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Assessment of Communication between pre-hospital emergency services and Emergency Departments in Palestine

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Thesis Approval

Assessment of Communication between pre-hospital emergency services and Emergency Departments in Palestine: challenges and strategies to improve

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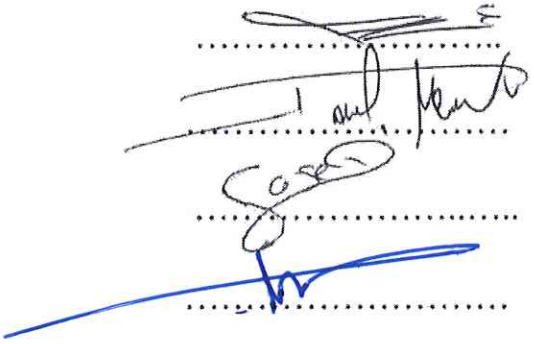

Declaration

I declare that this thesis was composed by myself, and that the work contained herein is my own, except where it states otherwise by references or acknowledgment, the work presented is entirely my own.

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Dedication

I sincerely dedicated this study to my family who has been my inspiration source and gave me power when I thought of giving up, who usually provide their emotional and spiritual support. To those who continually shared their word of advice, my sisters, brothers, friends, classmate, teachers.

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Abstract

Assessment of Communication between pre-hospital emergency services and Emergency Departments: challenges and strategies to improve

Introduction: Clinical handover is a whole part of work every day and takes a great role among paramedics and emergency department members for patients who arrive by ambulance.

Purpose: To assess the current status of the communication and handover mechanism between pre-hospital services and the emergency departments in Palestinian hospitals, with the aim of identifying opportunities for improvement and making recommendations to improve the handover process.

Methods: A descriptive, quantitative cross-sectional approach was used to test hypotheses and examine the association between variables. The study sample consisted of 220 nurses working in emergency departments in government hospitals in the West Bank, including Jerusalem, 130 paramedics working in the Palestine Red Crescent Society in West Bank, including Jerusalem. The researcher used the convenience sample in selecting the study sample.

Results: The study showed that there is a statistically significant effect of communication between the pre-hospital team and the emergency team on patient outcomes, readiness of healthcare provider, and patients waiting time in emergency departments, at the level of significance (Sigma $\leq$ 0.05), in addition to, there is a statistically significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness, the sigma value is (0.000). finally, there is a statistically significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken, the sigma value is (0.000).

Conclusion: The study concluded that there is an effect of the communication process between the pre-hospital team and the emergency team in Palestinian hospitals on the

patient’s health, the readiness of emergency health care providers to receive the patient and provide the appropriate treatment at the right time, on the patient’s waiting time in the emergency departments before receiving treatment. It was also found that there is an effect of the availability of appropriate equipment and tools on the process of communication between the two teams, and finally it was found that there is an impact on the accuracy and validity of the information hand overed on the patient's health.

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Chapter (1)

Introduction

1.1 Introduction

Clinical handover is a whole part of work every day and takes a great role among paramedics and emergency department members for patients who arrive by ambulance. And defined as “a real-time process of passing patient-specific information from one caregiver to another or from one team of caregiver to another for the purpose of ensuring the continuity and safety of patient’s care” (Shah et al., 2016, Pp. 38).

A large number of publications documented that during handover processes through diverse health care settings, the processes are highly variable and potentially unreliable, and that makes the handover process as a high-risk process for quality of care especially patient safety (Tacchini-Jacquier et al., 2020); (Bost, 2012).

The process of comprehensive handover between the pre-hospital care team and the emergency team is of great importance in the process of improving the chain of patient care and the quality of service provided, as the continuity of health care provided to the patient enhances the decision-making process in the patient’s treatment plan, the process of good listening and documentation of all the procedures that conducted for the patient in the ambulance helps the emergency team in the continuity of the health service provided to the patient and improve the final results of the patient's health (Hovenkamp et al., 2018).

The subject of electronic patient records since the eighties is considered a topic of research because of its significant impact on improving the quality of the health service provided to the patient, as health care providers can view the patient’s medical history

and know the medical treatments and procedures provided to the patient and thus maintain the continuity of medical care for the patient without the occurrence of duplication of care It is also easy to return to the documented information at any time (Jensen et al., 2021). In addition to, unorganized or incomplete handover by the pre-hospital care team leads to loss of information about the patient and negatively affects the patient's health (Von Dossow & Zwissler, 2016).

When transporting a patient by pre-hospital services, health care providers in emergency departments need to know the patient’s information and the medical procedures that were performed for him in the ambulance, so that the medical staff can follow up on providing the appropriate treatment to the patient. But what happens in a number of cases is the lack of communication between the two teams, as the patient arrives at the emergency department without warning, and health care providers are not ready to receive the patient, especially if his condition is critical and needs certain specialties.

1.2 Problem Statement

Poor communication identified as a major factor regarding healthcare errors. The most current literature on handover concluded that there are not yet enough studies especially in Palestine to assess the handover among paramedics and staff of the emergency department. There is thirty-four percent of verbalized handover to other was incorrect, and only sixty- seven percent of the information that transfers from paramedics to emergency staff was correct (Kalyani, 2017).

The prehospital emergency services do not contact the emergency department to deliver important information about the patient and whether the emergency department

ready to receive the patient, especially if the patient's situation is critical. The process of delivering the patient information before arrival to the emergency department is very important to the patient's situation, the readiness of the medical staff, and the waiting time for appropriate medical care are crucial elements.

Generally, this study will assess and describe the challenges in communication process, between pre-hospital emergency services and emergency departments and strategies to improve it.

1.3 Study Significance & Scope

A few previous studies in this field in the Arab world, so our study will add an important international guidelines and best practices to enhance the communication process between prehospital emergency services and hospital emergency departments within a clear policy and protocol. Also, the study will formulate a specific recommendation that would improve the communication process in order to enhance the medical services provided to patients. Despite the challenges facing the Palestinian health sector due to the Israeli occupation and the obstacles placed by the occupation, which limit the improvement processes in all Palestinian sectors, such as the limited movement of people and vehicles.

The emergency medical service is one of the most significant healthcare service, as it plays an important role in saving people's lives and reducing the mortality and morbidity rate, therefore, the importance of prehospital emergency services is complemented by continuous communication with emergency departments and handover of the patient necessary information So, the emergency departments will be ready to provide appropriate treatment to the patient within an appropriate period of time when the patient arrives.

The communication between emergency medical services pre-hospital with the hospital's emergency departments to transfer patient information must be within a clear approach, so that patient data and clinical notes are not lost or not transferred during handover. The lack of integration of procedures, and the occurrence of adverse events, may reach 60% to 80% of cases (Sanjuan-Quiles et al., 2018).

Several global studies were conducted to explore the perspectives of paramedics and emergency department members on patient handover. Unfortunately, there are no studies on this topic in Palestine and few in Arab region. Therefore, the benefit of this study is to create a good opportunity for health policy makers to adopt and implement a new communication protocol between pre hospital service and emergency departments and so they can establish and build new policies which can be the starting point for more studies on this topic because of its great importance in improving the quality of the medical service provided to patients.

1.4 Study Objectives

The main study objective is to assessment of communication between pre-hospital emergency services and Emergency Departments in Palestine.

The sub-objectives of the study are as follows:

1. Assessing the impact of the communication process between the pre-hospital services and the emergency team on patient outcomes.
2. Assessing the impact of the communication process between the pre-hospital services and the emergency team on the readiness of health care providers in emergency departments to receive the patient and provide appropriate health services.

3. Assessing the impact of the communication process between pre-hospital services and the emergency team on patient waiting time in the emergency department before receiving medical treatment.
4. Assessing the impact of the availability of equipment and tools for communication between the pre-hospital services team and the emergency team on the efficiency and effectiveness of the patient handover process.
5. Assess the impact of the accuracy and validity of the information received in the process of patient handover from the pre-hospital services team to the emergency team on the patient's health.

1.5 Research Questions

The study questions are as follows:

- Is there an association between prehospital emergency services and emergency departments communication process and patient's outcome?
- Is there an association between prehospital emergency services and emergency department communication process and readiness of healthcare providers?
- Is there an association between prehospital emergency services and emergency department communication process and patients waiting time in emergency departments?
- What information should be included in the patient handover process from the pre-hospital services team to the emergency team?
- What is the impact of the availability of equipment and tools for effective communication on the process of patient handover by the pre-hospital services team to the emergency team?

1.6 Research Hypothesis

The study hypotheses are as follows:

H1: There is a significant impact of prehospital emergency services and emergency department communication on patient's outcome.

H2: There is a significant impact of prehospital emergency services and emergency department communication on readiness of healthcare providers.

H3: There is a significant impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments.

H4: There is a significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness.

H5: There is a significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken?

1.7 Operational and Conceptual Definitions

Prehospital emergency services: also known as prehospital emergency medicine pre-hospital care, immediate care or emergency medical services. It is defined as "a medical subspecialty which focuses on caring for seriously ill or injured patients before they reach hospital, and during emergency transfer to hospital or between hospitals" (Abdulahi, 2021, Pp. 2698).

In this study prehospital emergency services defined as the services provided by the Ministry of Health and the Palestinian Red Crescent to the injured and sick during their transfer to the hospital.

Emergency department: "are designed to provide health services to patients who are physiologically unstable and need to continuous examination and treatment based on the progression of their disease" (Dolatabadi et al., 2017).

In this study Emergency department defined as the departments that receive unstable emergency cases and that need monitoring and medical care in Palestinian hospitals

Paramedic: defined as "a person who is trained to do medical work, especially in an emergency, but who is not a doctor or nurse" (Cambridge Dictionary, 2019).

In this study paramedic defined as one of the health service providers to deal with emergency cases before they reach the emergency departments of Palestinian hospitals.

Patient waiting time: "is defined as the total time from registration until consultation with a doctor" (Belayneh et al., 2015).

In this study patient waiting time defined as the time between the patient arrival through the pre-hospital service team until he receives the appropriate medical care in the emergency departments of Palestinian hospitals.

Handover process: defined as "the transmission of patient information and also the transfer of responsibility for patient care to another shift or other person" (Raeisi, Rarani & Soltani, 2019, Pp. 1).

In this study handover process defined as the process of communicating patient information and medical procedures carried out by the pre-hospital service to the emergency team in Palestinian hospitals.

