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Evaluation of Emergency Health Response to Covid-19 in the Gaza Strip: Mixed Methods

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Dedication

I would like to express my deep sensation and admire to my father who gave me his endless trust and love, and to my mother who dreamed of the day that I will become a successful man.

To my lovely wife Wiam who always supports me, helps me, and provides me with love and positive energy.

To my inspiring son Moneer.

To my brothers and sisters who always encourage me.

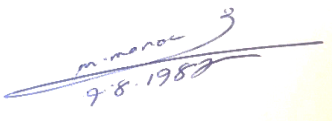
To all my friends who always support me

I dedicate the research for all of them

Mohammed Moneer Mahmoud Manaa

Declaration

I certify that this thesis submitted for the degree of master is the result of my own research, except where otherwise acknowledged, and that this thesis or any of its parts has not been submitted for higher degree to any other university or institution.

Signed 

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With respect
Mohammed Moneer Mahmoud Manaa

Abstract

Introduction: *People in Gaza are living in chronic local emergencies, making preparing for and averting a health catastrophe more difficult. Because Covid-19 is a new virus, we are still learning about it, several interventions have been implemented at various stages of the pandemic. This research aims to assess Gaza's health emergency response to the Covid-19 pandemic, acquire a better understanding of existing capacities, and identify good practices and areas for future improvement.*

Methods: *The study design was a mixed methods study; it involved both quantitative and qualitative data. The quantitative data was collected from health workers survey who provided health services during the pandemic in Gaza {MoH (67%), UNRWA (20%), NGOs (7%) and Private (5%)}.*

In total, 311 health workers participated in the quantitative study. The qualitative data was collected from key informant interview with health policy makers. Analysis of quantitative data was conducted using the SPSS program. For qualitative data, an open coding thematic analysis method was used.

Results: *showed that 99% of study health workers continue working during Covid-19 pandemic, 70% were part of early emergency teams, 30% have managerial level, 70% have worked in Covid-related facilities. Participants had good emergency health knowledge with score of 68%. The mean score for preparedness is 53%, only 33% mentioned they received effective emergency training; theoretical and practical (and its 40% among those who served in Covid-related facilities). About 62% of those with managerial levels agreed they were engaged in emergency planning. The mean score for IPC and case management is 51%. The mean score for risk assessment and communication Support is 59%, only 26% have agreement on community engagement in emergency preparedness at their organization. The mean score for operational Support, logistics and governance is 63%. The main cause of disruption in service utilization during Covid-10 pandemic was closure of outpatient services (74%) and financial difficulties (56%), while the main approaches used to overcome the disruptions to essential health services were Telemedicine (67%) and triage (64%). Although most health providers collect covid-19 samples (85%), only (49.6%) agreed on having effective surveillance system at their work.*

The level of preparedness & IPC and case management were statistically significantly associated with being in early emergency teams, gender, age groups, marital status, occupations, organization, and work experience. There is statistically significantly association between occupations and workstations stability, PPE availability, infrastructure suitability and being extra paid.

Conclusion: *The present study concluded that the health system in Gaza was able to handle the burden of preceding Covid-19 waves. Although several internal factors/pillars were improved, two external factors had played a noteworthy role; time and limitations on points of entry, which delayed community transmission, offered fortunate time for vaccines to be introduced and policymakers to benefit from experience of other countries. This could be justified by already fragile health system in Gaza. To successfully manage COVID-19, it would be worthwhile to engage in a variety of COVID-19 preventive measures, such as health education and creative strategies based on local evidence, in order to enhance community awareness and strengthen preventative behaviors. Incentives and psychological support system are also recommended to keep health care workers motivated. As well, legal health policies need to be reinforced through updating public health laws. Additionally, intersectoral cooperation is encouraged to handle several emergency scenarios.*

