratios reveals the large scale of pressure in ED utilities, that affect patient safety and public health that results in delayed sensitive diagnostic and treatment decisions, long waiting time, patients leaving without being seen, ambulance diverting, dissatisfaction for both patient and provider, as well as medical errors and financial losses, etc. It has also numerous negative consequences including potential increases in mortality and morbidity (Brassard 2013).

1.4 General Objective

The aim of the study is to assess nurses' perceptions about emergency department overcrowding at governmental hospitals in the Gaza Strip.

1.5 Specific Objectives

- 1- To identify nurses' perceptions about causes of overcrowding at emergency departments in Gaza Strip.
- 2- To explore nurses' perceptions about the effects of overcrowding at emergency departments in Gaza Strip.
- 3- To describe nurses' perceptions about proposed solutions of overcrowding at emergency departments in Gaza Strip.
- 4- To explore the relationships between nurses' perceptions of overcrowding at emergency departments in the Gaza Strip with their demographic variables.
- 5- To suggest recommendations that may contribute to improving the nursing care at emergency departments.

1.6 Research Questions

- 1- What are the nurses' perceptions about the causes of overcrowding at emergency departments in the Gaza Strip?
- 2- What is the nurses' perception of overcrowding effects at emergency departments in Gaza Strip?
- 3- What is the nurses' perception of proposed solutions of overcrowding at emergency departments in Gaza Strip?
- 4- Are there mean differences in the perceptions of nurses regarding overcrowding at emergency departments in Gaza Strip?
- 5- Are there significant relationships between sociodemographic data (age, gender, qualification, job title, workplace, and experience) and nurses' perception of overcrowding at emergency departments in Gaza Strip?
- 6- What are the recommendations that may contribute to improving nursing care in emergency departments?

1.7 Context of the Study

1.7.1 Sociodemographic context

Palestine lies within an area of 27,000 square kilometers (km²), expanding from Ras Al Nakoura in the north to Rafah in the south. Palestinian territories are divided into three areas separated geographically; the West Bank 5.655 km², Gaza Strip 365 km² and East Jerusalem.(PCBS, 2017). At the end of 2018, the Palestinian population reached 4,915,349 million, of whom 2,500,064 were males and 2,415,285 were females, while the population of the Gaza Strip governorates was 1,961,406 million, including approximately 994,211 males and 967,159 females, constituting 39.9% of the total population of the governorates and 2,953,943 million inhabitants in the West Bank governorates and Jerusalem comprising 60.1% of the total population of the governorates. The ratio of males to females reached 102.8%. Natural increase rate accounts for 2.8 (2.5 in the West Bank and 3.3 in the Gaza Strip), life expectancy for males 72.4 years and for females 74.6 years (MoH, 2019).

1.7.2 Gaza strip location and space

The Gaza Strip is located in the southern part of the Palestinian coast on the Mediterranean Sea. It is a narrow strip in the northeast of the Sinai Peninsula, which constitutes approximately 1.33% of the historic area of Palestine (from the river to the sea). The strip covers an area of 360 km², with a length of 41 km and a width of between 5 and 15 km. The Gaza Strip borders the north and east of the occupied Palestinian territories in 1948, while Egypt borders the south-west. Most of the residents of the Gaza Strip are refugees from the 1948 war, in which the occupation authorities expelled and occupied Palestinian citizens from their lands. The Palestinian refugees in the Gaza Strip are in camps in the Gaza Strip, Khan Yunis, Deir al-Balah, Bureij, Nussierat and Maghazi (New World Encyclopedia, 2017).

1.7.3 Economic context

The Palestinian economy suffers from continuous pressure caused by the long-term siege, imposed by the Israeli occupation for more than 12 years. Economic status in the Palestinian

Territories is very low. A significant increase in poverty rates occurred in GS from 38.8% in 2011 to 53% by the end of 2017 (United Nations Office for the Coordination of Humanitarian Affairs - OCHA, 2018). Gross Domestic Product (GDP) is estimated about 440.2\$ (576.0 in West Bank and 248.7 in Gaza Strip), unemployment rate accounted for 18.2% in WB and 41.7% in GS and for female's unemployment rate is 44.7% (29.8% in West Bank and 65.2% in Gaza Strip) (PCBS, 2017).

1.7.4 Health care system

The Palestinian health system consists of different parties. The main parties that offer health services are the Ministry of Health (MoH), Non-Governmental Organizations (NGOs), United Nations Relief and Works.

Agency for Palestinian Refugees in the Near East (UNRWA), the military health services, and the private sector. The total number of hospitals in Palestine is 83 hospitals, 51 of them in WB including east Jerusalem and 32 in GS. The number of hospitals owned by MOH in the Gaza strip is 13 hospitals, 16 for NGOs, 2 for the Ministry of Interior and National Security and 1 for the private sector. The number of hospital beds in the Gaza Strip reached 2,943 beds (2,240 beds belonging to the Ministry of Health, 526 beds belonging to non-governmental institutions, and 177 beds belonging to the Ministry of Interior and National Security). The number of physicians working in different centers and units of MOH is 3100 physicians, with 14.6 physicians per 10,000 population of Palestine in GS, and the number of nurses working in MOH in GS is 3682 nurses representing 25.1 % of total employees in MOH, with 21.2 nurses per 10,000 population of Palestine in GS. The

number of visitors to emergency departments in 2018 was 1,402,222 visitors in Gaza Strip (MoH, 2019).

1.7.5 Governmental hospitals of the Palestinian MOH in Gaza Strip (MOH, 2018):

Al-Shifa Medical Complex

Al-Shifa medical complex consists of three hospitals: medical hospital, surgery hospital, and maternity hospital. It is located in Gaza City. It serves Gaza city in particular and covers the Gaza Strip in general. Its clinical capacity is 619 inpatient beds. The total number of employees in the complex is 1487.

Indonesian Hospital

Indonesian Hospital is located in the north of the Gaza Strip. It was started in 2016. It includes the medical, general surgery and orthopedic departments. It includes four operating rooms, 10 intensive care beds and 100 inpatient-beds.

Beit Hanoun Hospital

A small public hospital providing internal medicine, surgery, and pediatrics for the residents of Beit Hanoun and the northern Gaza Strip governorates. The hospital has a total of 45 beds, 36 of which are reserved for hospitalization. The total number of hospital staff is 183 from all specialties.

Al - Aqsa Martyrs Hospital

A general hospital provides medical and surgical services, women, obstetrics and pediatrics. The hospital has a clinical capacity of 129 beds, of which 103 beds are reserved for hospitalization. The hospital has a total of 562 employees.

Nasser Medical Complex

A medical complex that includes Naser hospital, which is dedicated to surgery, internal medicine, al-Tahrir hospital for women, childbirth and children, and al-Yassin hospital. It

located in Khan-Younis. Khan-Yunis governorate has a total clinical capacity of 322 beds, with a total of 769 employees.

European Gaza Hospital

A large public hospital with a total clinical capacity of 246 beds, of which 203 beds are allocated for overnight use. The population in the southern governorates of the Gaza Strip is particularly distinguished by providing heart catheter service to southern governorates of the Gaza Strip. The total number of hospital staff is 781 employees.

Al-Najjar Hospital

A small public hospital providing services in the fields of surgery, internal medicine, and pediatrics. It participates with the European Gaza Hospital in providing services to the citizens of Rafah Governorate. Its total clinical capacity is 80 beds, 40 of which are reserved for hospitalization. The total number of staff is 270 staff members.

1.8 Theoretical and Operational Definitions

1- Perception

A belief or opinion, often held by many people and based on how things seem. (Cambridge English dictionary, n.d.)

2- Overcrowding

A situation when a place contains too many people or things (Cambridge English dictionary, n.d.)

3- Nurses' Perception of ED overcrowding

The nurses' opinion of what are the factors affecting overcrowding and its effects. The researcher is going to measure nurses' perception about the factors affecting ED

overcrowding, effects of ED overcrowding, and proposed solutions to reduce ED overcrowding using a self-administered questionnaire.

4- Emergency Department

The department of a hospital responsible for the provision of medical and surgical care to patients arriving at the hospital in need of immediate care. Emergency department personnel may also respond to certain situations within the hospital such as cardiac arrests. The emergency department is also called the emergency room or ER (Shiel, 2018).

5- Emergency Department Overcrowding

The state when there are a lot of patients and visitors that the need for services exceeds the department's available resources for timely patient care (Stone & Winger, 2019).

6- Governmental Hospitals

The governmental hospitals that are affiliated to the Ministry of Health in Gaza Strip and have an emergency department.

Chapter Two

Conceptual Framework and Literature Review

2.1 Conceptual Framework

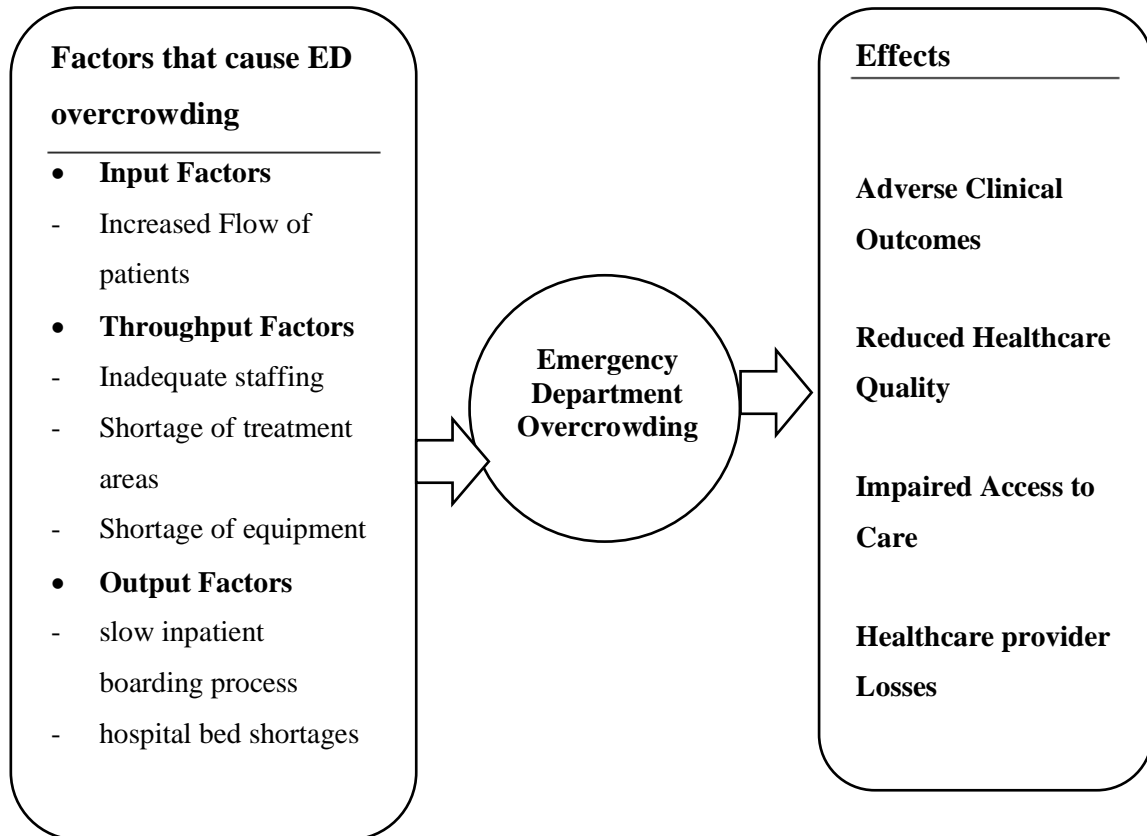


Figure (2.1) Conceptual Framework of Emergency Department overcrowding

The conceptual framework was modified from Asplin (2003) (Appendix 1) and categories of ED overcrowding were adopted from Khalifa (2015).