Communication process: defined as "the process of transmitting information and common understanding from one person to another" (Lunenburg, 2010, Pp. 1).

In this study communication process defined as the process of transferring patient information from the pre-hospital team to the emergency team in Palestinian hospitals.

Patients' outcome: defined as "the central measures used in learning about the effectiveness of cost-sensitive, quality health care" (Liu et al., 2014, Pp. 69).

In this study patients' outcome defined as the patients' health results that were reached through the medical procedures and interventions that were carried out by the pre-hospital team and the emergency team in Palestinian hospitals.

Chapter (2)

Literature Review

2.1 Chapter Introduction

This chapter presents previous studies related to the study subject that discussed the communication process between the pre-hospital service team and the emergency department team.

2.2 Previous Studies

Jensen et al. (2021) aimed to investigate the use of an electronic medical record in all Danish ambulances in Denmark since 2015 for patients before arriving at the hospital by the pre-hospital care team, the study showed that the electronic medical record considered a main working tool for obtaining the patient's information and medical history, in addition to being a reference for the emergency department team to know the medical procedures that were performed for the patient by the pre-hospital care team, in severe cases, the electronic medical record is not sufficient, but direct communication with emergency department is necessary to be ready to receive the patient, also, the electronic medical record does not hamper the work of the pre- hospital care team, but rather documents the ease and flexibility of all procedures performed on the patient.

Also, Dúason, Gunnarsson & Svavarsdóttir (2021) described the process of patient handover between ambulances and emergency department personnel and to identify the factors affecting the quality of patient handover in Iceland . The study used the qualitative approach by conducting targeted interviews with a sample of 17

Icelandic medical emergencies technicians, nurses, and physicians who had experience in patient's handover.

As a systematic review was conducted by Zhang et al., (2020) in the United State of America to synthesize the user- centered evaluative research of prehospital communication technologies. This systematic review offers an overview of the main evaluative study of prehospital communication technologies. The findings showed that the scarcity of evaluative research in prehospital communication technology and challenges confronted in adopting progressive technological solutions in emergency care highpoint the need to adopt user-centered project and take into account socio-technical matters at the point of system design.

In addition to, Javidan et al. (2020) study aimed to describe the handover practices between the emergency services team and the trauma team to identify areas for improvement and standardize handover standards in Canada. The study used the descriptive approach by collecting retrospective data by a trained observer at the Canadian Trauma Center, as the data collected such as handover time, handover structure, shared information, process measures such as questions and interruptions from the trauma team, and handover perceptions from the nurse, trauma team leaders and emergency services team, the study demonstrated the necessity of standardizing handover process due to poor information content, lack of structure and active listening, duplication of information, and conflicting expectations among team members.

Furthermore, the literature review by Troyer & Brady (2020) aimed to identify weaknesses in patient handover between the pre-hospital team and the emergency team, studies that include interviews with the emergency team to identify barriers that affect the oral or written patient handover process from the pre- hospital team, studies that

reported mechanisms for improving the quality of emergency department deliveries. 78 articles were identified for full-text review, 60 of which met the inclusion criteria. The study showed that the obstacles that affect the patient handover process between the pre-hospital service team and the emergency team are as follows: lack of training, lack of respect and attention, lack of feedback, loss of information, environmental factors, delays, duplication of information, technological issues, and poor recall, conflicting goals and perspectives, and information deterioration.

As well Reay et al. (2019) examined the factors that affect medical care between pre-hospital services and the emergency team and to identify the effectiveness of strategies to improve this medical care. The study used a review of relevant previous studies and consulted experts in emergency medicine. The results reached several factors that effect on the transitions between the pre-hospital team and the emergency department: different medical professions, operational constraints, professional relationships, cross-professional information, components of the transition process, and patient presentation and participation, medical care providers considered that using a mobile phone is useful in the process of information flow about the patient before arriving at the emergency department, the study recommends training health care providers in structured and flexible protocols.

likewise, Kamphausen et al. (2019) aimed to identify the challenges faced by emergency physicians who provide emergency care before entering the hospital for patients with advanced incurable diseases in the University Medical Center Hamburg-Eppendorf in Germany. The study used the qualitative approach by conducting 24 interviews with doctors working in medical services before arriving at the hospital. the results showed that the challenges including: the structural conditions of emergency

care before admission to the hospital, the documentation process, finding the optimal treatment, uncertainty regarding the legal consequences, challenges at the individual level, challenges at the emergency team level, the emotions of the health care provider, dealing with and understanding the patient's disease, the patient's desires, and the social, cultural and religious background of the patients and their families. The study recommended the necessity of integrating medical care services before entering the hospital with medical care within the emergency departments.

On the other hand, Makkink et al. (2019) described the important variables during patient handover by the pre-hospital team in South Africa. The study used a quantitative approach by distributing 175 questionnaires to collect the opinions of caregivers in the emergency department about the importance of some patient-specific variables. The results showed that the ten most important handover variables in emergency department, five of them were related to vital signs, blood pressure appeared first, and then type of major injury, anatomical location of major injury, pulse rate, respiratory rate, and patient history. followed by Glasgow coma score, injuries sustained, patient priority, oxygen saturation ratio, and patient sensitivity.

Moreover, a qualitative research method was conducted by Sanjuan-Quiles et al. (2018) in Spain to discover the viewpoint of nurses on their experience of patient handovers, describing the important aspects of the procedure and areas for enhancement, and creating standardized elements for an effective handover. The results showed that nurses recognized the need to standardize the patient transmission procedure by a written record to backing the oral handover and to convey patient information sufficiently, in a timely way, and in a space free of disruptions, in order to

raise patient safety. This qualitative research concluded that the enhancement of the communication and the standardizing of the process will improve handover's quality.

Also, a qualitative observational study was conducted by Bruton et al. (2018) in the United Kingdom examined effect and experience of nurses' handover. Interviews were conducted with staff and patients, and also an observation of handover. This study concludes that it is important to agree the aim and create a proper structure and style. Recommended for further training courses regarding handover.

Further Sorani et al. (2018) identified the challenges that face pre-hospital services in disasters in Iran. The study used the qualitative approach, where interviews were conducted with 23 individuals with experience in dealing with disasters within a pre-hospital services team. The study results showed that there are several challenges in pre-hospital services, including what is related to people, infrastructure, information management systems, employee-related needs, and others related to administrative issues and challenges related to medical care.

As well, Mehmood et al. (2018) aimed to develop a tool for evaluating the emergency medical services system before hospitalization using the World Health Organization health system framework. The study used research in previous literature related to the study subject and consulted experts about the capacity of the health system and the objectives of emergency medical services before entering the hospital in addition to the use of qualitative and quantitative methods. The results were to offer a comprehensive tool for evaluating emergency medical services before entering the hospital, as this tool could enable officials to apply rigorous methods for evaluating emergency medical services before entering the hospital and use the information to prepare and monitor standards for health outcomes affected by this system.

Else Redley et al. (2017) aimed to identify and describe the communication processes between professionals that affect the quality of patient handover. The study relied on a qualitative approach by observing 66 shift-changing handovers in two emergency departments in Victoria Hospital, Australia. The results showed that the process of unreliable communication between professionals poses a threat to patient safety, and the study showed the need to standardize patient handover information to ensure their safety among all health care providers, especially doctors and nurses.

Over and above, a descriptive study with a qualitative approach conducted in Iran to explore the perspectives of paramedics and emergency department members on patient handover, purposeful sampling was used to select 25 paramedics and emergency department staff, study documented that patient handover is a complicated procedure, which is a meeting between two separated department with different extrinsic (different environments and different equipment) and intrinsic factors (different manpower and different expectations). The study recommended that providing adequate equipment in an environment design properly with an appropriate and qualified workforce will assess in improvement patient handover and enhance patents safety (Kalyani et al. 2017).

Then Reay et al. (2017) recognized the factors that lead to improving the process of transferring patients from pre-hospital services to the emergency department by improving staff practices, in addition to identifying the strategies that must be followed to increase the communication process effectiveness and reduce the incidents that may occur by review the literature. The study results showed the necessity to design an integrated communication process to ensure a safe transfer for the patient and to obtain better health results, so it is necessary to know the information that the staff must

handover to the emergency department and ensure its accuracy in order not to duplicate the service provided to the patient and to reduce the accidental accidents that may occur.

In addition to, Cuk, Wimmer & Powell (2017) aimed at examining the paper reports of the emergency technician to identify potential problems that might occur if the reports were electronic. The qualitative approach study was used by conducting six interviews with medical technicians in emergencies about the perceived benefits of electronic transmission of patient information before arriving at the emergency throughout the Savannah, Georgia area. The results were reached to the fact that the technicians liked the idea of changing the delivery of patient information from paper to electronic records, and emergency technicians emphasized the difficulty of writing paper in the ambulance, thus losing the patient's information.

Otherwise, Tavares, Bowles & Donelon. (2016) identified the role that paramedics should play in Canada, which supports the continuous and rapid development of the profession. The study used a mixed approach between reviewing the literature on the role of the paramedic and describing it, and between individual interviews with a number of key informants in Canadian Ambulance, and after analyzing the data, the study reached the following results: The paramedic profession forms a tension on the traditional opinions and practices, the basic concepts of the profession, which are constantly evolving. They must be rethought and the mechanism for their activation is part of the paramedic duties. Therefore, the developments that occur in the paramedic profession must be kept up and integrated with the actual practices.

Also, Wood et al. (2015) identified the role of communication between the pre-hospital care team and the emergency team in patient care. The study used the method of reviewing previous literature published between 2000 and 2013. 401 studies were

identified, of which 21 met the inclusion criteria. The study showed that the patient handover process is complicated by chaos, noisy environments, and lack of time and resources, poor communication is associated with health care provider behaviors such as lack of listening, lack of trust and misunderstanding among staff. The study recommended the need to standardize communication information through a unified form.

Additionally, Dawson, King & Grantham (2013) identified issues related to the patient's handover between the ambulance team and the emergency team, especially patients whose health condition deteriorated. The study concluded the need for more effective and integrated processes that depend on effective mutual communication, which includes all the medical and nursing information and procedures that were performed for the patient so that the emergency department can know what the medical team must do upon the patient's arrival, and the concerned personnel in the emergency department must be identified, In addition, using technology, the patient's vital signs can be constantly monitored in the emergency department before arrival.