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List of Abbreviations

CDC – The Centers for Disease Control and Prevention
CEPI – The Coalition for Epidemic Preparedness Innovations
COVAX – COVID-19 Vaccines Global Access
EID – Emerging infectious diseases
HNGOs – Health Non-Governmental Organization
HW –Health Worker
IASC – The Inter-Agency Standing Committee
IPC –Infection prevention and control
ISDR – International Strategy for Disaster Reduction
KII –Key Informant Interview
LHNGOs – Local Health Non-Governmental Organization
LMICs – Low- And Middle-Income Countries
MMR – Maternal Mortality Rate
MoH – Ministry of Health
NAATs – Nucleic Acid Amplification Tests
NGOs – Non-Governmental Organization
OCHA – United Nations Office for the Coordination of Humanitarian Affairs
oPt – Occupied Palestinian Territory
PCBS – Palestine Palestinian Central Bureau of Statistics
PCR –Polymerase Chain Reaction
PHC –Primary Health Care
PHEP – The Public Health Emergency Preparedness
PPE – Personal Protective Equipment
QI – Quality Improvement
SARS-CoV-2 – Severe Acute Respiratory Syndrome –Related Coronavirus
SPRP – Strategic Preparedness and Response Plan
SPSS – Statistical Package for the Social Sciences
UNEP – United Nations Environment Program
UNICEF –United Nations Children's Fund
UNRWA – United Nations Relief and Works Agency for Palestine Refugees in the Near East
WB – West Bank
WHO – World Health Organization

Chapter One

Introduction

1.1 Background

Coronaviruses are a large family of viruses. Some coronaviruses cause cold-like illnesses in people, while others cause illness in certain types of animals, such as cattle, camels, and bats (CDC ,2020). In 2019, a new coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) emerged in Wuhan, China, and quickly spread around the world. Official names have been announced for the virus responsible for COVID-19 (earlier identified as "2019 novel coronavirus") and the disease it causes (WHO,2020). Coronavirus and influenza infections might have alike symptoms; however, the novel coronavirus is highly contagious, which means it spreads easily from person to person. Still, so much to be revealed about the disease and its burden on several life aspects. Thus, preparedness, readiness and response actions will need to be built rapidly based on growing scientific and public health knowledge.

As pandemic phase, all countries are responsible to rise their level of preparedness and response to detect, manage and care for new cases of COVID-19. Also, several public health scenarios should be anticipated with planned actions for each, knowing that there is no one-size method to handling outbreaks of COVID-19. Each country supposed to assess its threats and implement the appropriate measures at the correct scale to decrease COVID-19 transmission among public, economic and social harm (WHO Strategy update April, 2020).

On 30 January 2020, World Health Organization (WHO) declared the Covid-19 outbreak a Public Health Emergency of International Concern (PHEIC). Later, on 11 March, WHO Director General announced COVID-19 as a pandemic. As of January 31, 2020, there are more than 101,561,219 confirmed cases and 2,196,944 deaths all over the world from the coronavirus COVID-19 outbreak (WHO,2021). On 7 March, Palestinian (PA) ministry of health (MoH) officially announced the first seven cases in West Bank. Few days later, on 22 March Gaza confirmed its first two cases (OCHA ,2020).

Gaza is no stranger to conflict, because of its chronic crises, the healthcare system in the Gaza Strip is already exhausted, even before stating Covid-19 pandemic. Since 2007, after the internal Palestinian rift, Israel has enforced a crippling land, air, and sea siege over the

Gaza Strip's 2 million Palestinians, 1.4 million of whom are refugees, about 53 per cent of the residents already live under the poverty line (PCBS 2017). Exposing them to extreme hazards in one of the world's most densely populated areas. Currently, all health systems around the world (including developed ones) are suffering, most countries are unable to meet all the population's health needs (medical and mental), at the PHC level, COVID-19 pandemic forced the temporary suspension of outpatient services such as maternal and childcare services in addition to cancellation of elective surgeries at the secondary care level. Hence, an outbreak in Gaza would be disastrous, due to shortage of medication, equipment, health workers and professional training. In spite of low number of cases, WHO has classified the risk of Palestine as very high, owing to inadequate medical resources in the country compared to other countries. The shortage of important resources (Such as: ICU beds and ventilators) significantly increases the mortality rate of COVID-19. However, on the ground, the daily curve of Covid-19 cases is still low in comparison with more developed neighbor countries or even West Bank, which is against all anticipations for a place with very fragile system, this odd emergency case deserves further investigation, as it could be successful new model for emergency response in low-income countries.

1.2 Problem Statement

As Covid-19 is a new virus, we are still learning about it, and global response (including Gaza) is also developing day by day, several measures were applied throughout pandemic stages (such as physical distancing; specifically, lockdown, international travel restriction, increasing hospital/ICU beds, changes in testing strategy, quarantine centers, contact tracing, etc.). However, these measures have not been evaluated, where it went right? Where it went wrong? What are lessons learnt? have not been summarized. This research aims to fill the gap in knowledge on measures or response of health sector against Covid-19 pandemic in Gaza, Palestine. This evaluation has to answer key research questions.