The conceptual framework shows the relationship between Factors that cause ED overcrowding as an independent variable and ED overcrowding as a dependent variable. It also shows the relationship between ED overcrowding as an independent variable and effects of overcrowding as a dependent variable.

2.2 Literature Review

Emergency department (ED) overcrowding represents an emerging threat to patient safety and could have a significant impact on the critically ill (Cowan & Trzeciak, 2005). This review describes the causes and effects of ED overcrowding; explores the potential impact that ED overcrowding has on care of the critically ill ED patient, and identifies possible solutions.

Crowding is a serious issue that emergency departments face globally and it poses major safety risks with the potential for several adverse clinical outcomes. A major reason for crowding is boarding admitted patients. In fact, the National Center for Health Statistics found that wait times for treatment in Emergency Departments that were boarding patients had a longer ED stay than those that were not boarding patients. At the 2015 General Assembly, delegates, alternates, and past presidents rated improving throughput, and specifically, improving the time from patient admission from the ED to an inpatient bed, as one of the top three priority clinical practice issues for Ecole National Administration (ENA) to address (Carlson, 2016).

If we considered access block as a disease then we would be forced to treat only some of the symptoms, but the fundamental condition would remain unaffected. As indicated above, many interventions have been partially successful, but as long as the fundamental causes remain, the symptoms sooner or later will re-emerge. In large EDs, 40% or more of staff time is spent caring for patients who are waiting for a bed, rather than looking after new emergency patients. An emphasis on what is clinically appropriate for patients underpins success in improving access to care. In relation to potential solutions, in addition to adequate mental health and transitional care beds (flexible beds), there is a need for robust, long-term data collection and system dynamic analysis. (Forero et al., 2011)

Critical care constitutes a significant and growing proportion of the practice of emergency medicine. Emergency department (ED) overcrowding in the USA represents an emerging threat to patient safety and could have a significant impact on the critically ill. This review describes the causes and effects of ED overcrowding; explores the potential impact that ED overcrowding has on care of the critically ill ED patient; and identifies possible solutions, focusing on ED-based critical care (Salway, 2017)

Pines et al.(2011) have shown that long waiting times in emergency departments is not a universal issue. Denmark, Sweden, and Holland have reported no emergency department overcrowding or long waiting times. One of the main reasons for their success is their robust primary care/prehospital care systems. In Holland, they have a 24-hour 7 day a week general practitioner (GP) service available. Denmark, Sweden, and Finland have urgent care centers where GP's treat the patients and refer to an emergency department when necessary, and in Denmark, their ambulances are staffed with physicians or nurse anesthetists who can treat and discharge a patient at the scene. In addition, GP's in Scandinavia can arrange a direct admission to a specific inpatient department in the hospital, bypassing the emergency department altogether.

2.2.1 Causes of Emergency Department Overcrowding

Morley et al.(2018) conducted a systematic review to critically analyze and summarize the findings of peer-reviewed research studies investigating the causes and consequences of, and solutions to, emergency department crowding. From 4,131 identified studies and 162 full-text reviews, 102 studies met the inclusion criteria. The majority were retrospective cohort studies, with the greatest proportion (51%) trialing or modeling potential solutions to emergency department crowding. Fourteen studies examined the causes and 40 investigated consequences. Two studies looked at both causes and consequences, and two

investigated causes and solutions. The systematic review concluded that the negative consequences of ED crowding are well established, including poorer patient outcomes and the inability of staff to adhere to guideline-recommended treatment. This review identified a mismatch between causes and solutions. The majority of identified causes related to the number and type of people attending ED and timely discharge from ED, while reported solutions focused on efficient patient flow within the ED. Solutions aimed at the introduction of whole-of-system initiatives to meet timed patient disposition targets, as well as extended hours of primary care, demonstrated promising outcomes.

Overcrowding in the emergency department has become an increasingly significant worldwide public health problem in the last decade. Overcrowding is the product of several hospital internal and external factors, and the most relevant are the insufficient access to hospital beds, and the shortage of ED nursing and physician staff. It is a consequence of simultaneous increasing demand for health care and a deficit in available hospital beds and ED beds, as for example, it occurs in mass casualty incidents, but also in other conditions causing a shortage of hospital beds. In Italy in the last 12–15 years, there has been a huge increase in the activity of the ED, and several possible interventions, with specific organizational procedures, have been proposed. In 2004 in the United Kingdom, the rule that 98 % of ED patients should be seen and then admitted or discharged within 4 h of presentation to the ED ('4 h rule') was introduced, and it has been shown to be very effective in decreasing ED crowding, and has led to the development of further acute care clinical indicators (Di Somma et al., 2015).

Nasrallah (2017) conducted a qualitative study at 3 hospitals in Gaza Strip, Al-Shifa Medical Complex, The Indonesian Hospital, and Nasser Medical complex to explore the causes of ED overcrowding and to investigate if people prefer hospital EDs on Primary Healthcare Centers in Gaza Strip and why. The study found that misunderstanding the

critical role of emergency department is the main cause of the overcrowding, people preferences and losing confidence in primary healthcare physician also contribute in the increasing of non-urgent cases to ED, In addition high attendance of patient family member increase interventions that delay the patient flow and increases overcrowding, the study also found that there is a large gap between governmental healthcare providers and patients; the poor design of emergency department affects badly in the patient flow, the lack of staff training in emergency protocol increase the bad consequences of overcrowding; the failure in triage system, the lack integrated system to organize the work among various healthcare providers, the shortage in ED staff from all aspects doctors, nurses, administrators, messengers and patients services, the high dependence on voluntaries and trainee doctors, the unavailability of inpatient bed all of these causes interaction and leads to increasing overcrowding and its harmful consequences.

Alemu et al.(2019) conducted a cross-sectional study of 399 patients at Hawassa University Comprehensive Specialized Hospital, Ethiopia to assess the length of stay (LOS) and its associated factors in emergency departments (EDs). Results showed that about 91.5% of patients have stayed in the EDs for greater than 24 h for different reasons. Inadequacy of beds in inpatient wards, overcrowding, absence of different laboratory test profiles and delay in radiological services.

Makama et al.(2015) conducted a study in Nigeria aimed to identify the causes and effects of overcrowding accident & emergency department AEDs in Nigeria. A cross-sectional, descriptive study was performed in three AED of 3 referral teaching hospitals in Nigeria, a pre-tested and a questionnaire was used and distributed among AED staff. Data was Processed and simply analyzed using SPSS. The major causes of AED visits were: Delays in transferring patients to wards, road traffic accident, Delay in the operations theater, radiological investigations delay, hematological Investigations delay, Absent community

health care, Long waiting times, Poverty. The Common causes of prolonged waiting time in AEDs were bed capacity shortage, consultation rooms shortage, delayed in specialty pre-review. The main cause of AED overcrowding is inadequate inpatient beds for AED patients and the increasing acuity and complexity of illness.

Chinonyelum et al.(2017) conducted a study at the Emergency Department of a Referral Centre in Nigeria to identify triggers to ED overcrowding in the study hospital and determine the influence of overcrowding in the nursing care of patients. Results revealed that overcrowding in the ED is triggered by the chronic and non-emergency cases accessing the ED, as well as limited bed space which further drives overcrowding increasing nurse workload, frustration and lack of cooperation by the patients.

Durand et al.(2012) consider that non-urgent patients are one of the causes of ED crowding, so they tried to analyze the decision-making process of requesting ED healthcare in the for a non-urgent case by evaluating and assessing the perceptions and experience of both ED health professionals and patients. The study also aimed to explore how ED health professionals see the phenomenon of non-urgent ED patients and to examine the solutions suggested by these professionals. The study illustrated contradictions between ED health professionals and ED patients' perception of the phenomena, particularly concerning patient's behavior, the study focused on the importance of performing a detailed analysis of the demand for healthcare by unscheduled visitors, including patients with minor trauma to improve dealing with them and provide good management for these situations.

As length of stay is a sub-indicator of crowding; Karaca et al.(2012) tried to explore the length of stay in EDs by patient volume, patient characteristics, admission hour, day of the

week, area characteristics and hospital characteristics, and, they found that the duration of treated and released ED visits varied significantly by the previous variables.

Most of the emergencies suffer from the shortage of personnel with enough skills, experience, and proficiency in knowledge as well as decision-making authority. General Practitioners (GPs), first-year medical residents, or interns are usually present in emergencies without adequate knowledge and authority to make a decision. They also waste valuable time by requesting unnecessary paraclinical procedures and unrelated consultations. Of course, increasing demands from referees to perform time-consuming procedures such as CT scans and MRIs are not ineffective in this area (Olshaker, 2009).

Erenler et al.(2014) conducted a study in the ED of Samsun Education and Research Hospital, Turkey. It aimed to determine the causes of overcrowding in the ED and make recommendations to help reduce the LOS of patients in the ED. The study found that prolonged length of stay in the ED, delayed laboratory and imaging tests, delay of consultants, and lack of sufficient inpatient beds are the most important causes of overcrowding in the ED. The study recommended that some measures must be taken to minimize errors and increase satisfaction ratio.

In Baratloo & Maleki (2015) study about Iranian emergency department overcrowding, they state that the increase in the number of unnecessary referees in non-emergency cases is one of the major factors for overcrowding, leading to the distraction of physicians from critical and emergency patients during their visiting time toward the noises of non-emergency referees. Providing low-cost or even free services to all referees and fair calculation of costs between emergency and non-emergency cases are considered as some of the factors that increase the expectation level of referees and overcrowding in state emergency centers.

Shah et al.(2018) conducted a study in the emergency room of a tertiary care hospital to analyze the current situation/indicators of ER clogging, to identify the systems gap behind the ER clogging, and to come up with evidence-based recommendations for quality management of ER clogging issues. Results show that the indicators to access ER clogging demonstrate significant variation from the JCI benchmark. Some of the important factors causing the clogging include: Delay in the discharge of patients from the wards, delay in specialist consultation in the ER, and Laboratory and Radiology reporting delays.

2.2.2 Effects of Emergency Department Overcrowding

Eriksson et al.(2018) conducted a study at Karolinska University Hospital, Sweden aimed to explore registered nurses' perceptions of safe practice in care for patients with an extended length of stay in the emergency department. A qualitative interview study was carried out in five emergency departments. Data were analyzed using qualitative content analysis with a latent approach. The study concluded that from the nurses' perspective, a prolonged stay in the emergency department may lead to negative consequences for both patient safety and care as well as registered nurses' psychosocial experiences. An extended length of stay significantly reduces the level of nursing and caring that registered nurses can perform in the emergency department.

Abir et al.(2019) conducted a study in the USA to determine the effect of high ED occupancy on disposition decisions, return ED visits, and hospitalizations. They conducted a retrospective analysis of electronic health records of patients evaluated at an adult, urban, and academic ED over 20 months between the years 2012 and 2014. The study concluded that ED crowding was associated with reduced likelihood of hospitalization without increasing the likelihood of a 2-week return ED visit or hospitalization. Furthermore, high

occupancy disposition hours with high boarding patient counts were associated with a decreased likelihood of hospitalization.

Emergency department crowding is a multifactorial problem, resulting in increased ED waiting times, decreased patient satisfaction and deleterious domino effects on the entire hospital. Although difficult to define and once limited to anecdotal evidence, crowding is receiving more attention as attempts are made to quantify the problem objectively. It is a worldwide phenomenon with regional influences, as exemplified when analyzing the problem in Europe compared to that of the United States. In both regions, an aging population, limited hospital resources, staff shortages and delayed ancillary services are key contributors; however, because the structure of healthcare differs from country to country, varying influences affect the issue of crowding. The approach to healthcare delivery as a right of all people, as opposed to a free-market commodity, depends on the governmental organization and appropriation of funds.(Jayaprakash et al., 2009)

The adverse effects of ED overcrowding are well known, for instance, overcrowding impacts mostly patient safety, including decreased quality of care, and thus an increase in medical errors. Besides, with an overcrowded ED, undoubtedly most patients will have a poor experience, which may lead to a result that they leave without being seen. Further, under the high-pressure working environment, the staff morale of physicians and other providers is also affected, leading to low job satisfaction, low productivity and high staff turnover. As for the hospital, ED overcrowding leads to a bad reputation, for example, patient dissatisfaction about the overcrowding will give a bad impression, then will worsen the reputation which leads to fewer patients coming for health services (Junwei, 2013).