As well too, Jensen et al. (2013) identified factors affecting the handover process between the pre-hospital and emergency team and to provide suggestions for improvement by literature review, where a total of 18 studies that met the conditions were included. Studies showed structured written handover improves the handover process, and technological equipment has a direct impact on reducing problems that may occur, organizational and cultural factors influence handover process in different ways, healthcare providers emphasize the importance of the quality of handover information on patient safety, the study also showed the importance of training for healthcare providers in changing culture and improving handover process.

2.3 Summary of Literature Review:

Most of the literature one handover in the emergency department has focused on nurse-to-nurse handover (Bruton et al. 2016; Sanjuan-Quiles et al. 2018; Javidan et al. 2020), with fewer studies on handover between doctors (Kamphausen et al. 2019), and other studies mentioned the role and importance of paramedics in the communication process between the pre-hospital team and the emergency team (Tavares et al. 2016; Kalyani et al. 2017). While the Dúason et al. (2021) study examined perceptions of medical emergencies technicians, nurses, and physicians but excluded paramedics' opinion about the process of patient handover between ambulances and emergency department personnel. This quantitative study assessed perceptions by paramedics who work with prehospital emergency services, and hospital receiving nursing & medical staff about what enables and constrains effective handover in the emergency department and to develop recommendations to adjust handover between hospital receiving staff and paramedics.

Chapter (3)

Methodology

Introduction:

This chapter covers the methodology of our study, including the mechanism for conducting the research, the study population and sample, the study tool, and the statistical analysis that achieve the research objectives and testing its hypotheses.

3.1 Study Design

In order to assess the handover information between prehospital emergency services and the emergency departments, a descriptive, quantitative cross-sectional approach was used to test hypotheses and examine the association between variables.

3.2 Study Sampling and Population

Settings:

- 14 general hospitals under the Ministry of health authority are distributed over the west bank in additional of two hospitals in Jerusalem / Palestine as follow:

Table No. (1) Hospitals Name

Hospitals Name	No.
Jenin Governmental Hospital	1
Tubas Turkish Governmental Hospital	2
Tulkarm Governmental Hospital	3
Rafidia Governmental Hospital	4
National Governmental Hospital	5
Darwish Nazzal Governmental Hospital (Qalqilia)	6
Martyr Yasser Arafat Governmental Hospital	7
Palestine Governmental Medical Complex	8
Jericho Governmental Hospital	9
Beit Jala Governmental Hospital	10
Princess Alia Governmental Hospital	11
Yatta Governmental Hospital	12
Muhammad Ali Al Muhtaseb Governmental Hospital	13
Dora Governmental Hospital	14
Al- Makassed Hospital	15
Saint Josef Hospital	16

Palestine Red Crescent Society: is holding the responsibility to deliver ambulance services through its own centers which are in all west bank and Jerusalem districts through 145 qualified staff. Since 1996, the Palestinian Red Crescent Society has been the main provider of emergency medical services in the West Bank and Gaza Strip, where it has been authorized by the Palestinian National Authority to provide ambulance services throughout the regions (Palestinian Red Crescent Society, 2021).

Study population: The study population consisted of all nurses working in emergency departments in West Bank governmental hospitals and two hospitals in Jerusalem, in addition to all paramedics working in the Palestinian Red Crescent society in west banks including Jerusalem were also included in the study.

Study Sample: The study sample consisted of 230 nurses working in emergency departments in government hospitals in the West Bank, including Jerusalem, 145 paramedics working in the PRCS in West Bank, including Jerusalem. The researcher

used the convenience sample in selecting the study sample. The study sample included all nursing staff in emergency departments, and all paramedics in the Palestinian Red Crescent.

Inclusion criteria: The study sample includes paramedics who work in the pre-hospital service in addition to nurses who work in emergency departments in West Bank and Jerusalem districts.

Exclusion criteria: Ambulance drivers as well as volunteers working in the pre-hospital service were excluded from this study. Because drivers do not provide medical care to patients and may not have the qualifications to participate in the study, as their role is limited to driving an ambulance, and volunteers do not have the information that enables them to participate in the study and may work for a short period of time.

3.3 Study Method

The study used quantitative cross-sectional descriptive study was performed by distributing a questionnaire to pre-hospital services and emergency department's staff in Palestinian hospitals. Where 230 questionnaires were distributed to the nurses working in emergency departments, of which 220 questionnaires were returned, and 145 questionnaires were distributed to paramedics, of which 130 returned, which showed a response rate of 95% among nurses while 90% among paramedics.

3.4 Study Site and Setting

The research was carried out in the emergency department of the 14 Governmental Hospitals in the West Bank and two hospitals in Jerusalem, Palestine. In additions to Palestinian Red Crescent center in West Bank and Jerusalem / Palestine.

The study sample included nursing staff in the emergency departments in hospitals in the West Bank, including Jerusalem, the ambulance team in the West Bank, including Jerusalem.

3.5 Study Period

The study was conducted in the period between February and May 2021 to collect data from the required study sample.

3.6 Study Tool

The researcher designed a self-administered questionnaire which covered all aspects of the study and was distributed to the study sample to test the hypotheses and answer the study questions. Previous studies were used in designing the questionnaire and it was judged by experts and researchers to ensure the questionnaire's suitability to achieve the study objectives.

The questionnaire included a set of questions to determine the mechanism used for patient handover and the information contained wither there is prior contact between the two parties, that is, before the patient arrives to the emergency department, and are there tools or equipment for communication between the two parties? Also, the questionnaire tested the impact of this communication process and patient handover on the patient's health, waiting time in the emergency department, and accidents that may occur in the event of the ineffectiveness of the communication process be determined.

The questionnaire consists of the following parts:

- The first part is the demographic information of the study sample.
- The second part assesses the impact of the communication process between the pre-hospital services and the emergency team on patient outcomes.

- The third part assesses the impact of communication between pre-hospital services and the emergency team on the readiness of caregivers in emergency departments.
- Part four assesses the effect of communication between pre-hospital services and the emergency team on patient waiting time in emergency values.
- The fifth part assesses the impact of the availability of equipment and tools for communication between the pre-hospital services and the emergency team on the patient handover process.
- The sixth and final part assesses the impact of the accuracy and validity of information provided in the patient handover process on the patient's health.

Study Tool Validity: It aims to identify the degree to which the questionnaire achieves the study objectives and the extent to which each field of study is related to the total score of the questionnaire data. It was calculated by Pearson correlation coefficient within the statistical analysis program (SPSS).

Study Tool Reliability: It means that the questionnaire will achieve the same results if it is redistributed to the study sample several times at different times and this was done by calculating the Cronbach's Alpha coefficient within the statistical analysis program statistical analysis program (SPSS).

Pilot Study: The pilot study was conducted on a sample of 20 participants in Al-Ahli Private Hospital in Hebron, south of west bank and 15 questionnaires in the Private Prehospital service (Noran Ambulance) in Jerusalem. The sample was chosen randomly. Thus, the pilot study sample reached 35 questionnaires, which constitutes 10% of the study sample.

The Cronbach's Alpha coefficient, 0.554, is weak, and thus we resort to omitting a number of questionnaire elements to raise the Cronbach's Alpha factor. After deleting three elements from the questionnaire, namely:

1. What do you mean from the pre-hospital team on time before the patient arrives at the emergency department?
2. The patient handover from the pre-hospital team includes the medical procedures that have been performed for the patient.
3. Communication equipment and tools are available between the pre-hospital and emergency team.

The result of the Cronbach's Alpha coefficient was 0.68, which is a medium and acceptable value and indicates the validity and reliability of the study tool (the questionnaire) and is able to achieve the objectives of the study.

The Cronbach's Alpha coefficient depends on the response of the study sample as it is affected by the sample size, and the pilot study was limited to 35 participants from two sites, so there may be bias in the responses. The pilot study is conducted with the aim of testing the study steps and avoiding errors that may occur during it, and it is not limited to measuring the questionnaire reliability.

When conducting the study on a sample of 350 participants from various hospitals in the West Bank and paramedics in the Palestinian Red Crescent, the Cronbach's Alpha coefficient will be more accurate than in the pilot study, which is an indicator for the researcher to improve. The value of Cronbach's Alpha coefficient of 0.921 appeared, which is high and indicates a high reliability of the questionnaire.

3.7 Study Procedure

- After the researcher designed the study tool (the questionnaire), the questionnaire was judged by researchers and panel of experts for face validity to ensure that the questionnaire achieved the purposes prepared for.
- The questionnaire was distributed to the study sample, where the researcher distributed the questionnaire himself to the study sample and made sure that the respondents understood the questionnaire questions, and a copy of the questionnaire was distributed in Arabic, as some nursing diploma nurses do not speak English well.
- The study sample consisted of two parts: the first part was nursing emergency departments in hospitals in the West Bank, including Jerusalem, and the second part was paramedics in Palestinian Red Crescent Society ambulance centers in the West Bank, including Jerusalem.

3.8 Ethical Consideration

This study was approved by the faculty of high studies at Arab American University – research ethics committee. In addition, ethical approval was obtained from the Ministry of Health and the Palestinian Red Crescent Society ambulance centers headquarter as well as the nurses and paramedics.

They were also guaranteed the participants right to privacy and anonymity. and data's confidentiality was ensured by preventing unauthorized access.

The researcher prepared a consent form which was signed by nurse’s paramedics to conduct the study before starting the data collection process. The study information was sent to the participants as it included the reasons and importance of the study attached to

the questionnaire with an explanation that participation in the study is optional, the study is for research purposes only and that all information will remain strictly confidential and the participants' names are not mentioned.

3.9 Statistical Analysis

The researcher used the statistical analysis program (SPSS) version 24 to analyze the obtained data and to test hypotheses. Specifically, the following methods were used:

- **Descriptive Statistics Analysis:** To measures the central tendency: such as percentages, arithmetic mean, and frequencies, to describe the views of the study sample variables and to determine the importance of the words contained in the questionnaire, as well as the standard deviation to show the extent of the dispersion of responses from the arithmetic mean.
- **Cronbach's Alpha test:** To test the reliability of the data collection tool used to measure the variables included in the study.
- **Pearson correlation coefficient:** To test the validity of the data collection tool used.
- **ANOVA Test:** The researcher used this test for the last two hypotheses, because they contain two variables, and to find out if there is an effect between them, this test is conducted.
- **One-Sample Test:** This test is used when the hypothesis contains one variable, so use this test for the first three hypotheses

Chapter (4)

Research Results

4.1 Introduction

This chapter presents the analysis of the collected data. The statistical method allowed the investigator to deduce, analyze, measure, and evaluate the numerical information. The aim of data analysis is to provide answers to questions about the study. The data analysis strategy comes directly from the question, the design and the data collection process and the level of measurement of the data. This chapter analyzes and interprets the collected data. The researcher used the Statistical Analysis Program (SPSS) version 24.