- How much these measures were effective, efficient, and appropriate?
- What measures were not applied, and they should?
- What measures were applied but they shouldn't?

1.3 Justification

Emergencies and crises are very unpredictable. They can knockout communities at any time, causing substantial human suffering and loss of life (Shahram et al.,2017). If national and local systems, mainly health systems, are poor prepared to act with a crisis, the vulnerability on both individuals and community's levels becomes even more prominent. Thus, Countries tend to consider it a national security priority and build emergency response systems to be when detrimental incidents take place. Although the value of those systems in reacting to daily emergencies is easy to realize, measuring how prepared they are to deal with crisis such as pandemic is less common.

In Gaza, people are living chronic local emergencies (Mandousa et al.,2020), unfortunately, in a changing global environment, even being in isolated siege didn't not spare its citizens from the impact of global crises, which makes preparing for and preventing a health crisis is becoming more difficult. The increasing number of weather-related events (floods, storms, extreme temperatures, etc.) and the increasing threat of a human influenza pandemic have highlighted the need for worldwide cooperation in strengthening public health defenses to respond to emerging international crisis.

The significance of this study is manifested through two tiers. First, this study attempts to contribute to literature in providing a deep insight in understanding the strength and weakness in planning for emergency preparedness and response in Gaza. Second, this study may also place a foundation to establish Emergency Evaluation Program.

1.4 Aim of the Study

The main aim of the study is to evaluate the health emergency response against Covid-19 pandemic in Gaza, to better understand existing capacities and pinpoints good practices and weakness areas for future improvement.

1.5 The Objectives and Questions of the Evaluation

COVID-19 Country Preparedness and Response Plan (CPRP) (WHO,2020) outlines the measures to be taken at country level to contain the virus to support the health system's efforts in preparing and responding to the pandemic. The plan is developed around the nine pillars concentrated on the major areas of the public health preparedness and response: (i) Country-level coordination, (ii) Points of entry (iii) Surveillance, rapid-response teams, and case investigation (iv) National laboratories (v) Case management (vi) Risk communication and community engagement, (vii) Infection prevention and control IPC, (viii) Operational support and Logistics, (ix) maintaining essential health services and systems.

a. To assess emergency health response against Covid-19 pandemic in reference to WHO CPRP (COVID-19 Country Preparedness and Response Plan)
b. To identify areas of strength and weakness in emergency health response against Covid-19 in Gaza.
c. To identify areas of differences between healthcare providers in their emergency health response against Covid-19 in Gaza.
d. To generate recommendations for future improvements of emergency health response.

The objectives domains and evaluation questions are listed below in Table (1.1):

Table (1.1): Evaluation questions

	Question
Assessment	• What is the status of Covid-19 emergency response within different healthcare providers in Gaza in reference to WHO CPRP?
Strength/Weakness	• What are the main strength factors in emergency response of Covid-19 in Gaza? • What are the main weakness factors in emergency response of Covid-19 in Gaza?
Recommendations	• How could we better improve emergency health response in the future?

1.6 Context of the study

1.6.1 Strategic Context

An outbreak of coronavirus disease (COVID-19) due to the2019 novel coronavirus (SARS-CoV-2) has been spreading swiftly around the world since December 2019. As of May 14, 2020, the outbreak has resulted in an estimated 4,371,611 cases and 297,682 deaths in 213 countries.

Over the next months, the outbreak is likely to result in more deaths, trivial disturbances in global supply networks, and economic damages in both developed and developing countries. The outbreak is proceeding at a time when most countries are facing ambiguity and policymakers have limited resources to act. The magnitude of impacts of the COVID-19 outbreak will depend on the interval and sites of the outbreak, plus whether there is intensive, reckless response to help developing countries, where health systems are usually fragile. With proper response management for containment measures of the outbreak and effective monitoring & evaluation tools, the number of deaths and the impact of the outbreak could be mitigated. Thus, it is essential for the international community to effort together on the main reasons that are enabling progress of the outbreak, on supporting policy responses, and on strengthening health response capability in developing countries – where health systems are fragile, and therefore populations most susceptible to negative impact.