Chen et al.(2018) conducted a study at overcrowded emergency departments in Taiwan that aims to gain an in-depth understanding of nurses' perspectives of working in an

overcrowded emergency. The study was conducted in 2014 and it was published in 2018. A purposive sampling at the start of the study and a further theoretical sampling by the snowball technique was used to recruit 40 registered nurses (RN) to participate in in-depth, semi-structured interviews between May and November 2014. Findings from this study have provided valuable information on nurses' perspectives of working in an overcrowded ED in a teaching hospital in Taiwan. Perceptions of the overcrowded influencing factors highlight the intolerable working environment. The experience includes misuse of the ED and NIH resources, which have great impacts on patients' safety, quality of care, and potentially inappropriate health utilizations.

Salway et al.(2017) conducted a study in Chile to find evidence-based answers to frequently asked questions about ED overcrowding. There is no evidence that overcrowding results from excess poor patients or non-urgent visits. ED overcrowding causes multiple problems for ED patients and staff, including increased waiting times, increased ambulance diversion, increased length of stay, increased medical errors, increased patient mortality, and increased harm to hospitals due to financial losses.

Chinonyelum et al.(2017) conducted a study at the Emergency Department of a Referral Centre in Nigeria to identify triggers to ED overcrowding in the study hospital and determine the influence of overcrowding in the nursing care of patients. Results revealed that overcrowding in the ED is triggered by the chronic and non-emergency cases accessing the ED, as well as limited bed space which further drives overcrowding increasing nurse workload, frustration and lack of cooperation by the patients.

Research conducted by Guttman et al.(2011) showed that patients who attended the emergency department where their mean length of stay (LOS) was greater than 6 hours had an increased risk of 7-day death amongst those patients when discharged. Similarly, Singer

et al.(2011) found that in the United States patient mortality increased by 2.8% when their LOS in the emergency department was up to 2 hours and increased to 4.5% when their LOS was over 12 hours. Moreover, it is recognized that long waiting times are associated with increased mortality, longer hospital stays and serve to complicate diagnosis and treatment plans.

Unnecessary utilization of critical and limited beds in the ICU of hospitals by patients with poor prognosis or who do not benefit from hospitalization delays the treatment of emergency patients who actually requires ICU. This wastes the energy and time of the emergency staff, blocking the required services in the emergency department for critical and emergency patients (Hashemi, 2013).

2.2.3 Solutions to Reduce Emergency Department Overcrowding

Mirhaghi et al.(2016) conducted a study in Iran. The study aimed to increase understanding of ED nurses' practice when applying triage for non-urgent patients. Based on Spradley's developmental research sequence (DRS), focused micro-ethnography was used. This study was conducted in an emergency department, Data was collected through complete participant observations and through interviews, DRS was used for analyzing the data. The nurses' beliefs on non-emergent patients. And the shared knowledge of nurses revealed that non-emergent patients did not belong to the ED. Nurses identify nonemergent patients using key criteria, including non-life-threatening medical conditions, low-risk history, and time to arrival or treatment. In addition, triage nurses categorize patients as non-emergent when there is both actual and implied pressure from their colleagues to prevent these patients from reaching the ED. Four main categories were identified: non-emergent patient as an uninvited guest, non-emergent patient as an elephant in a dark room, non-emergent patient as an aggressive client, and being nonemergency unless being toward death. The

findings give a deep insight into the ED nurses' culture of practice regarding the triage of non-emergent patients. Nurses believe that non-emergent patients were recognized largely unreliable and irreproducible, providing care in the ED is significantly affected by non-emergent patients, so the mission of the ED as a place for serving critically ill patients was challenged. An unconstructive approach to patient management could endanger safety and morale, resulting in poor outcomes. The study recommended applying cultural awareness training program.

Khalifa (2015) conducted a study at King Faisal Specialist Hospital to utilize health analytics methods in designing an evidence-based decision algorithm to support healthcare professionals in identifying and safely diverting less risky emergency patients to ambulatory care settings or referring them to other hospitals in order to reduce emergency department crowding. The study concluded that health analytics can support designing evidence-based tools to guide the process of performance improvement.

Skinner (2016) conducted a study to assess the development, use, and implementation of a predictive two-hour forecasting tool for Emergency Department overcrowding. Validate a forecasted Bed Ratio with the National Emergency Department Overcrowding Scale (NEDOCS) and Bed Ratio (BR) to determine the accuracy and benefit of use. The results of this study suggest that the Dixon Forecasting Model (DFM) can be used in combination with the BR to calculate a two-hour forecasted BR. This data would also indicate that using either BR or NEDOCS in real-time to determine the overcrowding is effective. One limitation of the study involves criteria set forth for predicted departures in two hours. Creating an automated forecasting tool for Skinner/Forecasting Emergency Department Overcrowding 97 departures, similar to the DFM's forecasting of arrivals, could prove beneficial.

Many hospitals in the United Kingdom adopted various strategies to reduce waiting time. These included hiring 600 new Emergency Department nurses, employing Emergency Nurse Practitioners to specifically assess patients with minor injuries, increase the number of consultants by 36%, upgrade hospital facilities, enhance streaming processes to separate minor and major cases and adopt a 'See and Treat' system whereby a highly trained clinician is able to treat patients immediately with minor injuries and discharge them (Letham and Gray, 2012).

Durand et al.(2012) consider that non-urgent patients are one of the causes of ED crowding, so they tried to analyze the decision-making process of requesting ED healthcare in the for a non-urgent case by evaluating and assessing the perceptions and experience of both ED health professionals and patients. The study also aimed to explore how ED health professionals see the phenomenon of non-urgent ED patients and to examine the solutions suggested by these professionals. The study illustrated contradictions between ED health professionals and ED patients' perception of the phenomena, particularly concerning patient's behavior, the study focused on the importance of performing a detailed analysis of the demand for healthcare by unscheduled visitors, including patients with minor trauma to improve dealing with them and provide good management for these situations.

Di Somma et al.(2015) explored overcrowding problems in the ED and how to solve them. ED boarding is one of the main factors for overcrowding, but emergency physicians and hospitals as a whole must take action to mitigate the problem because the ED alone cannot solve the problem. Always keeping in mind that targets cannot overrule clinical judgment, 90 % of all patients should leave the ED within 6–8 h, improving the use of existing beds as first-line hospital strategy, and only later considering the use of admitted patients to hallway beds when the ED is close to full capacity.

Yarmohammadian et al.(2017) conducted a systematic review of strategies to decrease future challenges of overcrowding in EDs. The study concluded that the quality of services in EDs depends on coordinated efforts between emergency physicians, on - call specialists, emergency nurses, other health professionals, laboratory, diagnostic imaging services, and inpatient units. If any of these interdependent components disrupt the processes, health care would counter with difficulty. ED leaders can control some of these components. However, many components are controlled by stakeholders outside the ED whose priority may not be optimizing patient care in the ED. Thus, the ED may experience poor communication with laboratory and imaging services, restricted access to inpatient beds. ED leaders must focus on discussion meetings with institutional executives, internal and external stakeholders, and public policymakers to implement initiatives to ease ED crowding.

As length of stay is a sub-indicator of crowding; Karaca et al.(2012) tried to explore the length of stay in EDs by patient volume, patient characteristics, admission hour, day of the week, area characteristics and hospital characteristics, and, they found that the duration of treated and released ED visits varied significantly by the previous variables.

Makama et al.(2015) conducted a study in Nigeria aimed to identify the causes and effects of overcrowding accident & emergency department AEDs in Nigeria. A cross-sectional, descriptive study was performed in three AED of 3 referral teaching hospitals in Nigeria, a pre-tested and a questionnaire was used and distributed among AED staff. Data was Processed and simply analyzed using SPSS. The study illustrated that reducing the overcrowding requires a multidisciplinary system-wide approach and recommended to plan for delivery of care to patients who must be placed in temporary bed locations, coordinate with health facilities and home health agencies to facilitate hospital discharging,

and to adopt initiatives that help hospital to expect and prepare for AED overcrowding, rather than react to it when occurred.

Baratloo & Maleki (2015) conducted a study about Iranian ED overcrowding. They suggested some solutions to eliminate the ED overcrowding problem. Solutions include performing accurate and timely triage, presence of law enforcement and security, the difference in the costs of non-emergency cases, and implementing some programs to improve the level of medical culture in the society.

Hsu et al.(2019) conducted a study during a quality improvement project (QIP) in a Taiwan Medical Center in order to reduce the length of stay (LOS) in the ED. For QIP, the following 3 action plans were initiated: 1) Changing the choice architecture of patients' willingness to transfer from opt-in to opt-out; 2) increasing the turnover rate of beds and daily monitoring of the number of free beds for boarding ED patients; 3) reevaluation of patients with a LOS of >32 h after the morning shift. Results Indicate that transfer rates increased minimally after the implementation of this project, but the sample size was too small to achieve statistical significance. No significant increase was observed in the number of free medical beds, but discharge rates after 12 pm decreased significantly ($p < 0.001$). The proportion of over 48 h LOSs decreased from 4.9% to 3.7% before and after QIP implementation, respectively.

Overcrowding is a common problem in EDs worldwide. It has undesired consequences such as loss of resources, ineffective use of time, and dissatisfaction of both ED personnel and applicants. Policymakers and hospital managers must focus on measures to reduce non-urgent presentations to the ED in order to minimize possible medical inaccuracies. Increasing the number of personnel, ensuring compliance of the consultants, and educating the public about receiving appropriate healthcare may reduce overcrowding in the ED.

Collaboration between ED physicians and consultants must be constituted and maintained. A systematic approach for ambulance systems and EDs must be developed to refer patients to optimal centers where they can receive the appropriate therapy. In the future, governments must focus on and develop the family physician system to keep non-urgent patients out of EDs (Erenler et al., 2014).

In a university hospital in Switzerland, Lauks et al.(2016) implemented a medical team evaluation (MTE) in an effort to reduce patient waiting times in the emergency department. This involved redesigning their patient flow process through the emergency department. With the MTE in place, patients presented directly to triage rooms located beside the doors of the Emergency Department. The patients were then triaged immediately by an emergency room triage nurse or a physician.

In an effort to reduce patient wait times in the emergency department many hospitals have opted to introduce a fast track system. This is a system whereby minor complaints or low to moderate urgency cases are separated from major complaints and/or emergency cases, with the simple goal of improving patient flow and reducing patient waiting times in the emergency department (Theunissen et al., 2014).

2.2.4 Summary of Literature Review

According on the studies in literature review, the researcher found that the main factors that cause the emergency department overcrowding are delayed laboratory and imaging tests, delay in radiological services and increase number of non-emergency cases.

And the main effects that result from emergency department overcrowding are increase in medical errors, increased waiting times and low nurse and patient satisfaction. While the main solutions to deal with the emergency department overcrowding are provide good

management for unscheduled visitors, presence of security all time and Increasing the number of staff in ED.

Most of studies talk about causes the emergency department overcrowding alone, and some studies talk about effects and others talk about solutions, but there is no study that talks about causes, results, and solutions together, for that researcher conducted this study.

Chapter Three

Methodology

The aim of the study is to identify nurses' perceptions about overcrowding at emergency departments in the Gaza Strip. This chapter presents study methodology, which includes the study design, setting of the study, study period, study population, sample of the study, inclusion criteria, study instrument and data collection, validity and reliability, pilot study, ethical consideration and data entry, and statistical analyses.