4.2 Study Tool Reliability

It means that the questionnaire will achieve the same result if it is redistributed to the study sample several times at different times and this was done by calculating the Cronbach's Alpha coefficient within the statistical analysis program (SPSS).

Table No. (2) Cronbach's Alpha coefficient

Reliability Statistics	
Cronbach's Alpha	N of Items
.921	22

Table No. (3) Cronbach's Alpha coefficient for questionnaire items

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Effective communication between the pre- hospital and emergency team leads to the identification of medical interventions that the patient will need upon arrival.	75.62	190.799	.630	.916
2. Effective communication between the pre- hospital team and the emergency team leads to the identification of the medical procedures that were performed	75.58	195.870	.538	.918
3. Effective communication between the pre- hospital and emergency team results in the patient's medical procedure not being duplicated.	75.73	195.042	.509	.919
4. Effective communication between the pre- hospital and emergency team improves patient outcomes.	75.57	195.315	.575	.917
5. Appropriate and timely medical procedures improve patient outcomes.	75.45	193.242	.602	.917
1. The number of staffing in the emergency department is sufficient to handle the number of patients.	76.89	195.020	.411	.922
2. Prior information before the patient's arrival is important for preparing the necessary supplies and equipment.	75.67	192.722	.693	.915
3. Prior information before the patient's arrival is important to	75.72	190.874	.719	.915

request doctors from different specialties that the patient needs.				
4. Prior information before the patient's arrival is important to prepare a bed, especially if the emergency department is full and the situation is an emergency.	75.69	193.369	.640	.916
5. The accuracy of the information provided by the pre-hospital team helps in good preparation and determining the patient's actions.	75.65	190.740	.740	.914
1. Good handover from the pre-hospital team to the patient enables the emergency department to prepare for the patient	75.78	189.108	.759	.914
2. Good handover from the pre-hospital team to the patient reduces the patient's waiting time, especially for emergency cases.	75.59	193.064	.731	.915
3. Good patient handover from the pre- hospital team leads to the classification of the case before arrival.	75.63	193.912	.720	.915
4. Accurate handover of the patient from the pre-hospital team leads to the identification of the necessary emergency medical procedures.	75.60	194.786	.655	.916
5. Accurate patient handover from the pre-hospital team determines the appropriate medical team for the patient's condition	75.66	194.381	.660	.916
1. Communication tools between the pre-hospital and emergency team provide the necessary patient information on time.	76.20	193.498	.569	.917
2. There is a clear policy	76.51	194.170	.504	.919

for communication between the pre-hospital and emergency team.				
3. An alternate communication plan is available if the communication tools do not work.	76.46	196.646	.410	.921
4. Online communication tools are available that continuously provide patient information according to the patient's condition.	76.60	197.546	.350	.923
1. Patient handover from the pre-hospital team includes detailed information on the patient's condition.	76.35	191.038	.583	.917
2. The patient handover process from the pre-hospital team helps to define the necessary medical procedures for the patient upon arrival.	75.89	195.198	.556	.918
3. There is a clear policy for patient handover before he/ she arrives at the emergency department.	77.06	202.611	.234	.925

From the two tables above, we note that the result of Cronbach's Alpha coefficient (0.921), which is considered high, and this indicates that the study tool (the questionnaire) is reliable and able to achieve the same results if the questionnaire is redistributed several times and at different time intervals on the same study sample.

4.3 Study Tool Validity

It aims to identify the degree to which the questionnaire achieves the study objectives and the extent to which each field of study is related to the total score of the questionnaire data. It was calculated by Pearson correlation coefficient within the statistical analysis program (SPSS).

Table No. (4) Pearson correlation coefficient

Correlations						
		Patient's outcome	Effectiveness of patient's handover process	Availability of equipment and tools for the communication process	Patients waiting time in emergency departments	Readiness of healthcare providers
Patient's outcome	Pearson Correlation	1	.231**	.501**	.651**	.576**
Effectiveness of patient's handover process	Pearson Correlation	.231**	1	.659**	.488**	.493**
Availability of equipment and tools for the communicati on process	Pearson Correlation	.501**	.659**	1	.364**	.435**
Patients waiting time in emergency departments	Pearson Correlation	.651**	.488**	.364**	1	.757**
Readiness of healthcare providers	Pearson Correlation	.576**	.493**	.435**	.757**	1
**. Correlation is significant at the 0.01 level (2-tailed).						

The Pearson test for correlation was conducted, and it was found that all correlation factors are a positive value and higher than (0.05), so there is a strong and positive correlation between all the study variables. The strongest correlation is between the readiness of healthcare providers and patients waiting time in emergency departments (0.757), and the least correlation between the effectiveness of patient's handover process and patient's outcome (0.231).

4.4 Descriptive analysis of demographic data

Table No. (5) Descriptive analysis of demographic data

Items		Frequency	Percent
Gender	Male	222	63.4
	Female	128	36.6
Age	20-29 years	145	41.4
	30-39 years	137	39.1
	40-49 years	56	16.0
	50 years and more	12	3.4
Education level	Nursing Diploma Degree	59	16.9
	Bachelor Degree of Nursing	136	38.9
	Masters in Nursing	31	8.9
	Paramedic	124	35.4
Number of years since you first qualified as a nurse or paramedic	below 2 years	32	9.1
	2-3 years	45	12.9
	4-5 years	60	17.1
	6-7 years	55	15.7
	8-9 years	39	11.1
	more than 10 years	119	34.0
Years of experience	below 2 years	80	22.9
	2-3 years	47	13.4
	4-5 years	70	20.0
	6-7 years	49	14.0
	8-9 years	24	6.9
	more than 10 years	80	22.9

From the above table it appears that 222 of the study sample are males with a percentage of (63.4%), and 128 are females with a percentage of (36.6%). 145 of the study sample were aged between 20 to 29 years at a rate of (41.4%), 137 were aged between 30 to 39 years and at a rate of (39.1%), 56 were aged between 40 to 49 years at a rate of (16%), and finally 12 respondents of their age 50 years and over (3.4%). As for the educational level, 59 respondents from the study sample had a diploma in nursing (16.9%), 136 had a bachelor's degree in nursing and a rate of (38.9%), 31 had a

master's degree in nursing and a percentage (8.9%), and finally 124 paramedics and a percentage of (35.4%). 32 of the study sample had a nursing or paramedic certificate for less than two years at a rate of (9.1%), 45 qualified respondents for 2-3 years and (12.9%), 60 qualified respondents for 4-5 years and with a rate of (17.1%), 55 qualified respondents 6-7 years ago at a rate of (15.7%), 39 qualified respondents for 8-9 years at a rate of (11.1%), and finally 119 qualified respondents for 10 years and more at a rate of (34%). As for the number of experience years, 80 respondents had experience of less than two years at a rate of (22.9%), 47 respondents had experience from 2 to 3 years and a rate of (13.4%), 70 respondents had experience from 4 to 5 years and (20%), 49 respondents had experience from 6 to 7 years at a rate of (14%), 24 respondents with experience from 8 to 9 years at a rate of (6.9%), and finally 80 respondents with experience of 10 years or more at a rate of (22.9%).

Table No. (6) Descriptive analysis of sample age

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	350	1	4	1.81	.824
Valid N (listwise)	350				

The above table indicates that the mean age of the study sample was (1.81) and standard deviation (0.824), where the number one refers to the age group 20 to 29 years, the number two refers to the age group 30 to 39 years, the number three refers to the age group 40 to 49 years, and finally the number four to the age group 50 years and over.

Table No. (7) Respondents' workplace

Workplace		
	Frequency	Percent
St. Josef hospital	16	4.6
Jenin Hospital	13	3.7
Qalqilya Hospital	13	3.7
Rafidia Hospital	17	4.9
Dura hospital	8	2.3
Tubas Turkish Hospital	8	2.3
Beit Jala Governmental Hospital	10	2.9
Hebron .Gov. Hospital	20	5.7
PRCS Bethlehem City	12	3.4
PRCS Nablus city	13	3.7
PRCS Jerusalem	32	9.1
Salfeet Hospital	13	3.7
PRCS Hebron City	14	4.0
PRCS Tulkarm City	12	3.4
PRCS Ramallah city	13	3.7
PRCS Jericho city	9	2.6
PRCS Qalqilya City	12	3.4
PRCS Jenin City	14	4.0
Jericho Hospital	10	2.9
Ramallah Hospital	17	4.9
Al Makassd Hospital	17	4.9
Tulkarem Hospital	16	4.6
AlWatni Hospital	15	4.3
Yatta Hospital	14	4.0
Mohammad Ali Hospital	12	3.4
Total	350	100.0

The table above shows the workplace of the study sample members distributed over 16 hospitals in the West Bank, Palestine, and 9 Palestinian Red Crescent (PRCS) centers. The following graphs represent the demographic data of the study sample:

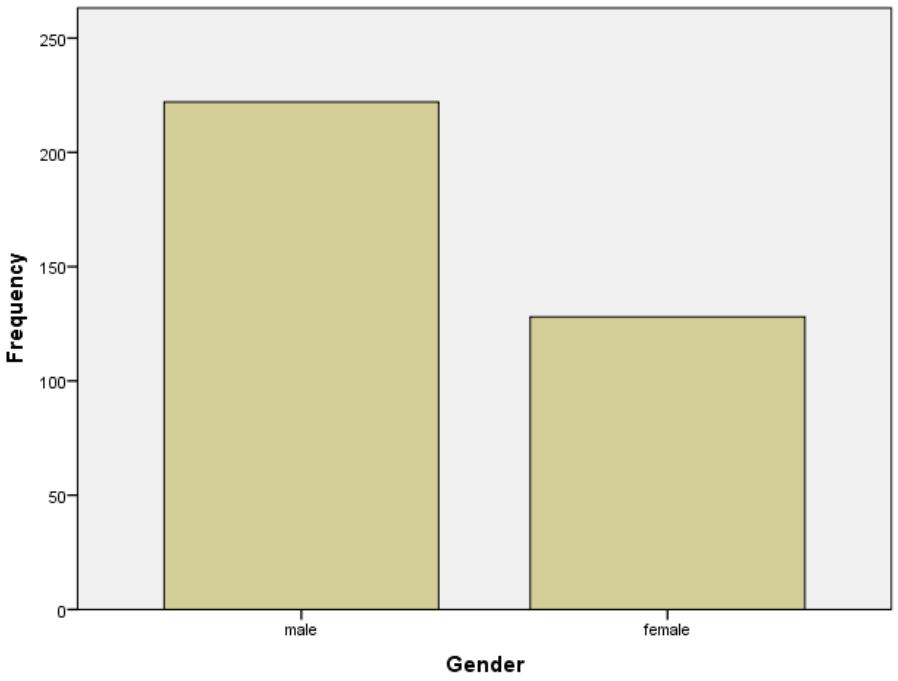

Figure No (1) The gender of the study sample

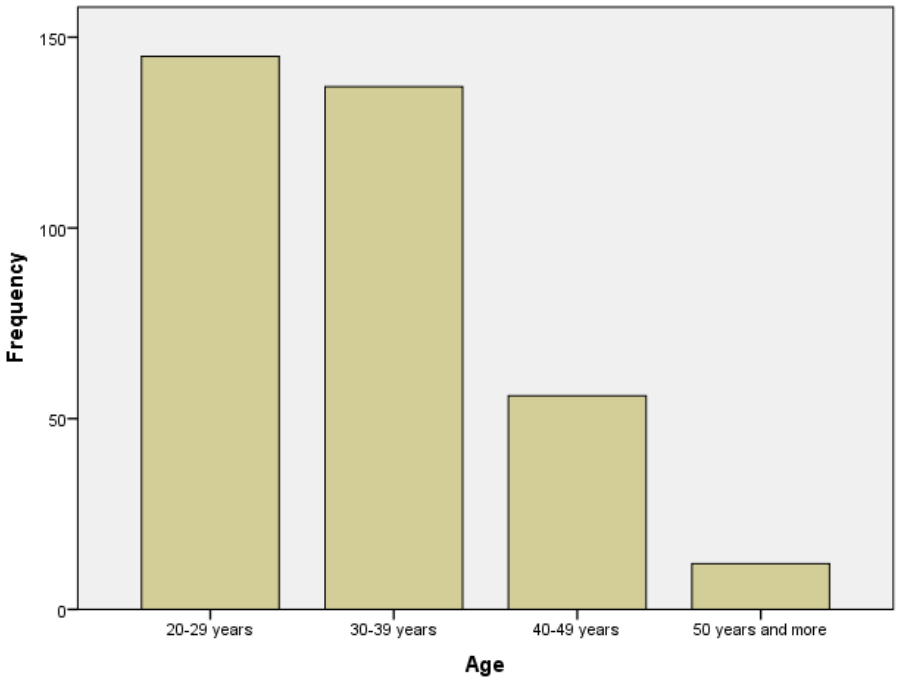

Figure No (2) The age of the study sample

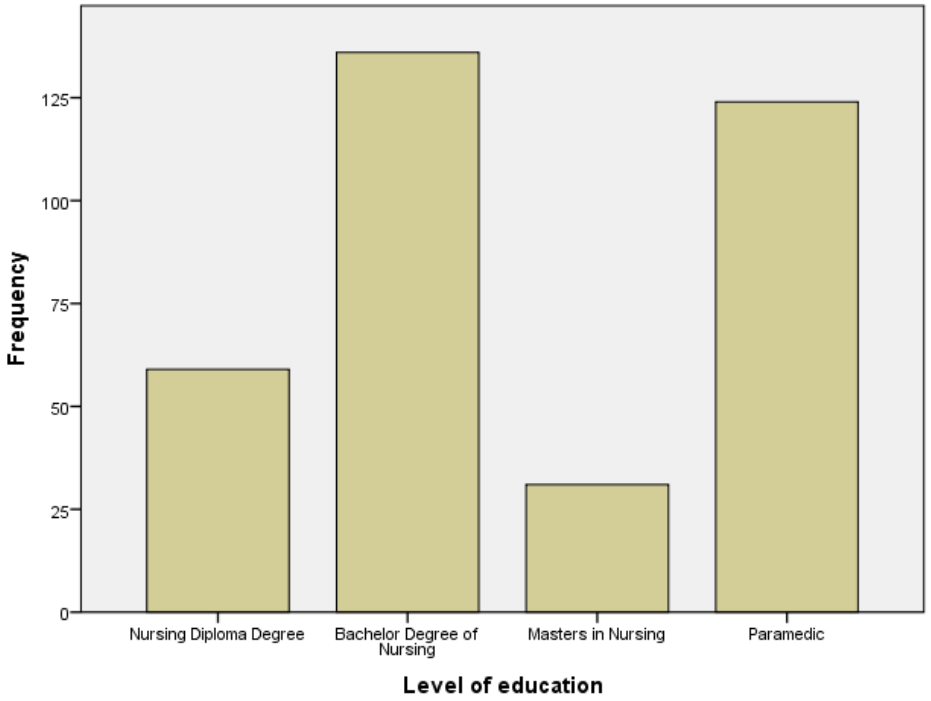

Figure No (3) The level of education of the study sample

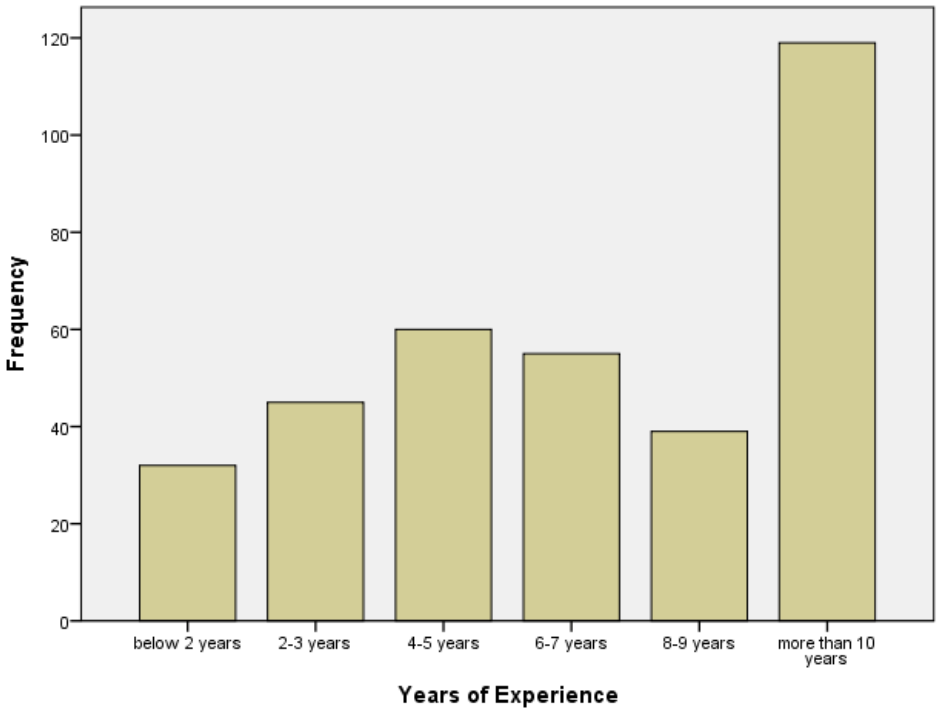

Figure No (4) The years of experience of the study sample

4.5 Descriptive Analysis of Study Variables

The researcher was determined three levels (low, medium, high) based on the following equation: The length of the class = (the upper limit of the alternative - the minimum of the alternative) / the number of levels (5-1) / 3 = 4/3 = 33.1. The levels are as follows: The low is from (1) to less than (2.33). The medium is more than (2.33) to less than (3.66). The high is more than (3.66) to (5).

4.5.1 Descriptive Analysis of Impact of Prehospital Emergency Services and Emergency Department Communication on Patient's Outcome

Table No. (8) Descriptive analysis of patient's outcome

Rank	Items	Mean	Std. Deviation	Degree
4	1. Effective communication between the pre- hospital and emergency team leads to the identification of medical interventions that the patient will need upon arrival.	3.94	1.161	High
3	2. Effective communication between the pre- hospital team and the emergency team leads to the identification of the medical procedures that were performed for the	3.98	1.014	High
5	3. Effective communication between the pre- hospital and emergency team results in the patient's medical procedure not being duplicated.	3.84	1.115	High
2	4. Effective communication between the pre- hospital and emergency team improves patient outcomes.	4.00	.988	High
1	5. Appropriate and timely medical procedures improve patient outcomes.	4.12	1.062	High
-	**Total**	**3.97**	**1.068**	**High**

From the above table, the impact of prehospital emergency services and emergency department communication on patient's outcome appears with a high degree, as the

highest score appeared for the fifth item “Appropriate and timely medical procedures improve patient outcomes” (4.12), and the lowest degree for the third item (3.84) “Effective communication between the pre- hospital and emergency team results in the patient's medical procedure not being duplicated”.

Patient outcomes were measured by asking healthcare providers in emergency departments.

4.5.2 Descriptive analysis of Impact of prehospital emergency services and emergency department communication on the readiness of healthcare providers

Table No. (9) Descriptive analysis of readiness of healthcare providers

Rank	Items	Mean	Std. Deviation	Degree
5	1. The number of staffing in the emergency department is sufficient to handle the number of patients.	2.67	1.339	Medium
2	2. Prior information before the patient's arrival is important for preparing the necessary supplies and equipment.	3.90	.963	High
4	3. Prior information before the patient’s arrival is important to request doctors from different specialties that the patient needs.	3.85	1.020	High
3	4. Prior information before the patient’s arrival is important to prepare a bed, especially if the emergency department is full and the situation is an emergency.	3.88	.998	High
1	5. The accuracy of the information provided by the pre-hospital team helps in good preparation and determining the patient's actions.	3.92	.998	High
-	**Total**	**3.64**	**1.064**	**Medium**

From the above table, the impact of prehospital emergency services and emergency department communication on the readiness of healthcare providers appears with a medium degree, as the highest score appeared for the fifth item “The accuracy of the information provided by the pre-hospital team helps in good preparation and

determining the patient's actions" (3.92), and the lowest degree for the first item (2.67) "The number of staffing in the ED is sufficient to handle the number of patients".