1.6.2 Country Context

- **Political and economic context of study**

Gaza is a place where politics is part of its daily life, years of socioeconomic deterioration, conflict and siege have left the health sector in the Gaza Strip struggling and lacking enough physical infrastructure and training opportunities. Health facilities are under continuous strain, and service delivery is often interrupted. As a result, these barriers, in addition to Covid-19 pandemic further jeopardy the health of the population, has led to unemployment, poverty and food insecurity. Unemployment rate in Gaza (PCBS 2016) is 26.9% for both sexes; 34.4% for males, 65.2% for females, poverty rate in Gaza (PCBS 2017) is around 53% while deep poverty rate is 33.8 %, also food insecurity means that most residents cannot meet their daily caloric requirements. According to the World Bank and United Nations Environment Program (UNEP) reports, about 90-95% percent of drinking-water in Gaza are

unsuitable for humans as a safe drinking water. As a consequence of the nonstop siege, the health sector is also severely affected: Unstable power supply, in addition to manpower shortage disturb healthcare system. The quality of essential health services shrinks over time, leading to significant gap in having access to quality health care. This bad condition has been worsened by the fast population growth and harm to infrastructure by recurring conflicts, which resulted in high level of poverty and food insecurity (OCHA, 2013). The international economic is striving from COVID-19 and soon will show negative impact on health services in the Gaza, both because of the limited financial resources for backing health supplies and the over-dependence on out-of-pocket expenditures to cover healthcare cost.

1.6.3 Health Context

In the Gaza Strip, there are four main providers for health care, providing primary, secondary, and tertiary health care: MoH, UNRWA, Palestinian Non-Governmental Organizations, and private sector (MoH, 2014). Health services are financed through a mixture of taxes, health insurance premiums, copayments, out of pocket payment, local community financial and in-kind donations. The health care system is fragmented with poor coordination between providers, closure, segregation, restriction of movement prevent access to care (Health Cluster, 2014). Secondary and tertiary care is mainly provided by MoH, because of the very bad socioeconomic conditions, poverty and the extension of free health insurance, the cost has risen significantly, and this increase not matched with the capacity of MoH, causing deterioration of the quality of care. This situation pushes for early discharge and poor handling over and follow up of cases, which make the clients more susceptible to complications and affect their quality of life, especially at the time of emergency (Health Cluster, 2014). On the other hand, there is under use of NGOs and private sector services, which is an indicator of poor coordination between different providers. There is shortage of tertiary care, and it depends mainly on NGO, it is not well organized, many cases are referred abroad with very high cost, increasing the burden on the system. One of the main primary healthcare providers in Gaza Strip is UNRWA, which has been established by United Assembly after 1948 war, the mission of UNRWA is to help the Palestinian Refugees to achieve their full potential in human development pending a solution for their plight (UNRWA Annual Report, 2016). UNRWA provide health care, education, social and emergency services. Regarding health services, it provides primary health care services to the Palestinian refugees in five fields (Gaza, West Bank, Syria, Lebanon, Jordan). In Gaza

Strip, UNRWA has 22 clinics in the five Governorates, Rafah, Khan Younis, North Gaza, Middle Camps and Gaza (UNRWA, 2016). It implemented the family health team approach in the year 2013, so the same doctor treats all family members to enhance the relationship between the doctor and his patients and make the doctors more oriented to all aspects of patient's illness to improve the quality of care provided. In addition, UNRWA adopted the E-health approach at the end of the year 2013 and this had a major impact on the quality of care provided, improved the reporting system and enhanced accountability (UNRWA, 2015). The health care services provided by UNRWA include maternal, children and non-communicable disease services to ensure access to quality health care, protect and promote the health of Palestinian refugees. The health system in Gaza has also been weakened by widespread damage to medical facilities and personnel, and chronic shortages in basic supplies of drugs, disposables, and equipment, so these factors collectively have an impact on Palestinians' health and psychology, especially those have chronic disease such as diabetes (WHO, 2014). In 2016, the number of maternal deaths recorded in Palestine were 18 cases, including 9 in West Bank and 9 in Gaza Strip. Reported maternal mortality rate (MMR) in Palestine in 2016 was13.8 per 100,000 live births; 12.4 per 100,000 live births in West Bank and 15.5 per 100,000 live births in Gaza Strip. Reported infant mortality rate in Palestine in 2016 was 10.5 per 1,000 live births. In 2015, the infant mortality rate was 10.9 per 1,000 live births. Major Causes of death in Palestine in 2016 was cardiovascular diseases, which remains the leading cause of death among Palestinians, accounting for 30.6% of deaths recorded in 2016, cancer was the second leading cause of death, with 14.0% of deaths and cerebrovascular diseases were the third leading cause of death, with 12.8% of causes leading to death (PCBS, 2016)