3.1 Study Design

A descriptive-analytical cross-sectional study was used to identify nurses' perceptions about overcrowding at emergency departments at governmental hospitals in the Gaza strip. Which is useful for describing variables of the study and its relationships.

3.2 Settings of the Study

The study was conducted at adult emergency departments at governmental hospitals in the Gaza Strip. The number of governmental hospitals is 13, but the number of hospitals offering adult emergency services is 7. The adult emergency departments at governmental hospitals in Gaza Strip include Indonesian Hospital, Beit Hanoun Hospital, Al-Shifa Medical Complex, Al-Aqsa Hospital, Nasser Medical Complex, European Gaza Hospital, and Al-Najjar Hospital.

3.3 Study Period

The study was conducted during the period from May 2019 to the middle of November 2019 according to the timetable that has been prepared for the study (Appendix 2).

3.4 Study Population and Response Rate

The study population included all nurses of both sexes with different qualifications working in emergency department's at governmental hospitals in the Gaza strip.

Table (3.1) Number of ED nurses and response rate

Hospital	Number of nurses work at ED	Number of respondents	Response rate
Al-Najjar Hospital	19	18	94.73%
European Gaza Hospital	19	19	100.00%
Nasser Medical Complex	27	22	81.48%
Al-Aqsa Hospital	22	22	100.00%
Al-Shifa Hospital	47	29	61.70%
Beit Hanoun Hospital	14	14	100.00%
Indonesian Hospital	27	21	77.77%
Total	175	145	82.85%

3.5 Sample Size and Sampling Procedure

The sample of this study was census sample which means that the researcher has selected all the members of a population, consisting all nursing staff working in emergency departments at the governmental hospitals in Gaza Strip of both sexes with different grades.

3.5.1 Eligibility Criteria

- All employed nurses in the Emergency department with different qualifications.
- Nurses Who worked for at least one year at emergency departments at governmental hospitals in Gaza Strip.

3.6 Study Instrument

The researcher has developed the tool of the study depending on the factors that cause ED overcrowding, effects of ED overcrowding and possible solutions after reading the literature review. The tool was a 5-point Likert-scale where 5 represents the highest agreement and 1 represents least agreement and it consisted of four parts. The first part was about sociodemographic data. The second part was about the factors that may cause ED overcrowding. The third part was about the effects of ED overcrowding. The last part was about the proposed solutions for reducing ED overcrowding (Appendices VI, VII).

3.7 Validity of the Instrument

The questionnaire was sent to five experts (Appendix 3) to assess the clarity and relevance of the questionnaire to the objectives of the study. All comments on the questionnaire were taken into consideration. In addition, a pilot study was conducted before starting the data collection of the questionnaire.

3.8 Ethical Considerations

Approval was obtained from the Al-Quds University and official approval for the study was obtained from the Helsinki Ethics Committee (Appendix 4). Official permission was obtained from the Ministry of Health (Appendix 5). Consent was obtained from participants via a consent form, ethical codes of conduct strictly adhered at all stages of the study. The data that we obtained in this research was used for research purposes only. Participation in this study was voluntary and all data collected remained anonymous and confidential. All data were stored in a locked file cabinet.

3.9 Pilot Study

The pilot study (N = 20) was done to develop and test the adequacy of the research questionnaire before starting the actual data collection as a pretest to determine the real-time needed to fill the questionnaire and identify areas of vagueness, to point out weaknesses in wording. To check the reliability of the study and modifications of the questionnaire. No modifications were made to the questionnaire and the pilot sample was added to the study sample.

3.10 Reliability of the Study Instrument

The researcher used the Cronbach's alpha coefficient to estimate the reliability coefficient for the questionnaire. Cronbach's alpha coefficient was equal to 0.902 which indicates high reliability of the study instrument.

Table (3.2) Reliability of the study instrument

Reliability Statistics	
No. of Items	Cronbach's Alpha
51	0.902

3.11 Data Entry and Data Analysis

The data entered and analyzed the collected data using Statistical Package for the Social Sciences (SPSS) program version (23). The stages of data analysis included: coding the questionnaire, data entry, and data cleaning. Data cleaning was performed by reviewing frequency tables, a random selection of questionnaires to ensure the accurateness of data entry. The frequencies and descriptive and inferential analyses were conducted to assess the research variables. Multivariate statistics such as ANOVA and t-test were used to find out the significance and differences between variables.

Chapter Four

Results and Discussion

This chapter presents the findings of the statistical analysis of data. The description of the sociodemographic characteristics of participants is illustrated. In addition, the results of different variables were identified. Moreover, the differences between selected variables were explored and discussed in relation to the literature review and previous studies. The study targeted the nurses who worked in EDs in the appointed hospitals (N=145).

4.1 Demographical characteristics of participants in the study

Table 4.1 shows the demographical data of the respondents and it includes the following data (age, marital status, and job title).

Table (4.1) Nurses distribution according to age, marital status, and job title.

Variable		Frequency	Percent
Age	Less than 30	88	60.7
	30 - 39 years	47	32.4
	More than 39 years	10	6.9
Marital Status	Single	55	37.9
	Married	90	62.1
Job Title	Practical Nurse	26	17.9
	Staff Nurse	108	74.5
	Head Nurse	7	4.8
	Supervisor	4	2.8
Total		145	100

The socio-demographic characteristics of the 145 participants are illustrated in Table (4.1). It was found that the highest percentage of participants was 60.7% for nurses aged less than 30 years, while nurses aged 30-39 years were 32.4% and nurses over the age of 40 were in the last place with 6.9%. The researcher believes that there was small number of nurses had more than 39 years may be due to work stoppage for some employees due to a political issue in Gaza Strip.

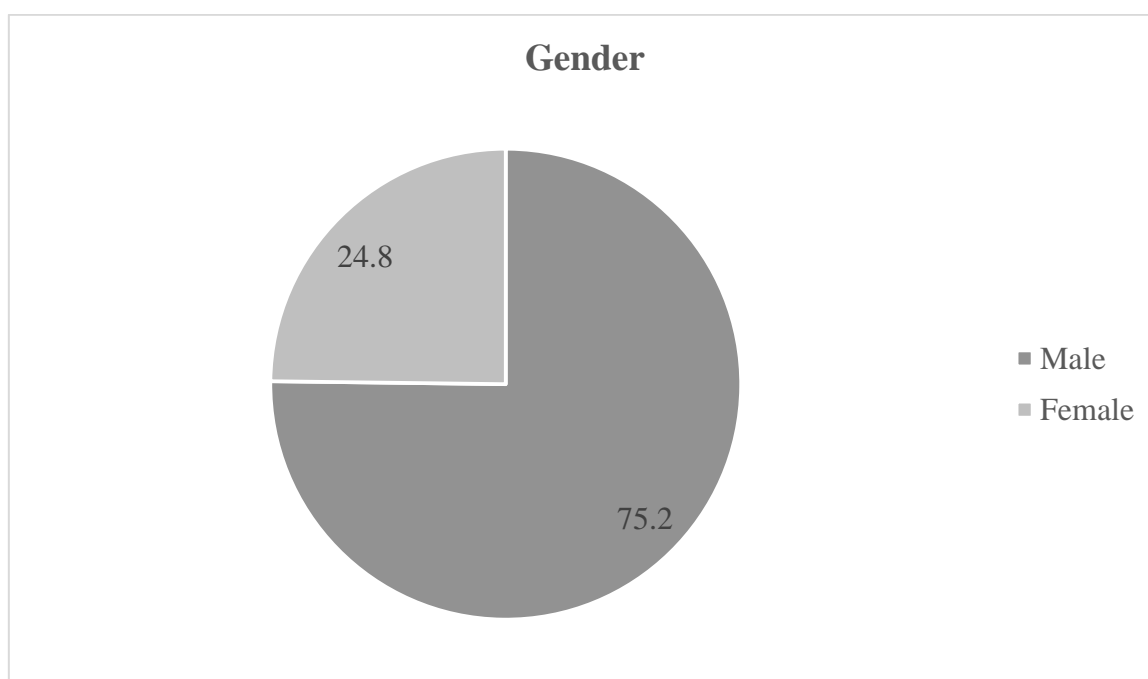


Figure (4.1) Nurses distribution according to their gender

As illustrated in the figure male nurses represented 75.2% of the respondents while females represented 24.8% of them. The majority of nurses who work in the ED are males. The researcher believes that this percentage is rational because of the nature of the ED workload.

Table (4.2) Nurses distribution according to their workplace and residence

Variable		Frequency	Percent
Workplace	Indonesian Hospital	21	14.5
	Al-Shifa Complex	29	20.0
	Beit Hanoun Hospital	14	9.7
	Al-Aqsa Hospital	22	15.2
	Nasser Medical Complex	22	15.2
	European Gaza Hospital	19	13.1
	Al-Najjar Hospital	18	12.4
Residence	North zone	36	24.8
	Gaza	23	15.9
	Middle zone	25	17.2
	Khan Younis	37	25.5
	Rafah	24	16.6
Total		145	100

Table (4.2) shows the distribution of study respondents according to their workplace and residence. It is clear from results that al-Shifa Hospital in Gaza City has the highest percentage of nurses who work in ED by 20.2%, this is due to its presence in Gaza City, the largest and most populated city in Gaza strip also it has two separate EDs, medical ED and surgical ED, and comes at second place Nasser Hospital in Khan Younis and Al-Aqsa Hospital in mid-zone with 15.2% for each of the sample size of the study, followed by Indonesian Hospital with 14.5%, followed by European Gaza Hospital with 13.1% followed by Al-Najjar Hospital with 12.4, while Beit Hanoun Hospital was ranked last in the ranking. The results indicate that the largest proportion of nurses participating in the study sample were from the population of Khan Younis, with 25.5% of the sample size,

while the nurses who live in North zone came second with 24.8% of the sample size, following by Middle zone with 17.2%, following by Rafah with 16.6%, while Gaza ranked last in terms of place residence with 15.9% of the sample size.

Table (4.3) Nurses distribution according to their experience in healthcare and experience in the ED

Variable		Frequency	Percent
Experience	1 - 5 years	80	55.2
	6 - 10 years	42	29.0
	11 - 15 years	14	9.7
	More than 15 years	9	6.2
Experience in ED	1 - 5 years	116	80.0
	6 - 10 years	24	16.6
	11 - 15 years	5	3.4
Total		145	100

Table (4.3) shows nurses' experience in healthcare and their experience in the ED. For the experience in healthcare for nurses who work in ED, most of them have experience years ranging from 1-5 years which constitutes for 55.2% of the sample, the second rank was the nurses who work from 6-10 years with 24.1%, followed by the nurses who work from 11-15 years with 9.7%, the final rank was the nurses who have years of experience of more than 15 years with 6.2%. The result also shows that 80.0% of nurses have experience ranging from 1-5 years in ED, 16.6% have experience ranging from 6-10 years in ED and 3.4% have experience ranging from 11-15 years in ED.

Table (4.4) Nurses distribution according to their qualifications and job titles

Variable		Frequency	Percent
Qualification	Associate degree in nursing	27	18.6
	Bachelor's degree in nursing	112	77.2
	Master's degree or more	6	4.1
Job Title	Practical nurse	27	18.6
	Staff nurse	107	73.8
	Head nurse	7	4.8
	supervisor	4	2.8
Total		145	100

Table (4.4) shows nurses' distribution according to qualification and job title. The data shows that most of the nurses who work in the ED have bachelor's degree in nursing with 77.2%, associate degree comes in the second place with 18.6%, and master's degree comes in the last place with 4.1%. For the job title, most of the nurses in the ED are staff nurses and few of them are practical nurses with 18.6%. The researcher believes that the reason for this increase is the tendency of nurses with a diploma degree in nursing to complete their studies and obtain a bachelor's degree, for reasons related to improving salary or getting a job.