4.5.3 Descriptive analysis of Impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments

Table No. (10) Descriptive analysis of patients waiting time in emergency departments

Rank	Items	Mean	Std. Deviation	Degree
5	1. Good handover from the pre-hospital team to the patient enables the emergency department to prepare for the patient	3.79	1.052	High
1	2. Good handover from the pre-hospital team to the patient reduces the patient's waiting time, especially for emergency cases.	3.98	.900	High
3	3. Good patient handover from the pre- hospital team leads to the classification of the case before arrival.	3.94	.871	High
2	4. Accurate handover of the patient from the pre-hospital team leads to the identification of the necessary emergency medical procedures.	3.96	.906	High
4	5. Accurate patient handover from the pre- hospital team determines the appropriate medical team for the patient's condition	3.91	.921	High
-	**Total**	**3.92**	**0.93**	**High**

From the above table, the impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments appears with a high degree, as the highest score appeared for the second item "Good handover from the pre-hospital team to the patient reduces the patient's waiting time, especially for emergency cases" (3.98), and the lowest degree for the first item (3.79) "Good

handover from the pre-hospital team to the patient enables the emergency department to prepare for the patient".

4.5.4 Descriptive analysis of Availability of equipment and tools for the communication process between pre-hospital services and the emergency department

Table No. (6) Descriptive analysis of Availability of equipment and tools

Rank	Items	Mean	Std. Deviation	Degree
1	1. Communication tools between the pre-hospital and emergency team provide the necessary patient information on time.	3.37	1.102	Medium
3	2. There is a clear policy for communication between the pre-hospital and emergency team.	3.06	1.181	Medium
2	3. An alternate communication plan is available if the communication tools do not work.	3.10	1.220	Medium
4	4. Online communication tools are available that continuously provide patient information according to the patient's condition.	2.97	1.314	Medium
-	**Total**	**3.13**	**1.204**	**Medium**

From the above table, the Availability of equipment and tools for the communication process between pre-hospital services and the emergency department appears with a medium degree, as the highest score appeared for the first item "Communication tools between the pre-hospital and emergency team provide the necessary patient information on time" (3.37), and the lowest degree for the fourth item (2.97) "Online communication tools are available that continuously provide patient information according to the patient's condition".

4.5.5 Descriptive analysis of Effectiveness of patient's handover process between pre-hospital services and the emergency department

Table No. (7) Descriptive analysis of Effectiveness of patient's handover process

Rank		Mean	Std. Deviation	Degree
2	1. Patient handover from the pre-hospital team includes detailed information on the patient's condition.	3.21	1.219	Medium
1	2. The patient handover process from the pre- hospital team helps to define the necessary medical procedures for the patient upon arrival.	3.67	1.026	High
3	3. There is a clear policy for patient handover before he/ she arrives at the emergency department.	2.51	1.213	Medium
-	**Total**	**3.13**	**1.153**	**Medium**

From the above table, the Effectiveness of patient's handover process between pre-hospital services and the emergency department appears with a medium degree, as the highest score appeared for the second item "The patient handover process from the pre-hospital team helps to define the necessary medical procedures for the patient upon arrival" (3.67), and the lowest degree for the third item (2.51) "There is a clear policy for patient handover before he/ she arrives at the emergency department".

4.6 First Hypothesis

H1: There is a significant impact of prehospital emergency services and emergency department communication on patient's outcome.

Table No. (8) One- Sample Test for first hypothesis

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Patient's outcome	78.674	348	.000	16.58911	16.1744	17.0038

The above table represents the One sample test to test the first study hypothesis, where the sigma result appears (0.000), which is less than (0.05), and accordingly we reject the null hypothesis and accept the alternative hypothesis, meaning that there is a statistically significant effect of communication between the pre-hospital team and the emergency team on patient outcomes and health.

4.7 Second Hypothesis

H2: There is a significant impact of prehospital emergency services and emergency department communication on readiness of healthcare providers.

Table No. (9) One- Sample Test for second hypothesis

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Readiness of healthcare providers	82.552	349	.000	15.07829	14.7191	15.4375

The above table represents the One sample test to test the second study hypothesis, where the sigma result appears (0.000), which is less than (0.05), and accordingly we reject the null hypothesis and accept the alternative hypothesis, meaning that there is a statistically significant impact of prehospital emergency services and emergency department communication on readiness of healthcare providers.

4.8 Third Hypothesis

H3: There is a significant impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments.

Table No. (10) One- Sample Test for third hypothesis

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Patients waiting time in emergency department	91.835	349	.000	16.45086	16.0985	16.8032

The above table represents the One sample test to test the third study hypothesis, where the sigma result appears (0.000), which is less than (0.05), and accordingly we reject the null hypothesis and accept the alternative hypothesis, meaning that there is a statistically significant impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments.

4.9 Fourth Hypothesis

H4: There is a significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness.

Table No. (11) ANOVA Test for fourth hypothesis

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	**705.363**	**1**	**705.363**	**267.671**	**.000[b]**
	Residual	917.044	348	2.635		
	Total	1622.408	349			
a. Dependent Variable: Effectiveness of patient's handover process						
b. Predictors: (Constant), Availability of equipment and tools for the communication process						

The above table represents the ANOVA test to test the fourth study hypothesis, where the sigma result appears (0.000), which is less than (0.05), and accordingly we reject the null hypothesis and accept the alternative hypothesis, meaning that there is a statistically significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness.

4.10 Fifth Hypothesis

H5: There is a significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken?

Table No. (12) ANOVA Test for fifth hypothesis

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	289.095	1	289.095	19.628	.000[b]
	Residual	5110.904	347	14.729		
	Total	5399.999	348			
a. Dependent Variable: Patients' outcome						
b. Predictors: (Constant), Effectiveness of patient's handover process						

The above table represents the ANOVA test to test the fifth study hypothesis, where the sigma result appears (0.000), which is less than (0.05), and accordingly we reject the

null hypothesis and accept the alternative hypothesis, meaning that there is a statistically significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken.

Chapter (5)

Discussion & Conclusion

5.1 Introduction

This study aims to assess the current status of the communication and handover mechanism between pre-hospital services and the emergency departments in Palestinian hospitals, also to classify the challenges that hinder and weaken the communication process between pre- hospital services and the emergency departments in Palestinian hospitals, in addition to discussing the suitable environment for communication, employing the appropriate workforce and providing adequate equipment so that the communication process can be done effectively.

This chapter includes a discussion of the strategies that must be followed by both parties to improve the communication and patient's handover process before the patient's arrival and to take the necessary measures that will improve the patient's outcomes. We also discuss the potentially valuable implications and recommendations for healthcare providers to improve patient outcomes. The chapter concludes with a discussion of the limitations of the study, areas for future research.

5.2 Results Discussion

This part of the study shows a discussion of the current study results and its comparison with the previous studies mentioned in the second chapter, where it will discuss the results of each hypothesis separately.

5.2.1 Discussing the First Hypothesis Result:

H1: There is a significant impact of Prehospital emergency services and emergency department communication on patient's outcome.

The result of the first hypothesis analysis showed that there is a statistically significant effect of communication between the pre-hospital team and the emergency team on **patient outcomes and health.**

Patient outcomes were measured by asking health care providers about the impact of communication between the pre-hospital team and the emergency team on the patient's health.

The results of previous studies are congruent with the results of the current study that there is a relationship between communication between emergency teams and the pre-hospital team with the patient's outcomes, but previous studies showed a detail about the obstacles to the communication process and their impact on the patient (Troyer & Brady, 2020); (Sorani et al., 2018).

Troyer & Brady (2020) showed that the obstacles that affect the patient handover process between the pre-hospital service team and the emergency team are as follows: lack of training, lack of respect and attention, lack of feedback, loss of information, environmental factors, delays, duplication of information, technological issues, and poor recall, conflicting goals and perspectives, and information deterioration. As all of these factors affect the patient's health due to the inefficiency of the patient handover process between the pre-hospital team and the emergency team.

While the Kamphausen et al. (2019) pointed to several factors that affect the patient handover process between the emergency team and the pre-hospital team, which affect the patient's health. Therefore, it is necessary to find a way to integrate medical care between all concerned parties.

In addition to, Sorani et al. (2018) showed that there are many challenges in pre-hospital services, including in terms of people, infrastructure, information management systems, staffing needs and other issues and administrative challenges related to medical care, that ultimately affect patient health.

Mehmood et al. (2018) stresses the necessity of having a tool for evaluating emergency medical services before entering the hospital and using the information to prepare and monitor criteria for health outcomes affected by this system, with the aim of improving patient outcomes. Also, Redley et al. (2017) showed that the process of unreliable communication between professionals poses a threat to patient safety, and the study showed the need to standardize patient handover information to ensure their safety among all health care providers, especially doctors and nurses.

All the previous studies results agreed with the current study results in the importance of the communication process between the pre-hospital team and the emergency team on the patient's health. And Wood et al. (2015) showed that the patient handover process is complicated by chaos, noisy environments, and lack of time and resources, and poor communication is associated with health care provider behaviors such as lack of listening, lack of trust and misunderstanding among staff which affects patient health.

5.2.2 Discussing the Second Hypothesis Result:

H2: There is a significant impact of prehospital emergency services and emergency department communication on readiness of healthcare providers.

The result of the second study hypothesis analysis showed that there is a statistically significant impact of prehospital emergency services and emergency department communication on **readiness of healthcare providers.**

The results of previous studies are congruent with the results of the current study that there is a relationship between emergency teams and the pre-hospital team with the readiness of the emergency team to receive the disease case.

Reay et al (2019) study revealed a number of factors that affect the transitions between the pre-hospital team and the emergency department, which are as follows: different medical professions, operational constraints, professional relationships, cross-professional information, components of the transition process, and medical service providers who consider that the mobile phone helps in the process of information flow about the patient before reaching the emergency department, and this affects the readiness of the medical team in the emergency department to receive the patient and provide the appropriate medical procedures in a timely manner. The result of the previous study agreed with the results of the current study on the importance of the communication process between the pre-hospital team and the emergency team so that the medical team is ready and aware of the patient's condition before his arrival.

As Bruton et al. (2018) to the need to agree on the goal of the patient handover process from the pre-hospital team to the emergency department team and to establish an appropriate structure and method, in order for the emergency team to be ready to receive the patient and provide appropriate medical care to the patient. In addition to, Dawson et al. (2013) concluded that the need for more effective and integrated processes that depend on effective mutual communication, which includes all the medical and nursing information and procedures that were performed for the patient so that the emergency department can know what the medical team must do upon the patient’s arrival, and the concerned personnel in the emergency department must be identified.