1.6.4 Quality Context:

The healthcare delivery system in Gaza needs foundational change. Several patients, doctors, nurses, and health care seniors are worried that the care delivered to people is not, really, the care we deserve to receive. Quality improvement (QI) approaches have been applied in many sectors including health to enhance performance and outcomes. This topic reviews fundamental QI theories and their use into public health emergency preparedness. Health care system that often falls short in its ability to translate data into actions and use new technology safely and properly. Throughout the last decade, quite seventy publications in leading peer-reviewed journals have documented critical quality shortcomings. If the health

care system cannot systematically serve today's science and technology, we may estimate that it will be less ready to reply to the future scientific advances which will certainly develop throughout the first half of the 21st era, the health care system with its current structure does not, as a whole, make the best use of its resources. There is little uncertainty that the aging population and raised patient demand for brand new services, technologies, and medicines are contributive to the steady surge in health care expenditures in parallel to medical waste. An extremely fragmented delivery system that mostly lacks even basic clinical data which will lead to poorly designed care processes characterized by unessential duplication of health services with longer waiting times. And there's extensive literatures that document overuse of the many health services (Chassin et al., 1998; Schuster et al., 1998). If we are seeking for safer, higher-quality healthcare, we'll have to redesign healthcare systems, as well as the utilization of data technology to support clinical and organizational processes.

1.7 Operational Definitions

Key terms

An **emergency** is an occurrence or circumstance that poses a major threat to human welfare and the environment of a location, or a conflict or terrorism that poses a serious threat to security and necessitates the adoption of extraordinary arrangements by one or more category responders. Emergency is frequently used interchangeably with disaster, such as in the context of biological and technological risks or health emergencies, but it can also refer to hazardous events that do not cause a significant interruption in a community's or society's functioning (ISDR 2017).

Disaster: A major interruption of a community's or society's functioning that results in extensive human, material, economic, or environmental harm that exceeds the affected community's ability to handle using its own resources. A disaster is a result of the risk management process. It is caused by a mix of hazards, susceptibility, and a lack of capability or actions to mitigate the risk's possible negative repercussions (ISDR 2017). A disaster can be defined in a variety of ways. The definitions of different organizations may differ slightly. Nonetheless, the following are essential elements in all definitions.

Disaster Management: The organization, planning, and implementation of catastrophe preparedness, response, and recovery procedures (ISDR 2017). Disasters do not arise out of nowhere - they can strike at any time and have a life cycle (Disaster management 2018). A number of management phases correspond to this cycle: develop methods to mitigate hazards, plan for and respond to emergencies, and recover from the repercussions. Preventive and preparatory actions that the government can establish and implement in advance of a potential disaster are referred to as prevention/mitigation and preparation. Meanwhile, the terms "response" and "recovery" (which includes "rehabilitation" and "reconstruction") refer to the actions taken in response to a disaster.

Mitigation: refers to the structural and non-structural measures used to mitigate the negative effects of natural disasters, environmental degradation, and technological hazards, as well as to assure at-risk populations' ability to resolve vulnerabilities in order to reduce disaster impact.

Preparedness: is the knowledge and capacities developed by governments, professional response and recovery organizations, communities, and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, or current disasters; it is the ability of governments, professional response and recovery organizations, communities, and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, or current disasters (IASC, 2011).

Response: any coordinated effort by two or more governmental or private agencies to give aid or intervention during or shortly after a disaster to fulfill the life-sustaining and basic subsistence needs of those impacted, as well as to restore critical public activities and facilities.

Recovery: is an endeavor to restore a community's infrastructure as well as its social and economic life to normal, but it should also include mitigation as a goal.

Evaluation: This is a method of learning from experience and applying what you've learned to improve present activities and promote better planning by carefully selecting alternative actions for the future (WHO, 1981).

The Supreme National Emergency Committee: It is a high-level governmental emergency management committee comprised of officials from several ministries and agencies involved in emergency response.