4.2 Analyzing the dimensions of the questionnaire.

Table (4.5) Distribution of study participants according to their perceptions about factors that may cause ED overcrowding

Factors	Mean	SD	%*	Rank
Inadequate beds for emergency patients	3.93	1.33	78.6	9
Presence of a lot of patient escorts in the ED	4.58	0.86	91.6	1
Unavailability of some lab tests in the hospital	3.61	1.23	72.1	14
Delay in lab tests results	3.61	1.23	72.3	13
Delay in radiology results	3.26	1.33	65.2	23
Presence of some patients for non-urgent reasons	4.34	1.07	86.8	2
Shortage of nurses in the emergency department	4.25	1.02	85.0	5
Shortage of physicians in the emergency department	4.31	1.03	86.2	3
Lack of administrators in emergency department	3.30	1.37	66.1	22
Shortage of patient representatives for emergency department	3.60	1.17	72.0	15
Absence of messengers in emergency department	3.90	1.18	77.9	10
Lack of a system for coordination among health service providers	3.54	1.25	70.8	18
Delay in decision-making by some doctors	3.56	1.21	71.2	16
Health personnel are not always present in emergencies	3.39	1.39	67.9	21
Lack of intensive care beds in the emergency department	3.74	1.31	74.8	11
Inadequate inpatient hospital beds	4.01	1.24	80.3	8
Lack of resources and medical equipment	4.20	1.09	84.0	6
Increased number of patients due to accidents	4.02	1.13	80.4	7
Architectural design of emergency department is not suitable	3.72	1.29	74.3	12
There is no place for patients who need to stay some time in an emergency to receive treatment such as patients who need fluids	4.26	1.41	85.2	4
Not enough ambulances to transfer cases	3.55	1.24	71.0	17
Lack of an effective triage system	3.40	1.35	68.0	20
The presence of training groups with a large number of students in the emergency department	3.41	1.21	68.3	19

* % = weighted mean

Table (4.5) shows the mean, standard deviation, weighted mean and rank of the factors affecting ED overcrowding as perceived by ED nurses. Results show that the highest item was “Presence of a lot of patient escorts in the ED” with weighted mean 91.6%, followed by the item “Presence of some patients for non-urgent reasons” with weighted mean 86.6. While the lowest item was “Delay in radiology results” with a weighted mean of 65.2% followed by the item “Lack of administrators in emergency department” with a weighted mean of 66.1%.

These results go beyond previous reports, showing that the presence of many patient escorts in the ED is the main factor that causes ED overcrowding in Gaza Strip with a weighted mean of 91.6%. This is consistent with what has been found by Nassrallah (2017) which was conducted to explore the causes of ED overcrowding in Gaza Strip. However, after reviewing the literature, studies have not mentioned this factor as a cause of ED overcrowding. This could be attributed to the culture of the Gaza Strip people and the lack of security members in the EDs.

In line with previous studies, results also show that the presence of patients in the ED for non-urgent reasons is another strong factor that causes ED overcrowding in the Gaza Strip hospitals. This is consistent with what has been found in the majority of previous studies. Chinonyelum et al.(2017) state in their study which was conducted in Nigeria that overcrowding in the ED is triggered by the chronic and non-emergency cases accessing the ED. Durand et al.(2012) also consider non-urgent patients are a cause of ED overcrowding. Baratloo & Maleki (2015) study about Iranian emergency department overcrowding shows that the increase in the number of unnecessary referees in non-emergency cases is one of the major factors for overcrowding, leading to the distraction of physicians from critical and emergency patients during their visiting time toward the noises of non-emergency referees.

Previous studies also show that the lack of health care professionals is another important cause of emergency department overcrowding. Di Somma et al.(2015) states that Overcrowding in the ED is a product of several factors including a shortage of ED nursing and physician staff. This also agrees with the results of this study which shows that the shortage of physicians and nurses in the ED is ranked in the first top-five factors that cause ED overcrowding.

This study indicates that delay in radiology results is ranked in the last place of factors that may cause ED overcrowding. However, this result does not agree with a study conducted by Shah et al.(2018) which considers laboratory and radiology reporting delays as important factors causing ED overcrowding. This can be attributed to the proximity of ED to the radiology department and computerized radiology system in the Gaza Strip hospitals.

The researcher believes that the item “Health personnel are not always present in emergencies” had a low mean may attributed to the fact that people do not usually like to show their negative points and it could be actually a stronger factor that can trigger ED overcrowding.

The nurses believe that lack of administrators in the ED is one of the weakest factors that may trigger ED overcrowding which may be attributed to that administrators have no clear rule in the EDs and the head nurses and shift seniors are the ones who do the managerial tasks in the EDs.

Table (4.6) Distribution of study participants according to their perceptions about the effect of ED overcrowding

Effects	Mean	SD	%*	Rank
Not giving patients their right to health care	3.59	1.24	71.72	9
Increased workload for the medical staff	4.35	1.01	87.03	1
Lack of cooperation of patients	3.75	1.23	75.03	7
Patient dissatisfaction with the service provided	3.93	1.69	78.62	3
Medical staff dissatisfaction	3.67	1.18	73.38	8
Verbal abuse of patients or their escorts on medical staff	4.33	0.95	86.62	2
Physical abuse of patients or their escorts on medical staff	3.86	1.26	77.24	6
Increased patient waiting time	3.91	1.12	78.21	4
Patients leave the emergency department without being seen	2.86	1.45	57.10	15
Increased medical errors	3.16	1.36	63.17	12
Increased number of deaths	2.97	1.48	59.31	14
Increased cost of health care	3.31	1.34	66.21	11
Delayed admission of patients to the departments	3.53	1.20	70.62	10
Lack of beds for patients in need of care	3.88	1.14	77.52	5
Quarrels between health care providers	3.12	1.45	62.48	13

* % = weighted mean

Table (4.6) shows the mean, standard deviation, weighted mean and rank of the effects of ED overcrowding as perceived by ED nurses. According to the results the highest item was “Increased workload for the medical staff” with a weighted mean of 87.0%, followed by the item “Verbal abuse of patients or their escorts on medical staff” with a weighted mean of 86.2%. While the lowest item was “Patients leave the emergency department without being seen” with weighted mean 57.1% followed by item “Increased number of deaths” with weighted mean 59.3%.

From the results, it is clear that nurses perceive that increased workload is the strongest effect of ED overcrowding. These results agree with the study of Chinonyelum et al.(2017)

which shows that ED overcrowding leads to increased nurse workload, frustration and lack of cooperation by the patients.

Verbal abuse of patients or their escorts comes in the second place of ED overcrowding effects as perceived by ED nurses. The researcher couldn't find any study that shows this effect as a major effect of ED overcrowding. However, this is found in our EDs and it can be attributed to the lack of security and punishment system that controls assault on the medical staff.

The study ties well with previous studies wherein patient dissatisfaction comes in third place with a weighted mean of 78.62%. The study agrees with Junewi's (2013) study that studied the adverse effects of ED overcrowding. The study shows that ED overcrowding leads to patient dissatisfaction. It also agrees with Erenler's (2014) study that shows ED overcrowding undesired consequences which include loss of resources, ineffective use of time, and dissatisfaction of both ED personnel and patients.

It is unlikely for patients to leave ED without being seen as perceived by nurses. This finding disagrees with a study conducted by Junwei (2013) which shows that most patients will have a poor experience, which may lead to a result that they leave without being seen. The researcher believes that patients would unlikely to leave the ED before being seen due to the lack of governmental hospital alternatives and almost the free service provided by governmental hospitals.

Table (4.7) Distribution of the nurses according to their perception about proposed solutions to reduce ED overcrowding

Solutions	Mean	SD	%*	Rank
Increasing the number of emergency beds	4.13	1.24	82.6	10
Limiting the number of patient escorts	4.44	0.99	88.8	4
Allocating a place in the emergency department for a lab technician to perform the most important tests	4.08	1.11	81.7	12
Educating people about the role of primary care role and that emergency department is only for emergent cases	4.52	0.89	90.3	2
Increasing the number of healthcare providers (Nurses, physicians, radiology technicians, and lab technicians)	4.67	1.44	93.4	1
Increasing the number of managerial services providers (Patient representatives and messengers).	4.11	1.11	82.2	11
Preparation of a protocol for coordination among health service providers	4.28	0.94	85.5	8
Monitoring the presence of health personnel on an ongoing basis in the emergency department	4.36	1.00	87.2	6
Increasing the number of inpatient beds in the hospital	4.25	1.14	85.0	9
Activating the role of security in regulating the entry and exit of patients and their escorts	4.46	0.97	89.1	3
Allocating a specific place for stable cases and cases that wait for lab tests	4.40	0.96	88.0	5
Activation of Triage	4.33	1.11	86.6	7
Reducing the number of students in the training groups	3.70	1.26	74.1	13

* % = weighted mean

Table (4.7) shows the mean, standard deviation, weighted mean and rank of the proposed solutions to reduce ED overcrowding as perceived by ED nurses. Results show that the highest item was “Increasing the number of healthcare providers (Nurses, physicians, radiology technicians, and lab technicians)” with weighted mean 93.4%, followed by the item “Educating people about the role of primary care role and that emergency department is only for emergent cases” with a weighted mean of 90.3%. While the lowest item was “Reducing the number of students in the training groups” with a weighted mean of 74.1% followed by item “Allocating a place in the emergency department for a lab technician to perform the most important tests” with a weighted mean 81.7%.

By matching the results in table (4.5) with causes and effects of ED overcrowding we can see that shortage of healthcare professionals is a major cause of ED overcrowding and as a result increased workload is a consequence of that. So, nurses assume that increasing the number of healthcare providers would be a high priority solution to reduce ED overcrowding.

Nurses perceive that the presence of non-urgent cases in the ED is a major cause of ED overcrowding. That’s why educating people about the role of primary care role and that emergency department is only for emergent cases comes in the second place of the solutions to the ED overcrowding as perceived by nurses. A systematic review by Morley et al.(2018) showed that extended hours of primary care demonstrated promising outcomes in reducing ED overcrowding.

Nurses also perceive that activating the role of security in regulating the entry and exit of patients and their escorts is necessary to reduce ED overcrowding as they perceive that the presence of many escorts in the ED is a major cause of ED overcrowding.

4.3 Independent t-tests and one-way ANOVA tests for ED overcrowding domains

Table (4.8) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their Gender.

Sub-scale	Gender	N	Mean	SD	%	T	Sig.
Factors	Male	109	3.84	0.61	76.9	1.21	0.23
	Female	36	3.68	0.93	73.6		
Effects	Male	109	3.60	0.78	72.0	-0.45	0.65
	Female	36	3.66	0.75	73.3		
Solutions	Male	109	4.31	0.67	86.2	0.58	0.56
	Female	36	4.23	0.82	84.6		
Total	Male	109	3.89	0.51	77.8	0.68	0.50
	Female	36	3.82	0.71	76.3		

% = weighted mean

Table (4.8) shows the mean difference in the nurses' perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their gender. Independent t-test illustrated there are no statistically significant differences ($p>0.05$), in the nurse's perceptions toward ED overcrowding domains in governmental hospitals of Gaza Strip regarding the studied gender, which means that gender did not affect nurses' perceptions toward ED overcrowding domains.

The researcher believes that there are no significant differences between male and female nurses' perceptions because they work under the same conditions, at the same departments and do the same tasks.

Table (4.9) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their ages.