5.2.3 Discussing the Third Hypothesis Result:

H3: There is a significant impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments.

The result of the third study hypothesis analysis showed that there is a statistically significant impact of prehospital emergency services and emergency department communication on patients **waiting time** in emergency departments.

The results of previous studies agreed with the result of the current study that there is a relationship between the communication process between the emergency team and the pre-hospital team and its role in reducing the patient's waiting time in the emergency department.

The results of the study by Sanjuan-Quiles et al. (2018) that nurses recognized the need to standardize patient transition procedures through a written record, adequate and timely transmission of patient information, in order to raise the level of patient safety and reduce patient waiting time in the emergency department according to his health condition. Thus, the previous study results agreed with the current study results in the importance of the pre-hospital team’s communication with the emergency team on the patient waiting time in the emergency department before providing health care to him.

Also, Kalyani et al. (2017) they stressed the need to provide the appropriate equipment with an appropriate and qualified workforce to improve the patient handover process between the pre-hospital team and the emergency team in order to reduce the patient’s waiting time in the emergency department and provide the appropriate treatment for the patient. In addition to, Jensen et al. (2013) showed that structured written handover improves the handover process, and that technological equipment has a direct impact on reducing problems that may occur, including patient waiting time in the emergency department, according to his health condition.

5.2.4 Discussing the Fourth Hypothesis Result:

H4: There is a significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness.

The result of the fourth study hypothesis analysis showed that there is a statistically significant impact of the **availability of equipment and tools** for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness.

The results of previous studies agreed with the result of the current study that there is a relationship between the availability of the necessary tools and equipment and the communication process between the emergency team and the pre-hospital team.

The results of Zhang et al., (2020) study showed that the paucity of evaluative research in prehospital communication technology and the challenges of adopting progressive technological solutions in emergency care indicate the need to adopt a user-centered project and consider social and technical issues when designing the system. As Cuk et al. (2017) concluded that electronic patient handover is better than paper in order to ensure that information reaches the emergency team before the patient arrives, and paper writing is difficult in the ambulance. The previous studies results are consistent with the current study results that the necessary tools must be available to increase the effectiveness of communication between the pre-emergency team and the emergency team and to exploit technology to facilitate the communication process.

Also, Reay et al. (2017) emphasized the need to design an integrated communication process to ensure safe patient transportation and better health outcomes, using specific tools and equipment to ensure the accuracy of the information that an emergency team

should know before a patient arrives. In addition to, Tavares et al. (2016) showed the role of paramedics in the efficiency of the patient handover process to the emergency department and the need to keep pace with developments by providing equipment and tools that help in raising the efficiency of the patient handover process

5.2.5 Discussing the Fifth Hypothesis Result:

H5: There is a significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken?

The result of the fifth study hypothesis analysis showed that there is a statistically significant impact of **accuracy and adequacy of information** in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken.

The results of previous studies agreed with the result of the current study that there is a relationship between the accuracy and adequacy of the information received from the pre-hospital team to the emergency team about the patient and the medical procedures performed and their impact on the patient's health and outcomes.

Jensen et al. (2021) investigated the role of the patient's electronic medical record as it is a key working tool for obtaining patient information and medical history, as well as a reference for the emergency department team to know the medical procedures that were performed on the patient by the pre-hospital team. Where this study agreed with the current study results in the importance of the accuracy and validity of the information transmitted from the pre-hospital team to the emergency team and its impact on the patient's health.

While the Javidan et al. (2020) demonstrated the necessity of standardizing handover process due to Poor information content, lack of structure and active listening, duplication of information, and conflicting expectations among team members.

In addition to, Makkink et al. (2019) described the important variables during patient handover by the pre-hospital team in South Africa. The results showed that the ten most important handover variables in emergency department, five of them were related to vital signs, blood pressure appeared first, and then type of major injury, anatomical location of major injury, pulse rate, respiratory rate, and patient history. Followed by Glasgow coma score, injuries sustained, patient priority, oxygen saturation ratio, and patient sensitivity. Therefore, the patient's information must be complete and available to the emergency team in order to be able to provide the necessary medical procedures to the patient.

5.3 Conclusion

The study also found the impact of prehospital emergency services and emergency department communication on patient’s outcome appears with a high degree. The impact of prehospital emergency services and emergency department communication on the readiness of healthcare providers appears with a medium degree. The impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments appears with a high degree. The availability of equipment and tools for the communication process between pre-hospital services and the emergency department appears with a medium degree. The Effectiveness of patient’s handover process between pre-hospital services and the emergency department appears with a medium degree.

The study also showed that there is a statistically significant effect of communication between the pre-hospital team and the emergency team on patient outcomes and health. There is a statistically significant impact of prehospital emergency services and emergency department communication on readiness of healthcare providers. There is a statistically significant impact of prehospital emergency services and emergency department communication on patients waiting time in emergency departments. There is a statistically significant impact of the availability of equipment and tools for the communication process between pre-hospital services and the emergency department on the patient's handover process effectiveness. There is a statistically significant impact of accuracy and adequacy of information in the patient handover process between the pre-hospital services team and the emergency team on the patient's health and the medical procedures taken.

5.4 Limitations

- There were no previous studies in Palestine relevant to the subject of this study.
- The spread of the global Covid-19 virus pandemic had an impact on the study schedule due to the difficulty of distributing the questionnaire to emergency departments in Palestinian hospitals.
- The study was conducted in Palestinian government hospitals, so the results of this study cannot be generalized because it did not include the private health sector.
- The transportation burden on the researcher for the purpose of distributing the questionnaire to the study sample, in addition to transportation fees.
- During the period of distributing the questionnaire, there was a strike of workers in Palestinian hospitals, including emergency departments.

5.5 Recommendation

The study recommends the following:

- Support health care providers both from the pre-emergency team and the emergency team through training and continuing education on the correct patient handover mechanisms and information that must be included in the handover process.
- Investing technology and advanced communication tools in the patient handover process, such that the communication process is done electronically and the emergency team is able to follow up on the patient before he reaches the emergency department.
- Unifying the process of handing over the patient by the pre-hospital team to the emergency team in all hospitals in Palestine, and standardizing the information that must be hand overed about the patient.

5.6 Implication

The results of this study will have an impact on the communication process between the pre-hospital team and the emergency team in Palestinian hospitals in order to improve the patient delivery process and face problems and challenges, and this study will be a reference for researchers in the future.

The availability of equipment and tools for communication between the pre-hospital services and the emergency team is important and has an impact on the flow of patient information and the medical procedures performed for the patient in the ambulance, which positively affects the patient's health. The introduction of technology, such as the electronic connection of the patient monitor device in the ambulance with the

emergency department, may have an impact on improving the efficiency of the communication process between the two teams.

The validity and accuracy of the information received from the pre-hospital services of the emergency team has a major role in providing the appropriate medical service to the patient. The unification of the patient delivery form, provided that it is electronic, may play a major role in the medical service provided to the patient in the emergency departments.

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Appendices

Appendices No (A)
Questionnaire in English

Questionnaire

Assessment of Communication between pre-hospital emergency services and Emergency Departments in Palestine

Informed Consent

Dear Participant:

I am a master student at the faculty of high studies at Arab American University-Ramallah, kindly invites you to participate in this research study. The study is carried out as part of fulfilling the requirements for master degree in Emergency Nursing. The purpose of this study is (Assessment of Communication between pre-hospital emergency services and Emergency Departments in Palestine) your participation is voluntary; your cooperation is highly appreciated. You have the right to withdraw at any time during data collection process without limitation. Filling the questionnaire will not take more than 30 minutes from your time, and assuring that your answers will be kept anonymous and confidential and will be used for the research purposes only.

Thanks.

If you have any further inquiry about the questionnaire, please call Mr, Asef at (0542683585)

Students: Asef Mohammad

Advisor: Dr.Imad Abu Khader

Co – Advisor: Dr. Mohammed Jallad

Part 1: Demographic Data

1. Gender: Male …….. Female ……..
2. Place of Work ……..
3. What is your age?

- 20- 29 yrs
- 40- 49yrs
-50 > yrs

4. Highest nursing or paramedic education earned:
   - Nursing Diploma Degree
   - Bachelor Degree of Nursing
   - Masters in Nursing
   - Paramedic
5. Number of years since you first qualified as a nurse or paramedic: ……
6. How many years of experience do you have in accident and emergency department or in pre-hospital emergency services?

- < 2 years _____
- 2- 3 years _____
- 4- 5 years _____
- 6- 7 years _____
- 8- 9 years _____
- 10 years and more ___

Part 2: Impact of Prehospital emergency services and emergency department communication on **patient's outcome**; please mark your level of agreement:

Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Questions	1	2	3	4	5
1. Effective communication between the pre- hospital and emergency team leads to the identification of medical interventions that the patient will need upon arrival.					
2. Effective communication between the pre- hospital team and the emergency team leads to the identification of the medical procedures that were performed for the patient before his arrival.					
3. Effective communication between the pre- hospital and emergency team results in the patient's medical procedure not being Duplicated.					
4. Effective communication between the pre-hospital and emergency team improves patient outcomes.					
5. Appropriate and timely medical procedures improve patient outcomes.					

Part 3: Impact of Prehospital emergency services and emergency department communication on the **readiness of healthcare providers**, please mark your level of agreement:

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

Questions	1	2	3	4	5
1. The number of staffing in the ED is sufficient to handle the number of patients.					
2. Prior information before the patient's arrival is important for preparing the necessary supplies and equipment.					
3. Prior information before the patient's arrival is important to request doctors from different specialties that the patient needs.					
4. Prior information before the patient's arrival is important to prepare a bed, especially if the emergency department is full and the situation is an emergency.					
5. The accuracy of the information provided by the pre-hospital team helps in good preparation and determining the patient's actions.					

Part 4: Impact of prehospital emergency services and emergency department communication on **patients waiting time in emergency departments**, please mark your level of agreement:

Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Questions	1	2	3	4	5
1. Good handover from the pre-hospital team to the patient enables the emergencydepartment to prepare for the patient					
2. Good handover from the pre-hospital team to the patient reduces the patient's waitingtime, especially for emergency cases.					
3. Good patient handover from the pre-hospital team leads to the classification of The case before arrival.					
4. Accurate handover of the patient from the pre-hospital team leads to the identificationof the necessary emergency medical Procedures.					
5. Accurate patient handover from the pre-hospital team determines the appropriate medical team for the patient's condition					

Part 5: Availability of equipment and tools for the communication process between pre-hospital services and the emergency department, please mark your level of agreement:

Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Questions	1	2	3	4	5
1. Communication tools between the pre-Hospital and emergency team provide thenecessary patient information on time.					
2. There is a clear policy for communicationbetween the pre-hospital and emergency Team.					
3. An alternate communication plan is available if the communication tools do not work.					
4. Online communication tools are available that continuously provide patient information according to the patient's Condition.					