The Higher Committee for Health Emergencies: It is a ministerial body with complete authority to govern the health sector both before and after the event by developing plans and assuring the health sector's readiness for an emergency in Gaza, Palestine. The Minister of Health, or whoever he chooses, is in charge.

The Health Emergency Operations Room: It is a sub-committee of the Higher Committee for Health Emergencies that meets on a regular basis to handle the emergency in accordance with the prepared plan, deal with any developments, supervise the work of the governorate committees, and monitor the Ministry of Health's workflow.

Health Emergencies Subcommittee (Governorate): It is the committee in charge of organizing and supporting the operation of health institutions in the governorate during the

emergency period, as well as supervising the implementation of emergency plans that have been established and referenced in the health emergency room.

National Committee for Ambulance and Health Emergencies: A group chaired by the Ministry of Health that consists of ambulance service providers (Ministry of Health, Palestinian Red Crescent, Military Medical Services, Civil Defense, and the Red Cross) and works to coordinate ambulance and emergency services in Palestine.

Emergency level: It is an estimate of the severity of the event in terms of patients, deaths and geographical location, and it is divided into three levels: the first (a), the second (b), and the third (c), and it determines the actions that must be taken at each level.

The health emergency phase: It is the duration of the emergency situation and is divided into four phases: the first (0-72 hours), the second (4-7 days), the third (1-4 weeks) and the fourth (more than 4 weeks).

Emergency: A sudden or anticipated event that necessitates rapid action to mitigate its impact and repercussions.

Disaster: A serious disruption in the community's functions that results in significant human, material, or environmental losses that surpass the capability of the affected community if it is reliant on its own internal resources.

NGOs institutions: They are official non-governmental health institutions that provide direct or indirect health services to suit the community's requirements.

Isolation is a method of keeping a person infected with SARS-CoV-2 away from persons who are not sick in order to prevent the disease from spreading. Individuals who have been diagnosed with COVID-19 or who have symptoms of COVID-19 must self-isolate for at least 10 days from the onset of their symptoms or, if they never acquired symptoms, from the day their positive test was collected if they never developed symptoms.

Quarantine to slow the transmission of the disease, close contacts (those who have been within six feet of someone who has been diagnosed with COVID-19 for a cumulative total of >15 minutes over a 24-hour period) are kept away from others who have not been exposed. Individuals who have been exposed to COVID-19 can get infected at any moment within 14 days of their last exposure, regardless of whether the case was symptomatic or not.

Chapter Two

Conceptual Framework and Literature Review

2.1 Conceptual Framework

A conceptual framework is a tool used by researchers to direct their research. It enables researchers to establish links and relationships between existing literature and their own research aims and objectives (Miles and Huberman, 1994). It explains the primary factors and domains to be examined, as well as the hypothesized link between them, either visually or narratively. Structure, process, and outcome are the key three characteristics that can be used to assess quality, according to the Donabedian paradigm. (Donabedian, 1980).

The COVID 19 Evaluation Framework covers the primary areas of public health preparedness and response as defined in the COVID 19 SPRP: Operational Planning Guidelines to Support Country Preparedness and Response (WHO COVID-19: Critical Preparedness, Readiness, and Response, 2020). See (Figure 2.1)