Sub-scale	Age	N	Mean	SD	F	Sig.
Factors	20 - 29 years	88	3.82	0.77	.365	0.695
	30 - 39 years	47	3.75	0.58		
	More than 40 years	10	3.94	0.65		
Effects	20 - 29 years	88	3.63	0.81	.392	0.677
	30 - 39 years	47	3.64	0.69		
	More than 40 years	10	3.41	0.75		
Solutions	20 - 29 years	88	4.28	0.70	.065	0.937
	30 - 39 years	47	4.29	0.65		
	More than 40 years	10	4.36	1.05		
Total	20 - 29 years	88	3.88	0.60	.039	0.961
	30 - 39 years	47	3.85	0.48		
	More than 40 years	10	3.89	0.59		

Table (4.9) shows the mean difference in the nurses' perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their ages. One-way ANOVA test illustrated there are no statistically significant differences ($p > 0.05$), in the nurse's perceptions toward ED overcrowding domains in governmental hospitals of Gaza Strip regarding the studied age, which means that nurses ages did not affect nurses' perceptions toward ED overcrowding domains.

The researcher believes that there are no significant differences between nurses with different age groups because the management does not give specific roles based on age, so they work under the same conditions.

Table (4.10) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their qualification.

Sub-scale	Qualification	N	Mean	SD	F	Sig.
Factors	ADN	27	3.62	0.76	1.182	0.310
	BSN	112	3.85	0.70		
	Master	6	3.88	0.45		
Effects	ADN	27	3.52	0.78	.257	0.774
	BSN	112	3.63	0.78		
	Master	6	3.69	0.62		
Solutions	ADN	27	4.14	0.70	1.495	0.228
	BSN	112	4.34	0.71		
	Master	6	3.98	0.75		
Total	ADN	27	3.72	0.60	1.229	0.296
	BSN	112	3.91	0.56		
	Master	6	3.85	0.34		

Table (4.10) shows the mean difference in the nurses' perceptions toward Emergency Department Overcrowding in Governmental Hospitals of Gaza Strip related to their qualification. One-way ANOVA test illustrated there are no statistically significant differences ($p>0.05$), in the nurse's perceptions toward Emergency Department Overcrowding domains in Governmental Hospitals of Gaza Strip regarding the studied Qualification, which means that nurses' qualification did not affect nurses' perceptions toward ED Overcrowding domains.

The researcher believes that there is no significant difference between different qualifications because there is no clear job description based on qualification.

Table (4.11) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their job title.

Sub-scale	Job Title	N	Mean	SD	F	Sig.
Factors	Practical Nurse	26	3.62	1.01	1.27	0.29
	Staff Nurse	108	3.84	0.62		
	Head Nurse	7	4.12	0.50		
	Supervisor	4	3.61	0.62		
Effects	Practical Nurse	26	3.51	0.78	1.25	0.29
	Staff Nurse	108	3.68	0.76		
	Head Nurse	7	3.28	0.66		
	Supervisor	4	3.20	0.90		
Solutions	Practical Nurse	26	4.07	0.69	1.13	0.34
	Staff Nurse	108	4.33	0.70		
	Head Nurse	7	4.47	0.64		
	Supervisor	4	4.19	1.13		
Total	Practical Nurse	26	3.70	0.70	1.32	0.27
	Staff Nurse	108	3.92	0.52		
	Head Nurse	7	3.96	0.52		
	Supervisor	4	3.64	.70		

Table (4.11) shows the mean difference in the nurse's perceptions toward Emergency Department Overcrowding in Governmental Hospitals of Gaza Strip related to their Job Title. One-way ANOVA test illustrated there are no statistically significant differences ($p>0.05$), in the nurse's perceptions toward ED overcrowding domains in governmental hospitals of Gaza Strip regarding the studied Job Title, which means that nurses Job Title has no impact on nurses' perceptions toward ED Overcrowding domains.

The research believes that there are no significant differences between different job titles because they experienced the same circumstances and work environment.

Table (4.12) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their marital status.

Sub-scale	Marital Status	N	Mean	SD	%	T	Sig.
Factors	Single	55	3.77	0.82	75.4	0.47	0.64
	Married	90	3.83	0.62	76.5		
Effects	Single	55	3.60	0.88	72.0	0.17	0.86
	Married	90	3.62	0.70	72.5		
Solutions	Single	55	4.28	0.68	85.5	0.17	0.87
	Married	90	4.30	0.73	85.9		
Total	Single	55	3.85	0.63	77.0	0.38	0.70
	Married	90	3.89	0.52	77.7		

% = weighted mean

Table (4.12) shows the mean difference in the nurses' perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their marital status. Independent t-test illustrated there are no statistically significant differences ($p>0.05$), in the nurse's perceptions toward ED overcrowding domains in governmental hospitals of Gaza Strip regarding the studied marital status, which means that marital status did not affect nurses' perceptions toward ED overcrowding domains.

Table (4.13) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their Work Place.

Sub-scale	Workplace	N	Mean	SD	F	Sig.
Factors	Indonesian Hospital	21	3.60	0.59	1.62	0.15
	Al-Shifa Complex	29	3.71	0.68		
	Beit Hanoun Hospital	14	3.65	1.14		
	Al-Aqsa Hospital	22	3.84	0.63		
	Nasser Medical Complex	22	3.93	0.73		
	European Gaza Hospital	19	4.18	0.47		
	AL Najjar Hospital	18	3.72	0.62		
Effects	Indonesian Hospital	21	3.10	0.40	4.26	0.00*
	Al-Shifa Complex	29	3.93	0.93		
	Beit Hanoun Hospital	14	3.54	0.84		
	Al-Aqsa Hospital	22	3.41	0.67		
	Nasser Medical Complex	22	3.95	0.74		
	European Gaza Hospital	19	3.78	0.62		
	AL Najjar Hospital	18	3.42	0.66		
Solutions	Indonesian Hospital	21	4.47	0.51	1.63	0.14
	Al-Shifa Complex	29	4.26	0.75		
	Beit Hanoun Hospital	14	4.05	1.04		
	Al-Aqsa Hospital	22	4.21	0.74		
	Nasser Medical Complex	22	4.19	0.47		
	European Gaza Hospital	19	4.66	0.40		
	AL Najjar Hospital	18	4.14	0.89		
Total	Indonesian Hospital	21	3.67	0.39	2.12	0.06
	Al-Shifa Complex	29	3.92	0.62		
	Beit Hanoun Hospital	14	3.72	0.89		
	Al-Aqsa Hospital	22	3.81	0.50		
	Nasser Medical Complex	22	4.00	0.49		
	European Gaza Hospital	19	4.18	0.40		
	AL Najjar Hospital	18	3.74	0.52		

*significant at 0.05 (One-way ANOVA test)

Table (4.13) shows the mean difference in the nurse's perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their workplace. One-way ANOVA test showed there were statistically significant differences ($p < 0.05$), between nurses' perception of the second domain of ED overcrowding (Effects) with related to their

workplace (p-value = 0.00) in favor of Nasser Medical Complex. While there is no statistical significance difference between the rest of the domains.

The researcher believes that there is significant difference in means between hospitals in favor of Nasser Medical Complex (highest mean) because it lies in a downtown area, it servers a large population, has a lot number of cases that present to the ED, there is no security team all the time, and some departments are found only in Nasser Medical Hospital such as burn, cardiology and urology departments and it serves the southern area of Gaza Strip, which increases the flow of ED refrees.

Table (4.14) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their Residence Place.

Sub-scale	Residence	N	Mean	SD	F	Sig.
Factors	North zone	36	3.48	0.58	3.19	0.015*
	Gaza	23	3.79	0.72		
	Middle zone	25	3.89	0.88		
	Khan Younis	37	4.04	0.63		
	Rafah	24	3.85	0.66		
Effects	North zone	36	3.27	0.68	4.64	0.002*
	Gaza	23	3.95	0.96		
	Middle zone	25	3.50	0.69		
	Khan Younis	37	3.88	0.69		
	Rafah	24	3.51	0.65		
Solutions	North zone	36	4.29	0.77	0.21	0.935
	Gaza	23	4.23	0.81		
	Middle zone	25	4.24	0.73		
	Khan Younis	37	4.29	0.66		
	Rafah	24	4.39	0.61		

*significant at 0.05 (One-way ANOVA test)

Table (4.14) shows the mean difference in the nurse's perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their residence place. One-way ANOVA test showed there were statistically significant differences ($p < 0.05$), between nurses' perception of the first domain of ED Overcrowding (Factors) related to their residence place ($p\text{-value} = 0.015$) in favor of Khan Younis City. and second domain (Effects) ($p\text{-value} = 0.002$) in favor of Gaza City. While there is no statistical significance difference ($p > 0.05$), between nurses' perception of the third domain of ED Overcrowding (Solutions) related to their residence place.

Table 4.15 Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their Work Experience.

Sub-scale	Work Experience	N	Mean	SD	F	Sig.
Factors	1 - 5 years	80	3.80	0.79	0.45	0.720
	6 - 10 years	42	3.77	0.62		
	11 - 15 years	14	3.74	0.52		
	More than 15 years	9	4.06	0.57		
Effects	1 - 5 years	80	3.63	0.81	0.60	0.614
	6 - 10 years	42	3.67	0.75		
	11 - 15 years	14	3.36	0.56		
	More than 15 years	9	3.59	0.75		
Solutions	1 - 5 years	80	4.25	0.72	0.93	0.426
	6 - 10 years	42	4.27	0.66		
	11 - 15 years	14	4.59	0.41		
	More than 15 years	9	4.32	1.09		
Total	1 - 5 years	80	3.87	0.62	0.14	0.937
	6 - 10 years	42	3.87	0.52		
	11 - 15 years	14	3.84	0.36		
	More than 15 years	9	3.99	0.57		

Table (4.15) shows the mean difference in the nurses' perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their Work Experience. One-way ANOVA test illustrated there are no statistically significant differences ($p>0.05$), in the nurse's perceptions toward Emergency Department Overcrowding domains in Governmental Hospitals of Gaza Strip regarding the studied Work Experience, which means that Work Experience has no effect on nurses' perceptions toward ED Overcrowding domains.

Table (4.16) Mean difference in the nurse's perception toward ED overcrowding in governmental hospitals of Gaza Strip related to their Work Experience in ED.

Sub-scale	Experience in the ED	N	Mean	SD	F	Sig.
Factors	1 - 5 years	116	3.74	0.74	3.39	0.036*
	6 - 10 years	24	4.00	0.46		
	11 - 15 years	5	4.41	0.38		
Effects	1 - 5 years	116	3.62	0.80	0.04	0.964
	6 - 10 years	24	3.58	0.70		
	11 - 15 years	5	3.65	0.49		
Solutions	1 - 5 years	116	4.26	0.70	0.89	0.412
	6 - 10 years	24	4.46	0.53		
	11 - 15 years	5	4.15	1.43		
Total	1 - 5 years	116	3.84	0.59	1.28	0.280
	6 - 10 years	24	3.99	0.41		
	11 - 15 years	5	4.12	0.57		

*significant at 0.05 (One-way ANOVA test)

Table (4.16) shows the mean difference in the nurse's perceptions toward ED overcrowding in governmental hospitals of Gaza Strip related to their work experience in ED. One-way ANOVA test showed there were statistically significant differences ($p<0.05$), between nurses' perception of the first domain of ED Overcrowding (Factors) with related to their years of experience in the ED ($p\text{-value} = 0.036$) in favor of the the

category of (11 – 15 years). The researcher believes the more the experience years in the ED of the nurse, the more perception he has about factors causing ED overcrowding. This could be because nurses with high experience years in the ED has experienced most of the factors. While the results showed that there is no statistical significance difference between the rest of the domains.

Chapter Five

Conclusion and Recommendations

5.1 Conclusion

The study concluded that, from nurses' perspectives, governmental hospitals in the Gaza Strip suffer from ED overcrowding, because of the shortage of healthcare providers with an increased flow of non-urgent cases with many escorts with the same patient. This increases the workload on the ED nurses, increases patient wait times and decreases patient satisfaction about the care provided in the ED. Nurses Express that increasing the number of healthcare providers, educating people about the role of primary care, and activation of security member roles in managing the flow of patient escorts would reduce ED overcrowding.