Part 6: Effectiveness of patient's handover process between pre-hospital services and the emergency department, please mark your level of agreement:

Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Questions	1	2	3	4	5
1. Patient handover from the pre-hospital team includes detailed information on the Patient's condition.					
2. The patient handover process from the pre- hospital team helps to define the necessary medical procedures for the patient upon arrival.					
3. There is a clear policy for patient handover before he/ she arrives at the emergency Department.					

Thank you

Appendices No (B)
Questionnaire in Arabic

استمارة بحث

نموذج موافقة

(تقيم عمليه الاتصال بين خدمات الطوارئ وخدمات قبل المستشفى (خدمات الاسعاف) في فلسطين)

عزيزي\تي المشارك\ه

أنا طالب ماجستير في كلية الدراسات العليا في الجامعة العربية الأمريكية - رام الله، أدعوكم للمشاركة في هذه الدراسة البحثية. يتم إجراء الدراسة كجزء من تلبية متطلبات درجة الماجستير في تمريض الطوارئ. الغرض من هذه الدراسة هو **(تقيم عمليه الاتصال بين خدمات الطوارئ وخدمات قبل المستشفى (خدمات الاسعاف) في فلسطين)**

مشاركتك تطوعية؛ نقدر تعاونك كثيرا. لديك الحق في الانسحاب في أي وقت أثناء عملية جمع البيانات دون قيود. لن يستغرق ملء الاستبيان أكثر من 30 دقيقة من وقتك، والتأكد من أن إجاباتك ستبقى مجهولة وسرية وستستخدم لأغراض البحث فقط

اسم الطالب: عاصف محمد اسم المشرف: د.عماد ابو خضر

المشرف المساعد: د.محمد الجلاد

الجزء الاول **:**البيانات الديموغرافية

1. الجنس: ذكر ـــــــــــ أنثى ـــــــــــ
2. مكان العمل: ـــــــــــــــــــــــــــــــــــــــ
3. العمر:
   - من 20 الى 29 سنة
   - من 30 الى 39 سنة
   - من 40 الى 49 سنة
   - 50 سنة فأكثر
4. المؤهل العلمي:
   - دبلوم تمريض
   - بكالوريوس تمريض
   - ماجستير تمريض
   - مسعف
5. عدد سنوات الخبرة كممرض او مسعف: ـــــــــــــــــــــــــــــ
6. عدد سنوات الخبرة في العمل بأقسام الطوارئ او مراكز الاسعاف؟
   - أقل من سنتين
   - من 2 الى 3 سنوات
   - من 4 الى 5 سنوات
   - من 6 الى 7 سنوات
   - من 8 الى 9 سنوات
   - 10 سنوات فأكثر

Part 2: Impact of Prehospital emergency services and emergency department communication on **patient's outcome**; please mark your level of agreement:

موافق بشدة	موافق	محايد	معارض	معارض بشدة

1	2	3	4	5

1	2	3	4	5	الفقرة
					1. يؤدي الاتصال الفعال بين فريق ما قبل المستشفى وفريق الطوارئ إلى تحديد التدخلات الطبية التي سيحتاجها المريض عند وصوله
					2. يؤدي الاتصال الفعال بين فريق ما قبل المستشفى وفريق الطوارئ إلى تحديد الإجراءات الطبية التي تم إجراؤها للمريض قبل وصوله لقسم الطوارئ
					3. يؤدي الاتصال الفعال بين فريق ما قبل المستشفى وفريق الطوارئ إلى عدم تكرار الإجراء الطبي للمريض
					4. يعمل الاتصال الفعال بين فريق ما قبل المستشفى وفريق الطوارئ على تحسين نوعيه الخدمة
					5. اجراء الإجراءات الطبية المناسبة وفي الوقت المناسب يحسن نتائج المرضى

Part 3: Impact of Prehospital emergency services and emergency department communication on the **readiness of healthcare providers**, please mark your level of agreement:

معارض بشدة	معارض	محايد	موافق	موافق بشدة

1	2	3	4	5

1	2	3	4	5	الفقرة
					1. عدد الموظفين في اقسام الطوارئ كافي للتعامل مع عدد المرضى
					2. المعلومات المسبقة قبل وصول المريض مهمة لإعداد اللوازم والمعدات اللازمة
					3. المعلومات التي تصل قبل وصول المريض مهمه لطلب أطباء من مختلف التخصصات التي يحتاجها المريض
					4. المعلومات المسبقة قبل وصول المريض مهمة لإعداد السرير، خاصةً إذا كان قسم الطوارئ ممتلئًا وكان الوضع غير مناسب
					5. تساعد دقة المعلومات المقدمة من فريق ما قبل المستشفى في الإعداد الجيد وتحديد كيفية التعامل مع المريض

Part 4: Impact of prehospital emergency services and emergency department communication on **patients waiting time in emergency departments**, please mark your level of agreement:

موافق بشدة	موافق	محايد	معارض	معارض بشدة
5	4	3	2	1

الفقرة	5	4	3	2	1
1. يُمكِّن التسليم الجيد من فريق الاسعاف للمريض الى قسم الطوارئ من استعداد جيد لدى طاقم الطوارئ					
2. التسليم الجيد من فريق الاسعاف للمريض يقلل من وقت انتظار المريض، خاصة في الحالات الطارئة					
3. يؤدي التسليم الجيد للمريض من فريق ما قبل الاسعاف إلى تصنيف الحالة قبل الوصول الى قسم الطوارئ					
4. يؤدي التسليم الدقيق للمريض من فريق ما قبل الاسعاف إلى تحديد الإجراءات الطبية الطارئة اللازمة					
5. يحدد التسليم الدقيق للمريض من فريق الاسعاف الفريق الطبي المناسب لحالة المريض					

Part 5: Availability of equipment and tools for the communication process between pre-hospital services and the emergency department, please mark your level of agreement:

موافق بشدة	موافق	محايد	معارض	معارض بشدة
5	4	3	2	1

الفقرة	5	4	3	2	1
1. توفر وتأمن أدوات الاتصال بين فريق الاسعاف وفريق الطوارئ معلومات المريض الضرورية في الوقت المحدد					
2. هناك سياسة واضحة للتواصل بين فريق الاسعاف وفريق الطوارئ					
3. تتوفر خطة اتصال بديلة إذا لم تعمل أدوات الاتصال					
4. تتوفر وتستعمل أدوات الاتصال عبر الإنترنت والتي توفر باستمرار تحديث معلومات المريض وفقًا لحاله المريض قبل وصوله للمستشفى					

Part 6: Effectiveness of patient's handover process between pre-hospital services and the emergency department, please mark your level of agreement:

موافق بشدة	موافق	محايد	معارض	معارض بشدة
5	4	3	2	1

الفقرة	5	4	3	2	1
1. يتضمن تسليم المريض من فريق الاسعاف معلومات مفصلة عن حالة المريض					
2. تساعد عملية تسليم المريض من فريق الاسعاف على تحديد الإجراءات الطبية اللازمة للمريض عند وصوله					
3. هناك سياسة واضحة لتسليم المريض قبل وصوله إلى قسم الطوارئ					

الملخص

تقيم عمليه الاتصال بين خدمات الطوارئ وخدمات قبل المستشفى (خدمات الاسعاف) في فلسطين

المقدمة: يعتبر التسليم السريري جزءًا كاملاً من العمل كل يوم ويلعب دورًا كبيرًا بين المسعفين وأعضاء قسم الطوارئ للمرضى الذين يصلون بسيارات الإسعاف.

الهدف من الدراسة: لتقييم الوضع الحالي لآلية الاتصال والتسليم بين خدمات ما قبل المستشفى وأقسام الطوارئ في المستشفيات الفلسطينية، بهدف تحديد فرص التحسين وتقديم توصيات لتحسين عملية التسليم.

المنهجية: تم استخدام نهج المقطع العرضي الوصفي والكمي لاختبار الفرضيات وفحص الارتباط بين المتغيرات. تكونت عينة الدراسة من 220 ممرضاً وممرضاً يعملون في أقسام الطوارئ في المستشفيات الحكومية في الضفة الغربية بما فيها القدس و130 مسعفاً يعملون في جمعية الهلال الأحمر الفلسطيني في الضفة الغربية بما فيها القدس. استخدم الباحث العينة الملائمة في اختيار عينة الدراسة.

النتائج: أوضحت الدراسة أن هناك تأثيراً ذا دلالة إحصائية للتواصل بين فريق ما قبل المستشفى وفريق الطوارئ على نتائج المرضى، واستعداد مقدم الرعاية الصحية، ووقت انتظار المرضى في أقسام الطوارئ، عند مستوى الدلالة (سيجما ≤ 0.05)، بالإضافة إلى وجود تأثير ذي دلالة إحصائية لتوافر المعدات والأدوات لعملية الاتصال بين خدمات ما قبل المستشفى وقسم الطوارئ على فعالية عملية تسليم المريض، حيث تبلغ قيمة سيجما (0.000). أخيرًا، هناك تأثير ذو دلالة إحصائية لدقة وكفاية المعلومات في عملية تسليم المريض بين فريق خدمات ما قبل المستشفى وفريق الطوارئ على صحة المريض والإجراءات الطبية المتخذة، قيمة سيجما هي (0.000).

الخلاصة: خلصت الدراسة إلى وجود أثر لعملية الاتصال بين فريق ما قبل المستشفى وفريق الطوارئ في المستشفيات الفلسطينية على صحة المريض، استعداد مقدمي الرعاية الصحية الطارئة لاستقبال المريض وتقديم العلاج المناسب في الوقت المناسب، ووقت انتظار المريض في أقسام الطوارئ قبل تلقي العلاج. كما تبين أن هناك تأثيراً لتوافر المعدات والأدوات المناسبة على عملية الاتصال بين الفريقين، وأخيراً تبين أن هناك تأثيراً لدقة وصحة المعلومات الواردة في عملية التسليم على صحة المريض.