5.2 Recommendations

Based on the findings, the researcher recommends the following to reduce EDs overcrowding:

- Increasing awareness about the primary care role in dealing with non-urgent cases.
- Providing evening shift in primary care settings and offering services during holidays.
- Expanding the area of the emergency departments.
- Offering more beds in the emergency departments.
- Recruiting more security members and having them in the ED all the time.
- Restricting and controlling the flow of patient escorts by the security members.
- Recruiting more healthcare providers to work in emergency departments.
- Developing a punishment system for aggressive patient escorts.
- Developing or adopting clear triage protocols and training ED staff on them.

- Offering a special place for stabilized cases and cases which need to stay longer in the ED, such as cases taking fluids.
- Continuous monitoring of resources and equipment especially emergency trolley, providing the missing resources and equipment continuously and developing specific checklist for ED resources and equipment.
- Monitoring the presence of the presence of nurses and physicians all the time in the EDs.
- Putting more emphasis on Continuous Quality Improvement strategies can help to continuously monitor and evaluate the quality of care in ED and in the entire hospitals.

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Appendices

Appendix 1: Asplin's conceptual framework for emergency department crowding

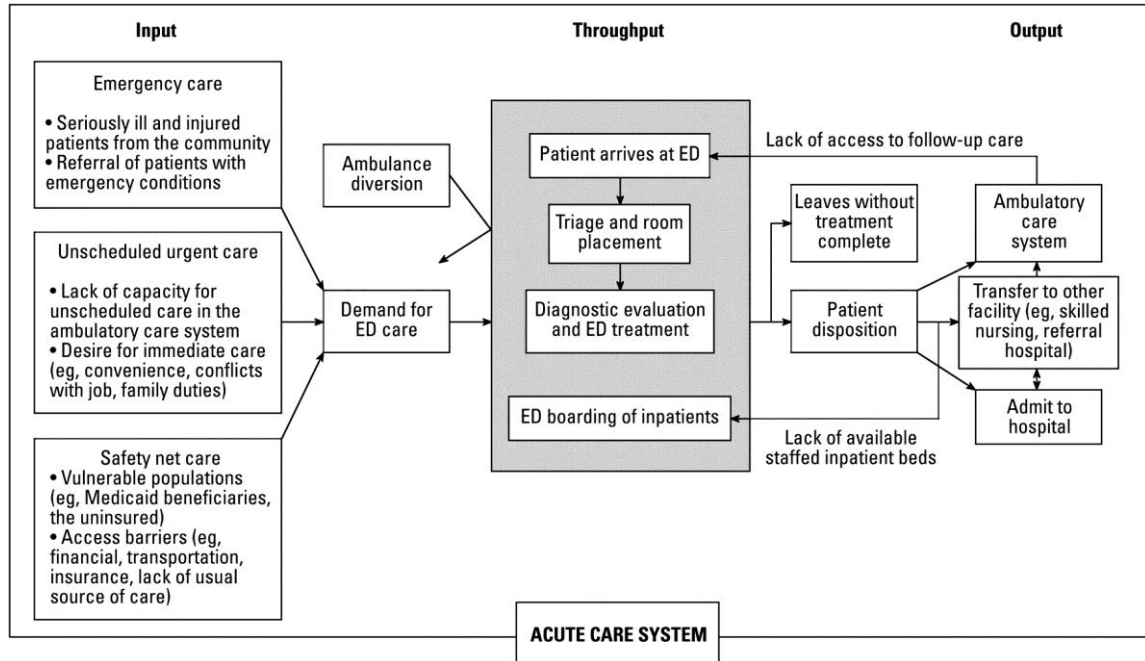


Figure 2.1.2: Asplin's conceptual framework for emergency department crowding.
Source: Asplin et al.(2003)

Appendix 2: Time Schedule

Year	2019				
Month	Jul.	Aug.	Sep.	Oct.	Nov.
Activity					
Preparation and submission of the research proposal	X				
Design and arbitration of the questionnaire		X			
Obtaining ethical approval from MOH and Helsinki			X		
Piloting, entry, and analysis of the pilot sample				X	
Data collection and Distribution of questionnaire				X	
Entry and statistical analysis of the full sample				X	
Data interpretation and discussion of the study results				X	
Entry and statistical analysis of the full sample					X
Data interpretation and discussion of the study results					X
Research and abstract writing					X

Appendix 3: Panel of Experts

No.	Name	Place of work
1	Dr.Hamza Abdeljawad	Palestine College of Nursing & Al-Quds University
2	Dr.Motasem Salah	Ministry of Health
3	Dr.Mohamed Al Gergawy	Palestine College of Nursing
4	Dr.Ayman Abu Mustafa	Directorate General of Human Resources Development (MoH)
5	Dr.Mahmoud Radwan	International Cooperation (MoH) & World Health Organization

Appendix 4: Helsinki Committee Ethical Approval



المجلس الفلسطيني للبحوث الصحي Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee For Ethical Approval

Date: 2019/10/7

Number: PHRC/HC/608/19

Name: Ahmed H. A. AlSufi

الاسم:

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم
حول:

Nurses' Perception of Emergency Department Overcrowding in Governmental Hospitals of Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/608/19 in its meeting on 2019/10/7

وقد قررت الموافقة على البحث المذكور عاليه
بالرقم والتاريخ المذكوران عاليه

Signature

Member

7/10/2019

Chairman

Member

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-



E-Mail: pal.phrc@gmail.com

Gaza - Palestine

غزة - فلسطين

شارع النصر - مفترق العيون

Appendix 5: MOH Approval to Facilitate Researcher's task

State of Palestine
Ministry of health



دولة فلسطين
وزارة الصحة

التاريخ: 15/10/2019

رقم المراسلة 380471

: رامي عيد سليمان العبادله المحترم

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية - /وزارة الصحة

السلام عليكم ،،،

الموضوع/ تسهيل مهمة الباحث// أحمد الصوفي

التفاصيل //

بخصوص الموضوع أعلاه، يرجى تسهيل مهمة الباحث/ أحمد حميد الصوفي
الملتحق ببرنامج ماجستير التمريض - تخصص إدارة التمريض - جامعة القدس أبوديس في إجراء بحث بعنوان:-
" نظرة الممرضين تجاه إزدحام أقسام الطوارئ في مستشفيات قطاع غزة الحكومية"
حيث الباحث بحاجة لتعبئة استبانة من عدد من الممرضين والمرضات العاملين في أقسام الطوارئ في مستشفيات
قطاع غزة (مجمع الشفاء الطبي - مستشفى غزه الأوربي، مجمع ناصر الطبي، مستشفى شهداء الأقصى، مستشفى
الأندونيسي، مستشفى بيت حانون، مستشفى النجار)، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي،
ودون تحمل الوزارة أي أعباء أو مسؤولية.
وتفضلوا بقبول التحيه والتقدير،،،
ملاحظة /

1. تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 6 شهر من تاريخه.
2. البحث المذكور حصل على موافقة لجنة أخلاقيات البحث الصحي (لجنة هلسنكي)

محمد إبراهيم محمد السرساوي

مدير دائرة/الإدارة العامة لتنمية القوى البشرية -



Appendix 6: Questionnaire in English



First: Demographical Data

Please check the suitable box

1. Age: _____ years.
2. Gender: ☐ Male ☐ Female
3. Qualification: ☐ ADN ☐ BSN ☐ Master ☐ Doctoral
4. Job title: ☐ Practical Nurse ☐ Staff Nurse ☐ Head Nurse ☐ Supervisor
5. Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed
6. Work Place: ☐ Indonesian Hospital ☐ Al-Shifa Complex ☐ Beit Hanoun
Hospital ☐ Al-Aqsa Hospital ☐ Nasser Medical Complex ☐ European Gaza
Hospital ☐ Al-Najjar Hospital
7. Residence: ☐ North zone ☐ Gaza ☐ Middle zone
☐ Khan Younis ☐ Rafah
8. Years of Experience: _____.
9. Years of Experience in Emergency Department: _____.

Second: Factors that may cause overcrowding in the emergency department

The following items include factors that may cause overcrowding emergency departments. Options range from 1 to 5 where 1 represents weakest factors and 5 represents the strongest factors. Please choose according to the strength of the factors.

No.	Item	1	2	3	4	5
10.	Inadequate beds for emergency patients					
11.	Presence of a lot of patient escorts in the ED					
12.	Unavailability of some lab tests in the hospital					
13.	Delay in lab tests results					
14.	Delay in radiology results					
15.	Presence of some patients for non-urgent reasons					
16.	Shortage of nurses in the emergency department					
17.	Shortage of physicians in the emergency department					
18.	Lack of administrators in the emergency department					
19.	Shortage of patient representatives for emergency department					
20.	Absence of messengers in the emergency department					
21.	Lack of a system for coordination among health service providers					
22.	Delay in decision-making by some doctors					

23.	Health personnel are not always present in emergencies					
24.	Lack of intensive care beds in the emergency department					
25.	Inadequate inpatient hospital beds					
26.	Lack of resources and medical equipment					
27.	Increased number of patients due to accidents					
28.	The architectural design of the emergency department is not suitable					
29.	There is no place for patients who need to stay some time in an emergency to receive treatment such as patients who need fluids					
30.	Not enough ambulances to transfer cases					
31.	Lack of an effective triage system					
32.	The presence of training groups with a large number of students in the emergency department					

33. Do you think there are other factors that may cause emergency department overcrowding? If yes, please mention them.

Third: The effects of emergency department overcrowding

The following items represent the potential effects of overcrowding of the Emergency Section. Options range from 1 to 5, where 1 is a barely probable effect and 5 is a highly probable effect. Please select according to the strength of the effect.

No.	Item	1	2	3	4	5
34.	Not giving patients their right to health care					
35.	Increased workload for the medical staff					
36.	Lack of cooperation of patients					
37.	Patient dissatisfaction with the service provided					
38.	Medical staff dissatisfaction					
39.	Verbal abuse of patients or their escorts on medical staff					
40.	Physical abuse of patients or their escorts on medical staff					
41.	Increased patient waiting time					
42.	Patients leave the emergency department without being seen					
43.	Increased medical errors					
44.	Increased number of deaths					
45.	Increased cost of health care					
46.	Delayed admission of patients to the departments					
47.	Lack of beds for patients in need of care					
48.	Quarrels between health care providers					

49. Do you think there are other effects of emergency department overcrowding? If yes please mention them.

Fourth: Proposed solutions to reduce emergency department overcrowding

No.	Item	1	2	3	4	5
50.	Increasing the number of emergency beds					
51.	Limiting the number of patient escorts					
52.	Allocating a place in the emergency department for a lab technician to perform the most important tests					
53.	Educating people about the role of primary care role and that emergency department is only for emergent cases					
54.	Increasing the number of health care providers (nurses, physicians, radiology technicians, and lab technicians)					
55.	Increasing the number of managerial services providers (Patient representatives and messengers).					
56.	Preparation of a protocol for coordination among health service providers					
57.	Monitoring the presence of health personnel on an ongoing basis in the emergency department					
58.	Increasing the number of inpatient beds in the hospital					
59.	Activating the role of security in regulating the entry and exit of patients and their escorts					
60.	Allocating a specific place for stable cases and					

No.	Item	1	2	3	4	5
	cases that wait for lab tests					
61.	Activation of Triage					
62.	Reducing the number of students in the training groups					

63. In your opinion, how can the emergency department overcrowding be reduced?

Appendix 7: Questionnaire in Arabic



عزيزي/تي المشارك/ة

السلام عليكم ورحمة الله وبركاته:

أنا الباحث أحمد حميد الصوفي

بدايةً أهديكم أطيب التحيات، وبطيب لي أن أضع بين أيديكم الاستبانة المرفقة التي تم تصميمها بهدف دراسة

نظرة الممرضين تجاه ازدحام أقسام الطوارئ في مستشفيات قطاع غزة الحكومية

Nurses' Perception of Emergency Departments Overcrowding in Governmental Hospitals of Gaza Strip

وذلك استكمالاً لمتطلبات الحصول على درجة الماجستير في إدارة التمريض من جامعة القدس. لذلك نأمل منكم التكرم بتعبئة الاستبانة بالإجابة على فقراتها بكل صراحة وموضوعية، علمًا بأن آراءكم والمعلومات التي ستدلون بها ستكون محل اهتمام وعناية وستستخدم لأغراض الدراسة والبحث العلمي فقط، وسيتم التعامل معها بكل سرية وعناية للتوصل إلى نتائج تهدف إلى تطوير الخدمات الصحية المقدمة في المستشفيات الحكومية في قطاع غزة. الوقت الذي تستغرقه تعبئة الاستبانة لا يتجاوز 15 دقيقة، وفي حال الاستفسار عن أي أسئلة يرجى التواصل على جوال رقم 0598264560

أو الإيميل ahalsufi@gmail.com

أولاً: البيانات الشخصية

الرجاء وضع علامة (√) في المربع الذي تختاره

1. العمر: _____ سنة
2. الجنس: ☐ ذكر ☐ أنثى
3. الدرجة العلمية: ☐ دبلوم ☐ بكالوريوس ☐ ماجستير ☐ دكتوراه
4. المسمى الوظيفي: ☐ ممرض ☐ حكيم جامعي ☐ رئيس قسم ☐ مشرف تمرير
5. الحالة الاجتماعية: ☐ أعزب/أنسة ☐ متزوج/ة ☐ مطلق/ة ☐ أرمل/ة
6. مكان العمل: ☐ مستشفى الإندونيسي ☐ مجمع الشفاء الطبي ☐ مستشفى بيت حانون ☐ مستشفى الأقصى ☐ مجمع ناصر الطبي ☐ مستشفى غزة الأوروبي ☐ مستشفى الشهيد محمد يوسف النجار
7. مكان السكن: ☐ الشمال ☐ غزة ☐ الوسطى ☐ خانينوس ☐ رفح
8. سنوات الخبرة: _____ سنة.
9. سنوات الخبرة في قسم الطوارئ: _____ سنة.

ثانياً: العوامل التي قد تسبب الازدحام في قسم الطوارئ

الفقرات التالية تمثل عوامل محتملة قد تسبب ازدحام قسم الطوارئ. الخيارات ستكون بين 1 و5، حيث أن 1 يمثل العامل

الأضعف و5 يمثل العامل الأقوى. يرجى الاختيار حسب قوة تأثير العامل.

م.	الفقرة	1	2	3	4	5
10.	عدم كفاية الأسرة لمرضى الطوارئ					
11.	وجود أكثر من مرافق مع المريض					
12.	عدم توفر بعض التحاليل داخل المستشفى					
13.	تأخر نتائج التحاليل					
14.	تأخر خدمات الأشعة					
15.	حضور بعض المرضى لأسباب غير طارئة					
16.	نقص عدد الممرضين في أقسام الطوارئ					
17.	نقص عدد الأطباء في أقسام الطوارئ					
18.	نقص الإداريين في أقسام الطوارئ					

م.	الفقرة	1	2	3	4	5
19.	نقص موظفي خدمات المرضى لأقسام الطوارئ					
20.	غياب المراسلين عن أقسام الطوارئ					
21.	عدم وجود نظام لتنسيق العمل بين مقدمي الخدمة الصحية					
22.	تأخر اتخاذ القرار لدى بعض الأطباء					
23.	عدم تواجد أفراد الطاقم الصحي بشكل مستمر في الطوارئ					
24.	نقص أسرة العناية المكثفة في الطوارئ					
25.	نقص أسرة المبيت في المستشفى					
26.	نقص الموارد والمعدات الطبية					
27.	زيادة عدد المرضى بسبب الحوادث					
28.	التصميم الهندسي لقسم الطوارئ غير مناسب					
29.	عدم وجود مكان مخصص للمرضى الذين يحتاجون للبقاء بعض الوقت في الطوارئ لتلقي علاجات تأخذ وقت طويل مثل المحاليل					
30.	عدم توفر عدد كافي من سيارات الإسعاف لتحويل الحالات					
31.	عدم وجود نظام فرز فعال (Triage)					
32.	وجود مجموعات تدريبية بعدد طلاب كبير في قسم الطوارئ					

33. هل ترى أن هناك عوامل أخرى تؤدي إلى ازدحام قسم الطوارئ؟ إذا كانت الإجابة نعم يرجى ذكرها:

.....

.....

.....

ثالثاً: الآثار المترتبة على ازدحام قسم الطوارئ

الفقرات التالية تمثل آثار محتملة ناتجة عن ازدحام قسم الطوارئ. الخيارات ستكون بين 1 و5، حيث أن 1 يعتبر أثر غير وارد و5 يعتبر أثر محتمل بشكل كبير. يرجى الاختيار حسب قوة الأثر.

م.	الفقرة	1	2	3	4	5
34.	عدم إعطاء المريض حقه من الرعاية الصحية					
35.	زيادة عبء العمل على الطواقم الطبية					
36.	عدم التعاون من المرضى					
37.	شعور المريض بعدم الرضى عن الخدمة المقدمة					
38.	شعور مقدمي الرعاية الصحية بعدم الرضى عن عملهم					
39.	الاعتداء اللفظي من المرضى أو المرافقين على الطواقم الطبية					
40.	الاعتداء الجسدي من المرضى أو المرافقين على الطواقم الطبية					
41.	زيادة وقت الانتظار لدى المرضى					
42.	مغادرة المريض للطوارئ دون أن يتم الكشف عليه					
43.	زيادة الأخطاء الطبية					
44.	زيادة عدد الوفيات					
45.	زيادة تكلفة الرعاية الصحية					
46.	تأخر دخول المرضى إلى الأقسام					
47.	عدم توفر أسرة للمرضى الذين بحاجة لعناية					
48.	المشاجرات بين مقدمي الرعاية الصحية					

49. هل ترى أن هناك آثار أخرى مترتبة على ازدحام قسم الطوارئ؟ إذا كانت الإجابة نعم، يرجى ذكرها.

.....

.....

.....

رابعاً: الحلول المقترحة لتقليل ازدحام أقسام الطوارئ

الفقرات التالية تمثل حلول مقترحة لتقليل ازدحام قسم الطوارئ. الخيارات ستكون بين 1 و5، حيث أن 1 يمثل الحل الأضعف قسم الطوارئ و5 يمثل الحل الأقوى. يرجى الاختيار حسب قوة الحل.

م.	الفقرة	1	2	3	4	5
50.	زيادة عدد الأسرة في الطوارئ					
51.	تحديد عدد المرافقين					
52.	تخصيص مكان لفني المختبر لعمل أهم التحاليل الطارئة في قسم الطوارئ					
53.	توعية الناس عن دور الرعاية الأولية وأن الطوارئ فقط لاستقبال الحالات الطارئة					
54.	زيادة عدد مقدمي الخدمة الصحية (التمريض، الأطباء، فنيي الأشعة، فنيي المختبر)					
55.	زيادة عدد مقدمي الخدمات الإدارية (خدمات المرضى والمراسلين)					
56.	إعداد بروتوكول لتنسيق العمل بين مقدمي الخدمة الصحية					
57.	متابعة تواجد الطاقم الصحي بشكل مستمر في الطوارئ					
58.	زيادة عدد أسرة المبيت في المستشفى					
59.	تفعيل دور الأمن في تنظيم دخول وخروج المرضى ومرافقيهم					
60.	توفير صالة خاصة للحالات المستقرة والتي تنتظر التحاليل					
61.	تفعيل نظام الفرز (Triage)					
62.	تقليل عدد الطلاب في المجموعة التدريبية					

63. من وجهة نظرك، ما هي الإجراءات اللازمة لتقليل الازدحام في قسم الطوارئ؟

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العنوان: نظرة الممرضين تجاه اكتظاظ أقسام الطوارئ في مستشفيات قطاع غزة الحكومية.

إعداد: أحمد حميد الصوفي

إشراف: د. خليل شعيب، د. عبد الرحمن الهمص

ملخص

أصبح الاكتظاظ في أقسام الطوارئ أحد أكبر المشكلات في النظم الصحية في جميع أنحاء العالم. يمثل الاكتظاظ عبءًا خطيرًا أمام قدرة قسم الطوارئ على تزويد الجمهور برعاية طارئة عالية الجودة. يمكن أن يكون لأوقات الانتظار الطويلة وتأخر العلاج آثار كبيرة على نتائج المريض. هدفت الدراسة إلى تقييم تصورات الممرضين حول الاكتظاظ في أقسام الطوارئ في المستشفيات الحكومية في قطاع غزة من حيث أسبابها وآثارها والحلول الممكنة لها. كان تصميم الدراسة عبارة عن تصميم وصفي مستعرض كمي. كانت الفئة المستهدفة هي جميع الممرضين الذين يعملون في أقسام طوارئ الكبار في قطاع غزة. شارك في الدراسة 145 ممرض يعملون في أقسام الطوارئ في المستشفيات الحكومية التي لديها قسم طوارئ للبالغين بمعدل استجابة 82.85%. كانت الأداة المستخدمة في الدراسة عبارة عن استبيان يتم تعبئته ذاتيًا ويتضمن أسئلة تتعلق ببيانات الخصائص الديموغرافية للممرضين وأسئلة المتعلقة بثلاثة مجالات (العوامل التي قد تسبب اكتظاظ قسم الطوارئ، وتأثيرات اكتظاظ قسم الطوارئ، والحلول الممكنة لاكتظاظ قسم الطوارئ). كان معامل كرونباخ ألفا (0.902) وهذا يدل على موثوقية عالية لأداة الدراسة. أظهرت النتائج أن وجود الكثير من مرافقين المرضى في أقسام الطوارئ (المتوسط الموزون: 91.6%)، ووجود بعض المرضى لأسباب غير طارئة (المتوسط الموزون: 86.8%)، ونقص مقدمي الرعاية الصحية (المتوسط الموزون: 86.2%) هي العوامل الرئيسية لاكتظاظ أقسام الطوارئ من وجهة نظر الممرضين. أظهرت النتائج أيضًا أن زيادة عبء العمل (المتوسط الموزون: 87.03%)، والإساءة اللفظية للمرضى أو مرافقيهم (المتوسط الموزون: 86.62%)، وعدم رضا المريض (المتوسط الموزون: 78.62%)، وزيادة وقت انتظار المريض (المتوسط الموزون: 87.21%) هي الآثار الرئيسية لاكتظاظ أقسام الطوارئ من وجهة نظر الممرضين. يعتقد الممرضون أن توظيف المزيد من مقدمي الرعاية الصحية (المتوسط الموزون: 93.4%) وتنقيف الناس حول دور الرعاية الأولية (المتوسط الموزون: 90.3%) من شأنه أن يساعد في الحد من اكتظاظ أقسام الطوارئ. وخلصت الدراسة إلى أن أقسام الطوارئ تعاني من نقص في مقدمي الرعاية الصحية مع زيادة تدفق الحالات غير الطارئة مع العديد من مرافقين مما يؤدي إلى اكتظاظ أقسام الطوارئ، ونتيجة لذلك يعاني الممرضون من عبء العمل المتزايد ويعاني المرضى من زيادة وقت الانتظار وعدم الرضا حول الرعاية المقدمة في أقسام الطوارئ. أوصت الدراسة بتوسيع دور الرعاية الأولية في التعامل مع الحالات غير الطارئة، وتوسيع مساحة أقسام الطوارئ وزيادة عدد الأسرة في أقسام الطوارئ.