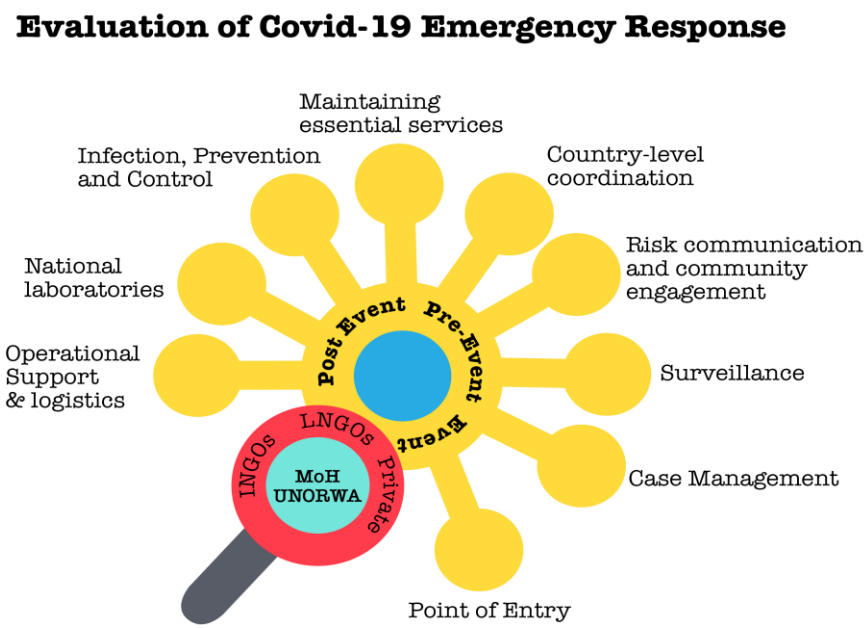

Figure (2.1): Self-Designed Conceptual framework of emergency response for Covid-19 in Gaza

(Source: Derived from WHO SPRP,2020)

Process of public health emergency preparedness and response (PHEP) follow below WHO pillars/areas.

1. **Country-level coordination**: Pillar one ensures coherence and operational alignment across all pillars of the response at the national and subnational levels and serves as the foundation for ongoing decision-making and track correction based on public health intelligence provided by a comprehensive monitoring system. To inform, monitor, and assess national actions, a multisector, whole-of-government coordination structure and knowledge hub that brings together essential stakeholders and information is necessary at the country level.
2. **Risk communication and community engagement**: Risk communication and community engagement are critical components of successful health-emergency responses. The research is clear: communities play a role in preventing and controlling epidemics, and communities must be heard in order to address demand-side barriers to health-care utilization and to guide efforts to attenuate COVID-19 control programs' socioeconomic impact.
3. **Surveillance:** The backbones of the COVID-19 response and the public health capacities to detect, isolate, and treat cases, track and quarantine contacts, and execute and alter public health and social measures are the keys to suppressing transmission until vaccinations are widely and equitably available.
4. **Case Management**: The clinical characterization of COVID-19 continues to evolve. Of those infected that become symptomatic, about 80% of patients have mild or moderate disease, while approximately 15% of patients with COVID-19 develop severe disease that requires oxygen support, and 5% have critical disease with complications such as respiratory failure, acute respiratory distress syndrome, sepsis and septic shock, thromboembolism, and/or multi-organ failure. Effective case management needs to emphasize the importance of saving lives in those that are at risk for death and those with severe or critical disease; and also to ensure quality of life in all patients, regardless of disease severity
5. **Point of Entry**: Advice to travelers, including self-monitoring of signs and symptoms; surveillance and case management at the point of entry and across borders; capacities and procedures for international contact tracing; and environmental controls and public health and social measures at points of entry are all risk mitigation measures that should always be in place.

6. **Operational Support& logistics**: Every pillar of the public health response, from surge personnel deployments to the acquisition, safe storage, and distribution of accurately specified needed supplies, as well as employee compensation, is underpinned by national logistical and operational capacities.
7. **National laboratories**: Strategic diagnostic laboratory testing is one of the cornerstones of the management of the COVID-19 pandemic. Testing is critical to detect cases and investigate clusters of cases so that public health actions can rapidly be taken to isolate those infected, quarantine contacts and break chains of transmission.
8. **Infection, Prevention and Control**: Infection prevention and control (IPC) measures are among the most effective tools available to contain the spread of SARS-CoV-2, both in health facilities and in the community.
9. **Maintaining essential services**: COVID-19 has posed a challenge to all countries and health systems in terms of caring for COVID-19 patients while also adapting to ensure the safe delivery of key health services for all illnesses. Complicating matters, the virus's response has frequently resulted in supply chain interruptions, shortages of personal protective equipment (PPE), reduced staffing, and reduced capacity at health care institutions, as well as challenges to health sector budgets and overarching health system governance.

Recently, additional pillars were added:

10. **COVID-19 vaccination**: COVID-19 vaccinations that are both safe and effective are now available, and if provided fairly, they will be strong tools in the global battle to prevent the pandemic. Almost every country, agency, industry, and community in the globe considers their availability, accessibility, and deployment to be top health, social, economic, and political objectives.
11. Vulnerable and marginalized populations
12. National legislation and financing
13. **Public health and social measures**: Public health and social measures for COVID-19 in these settings need to be balanced against other risks affecting communities, such as lack of income, access to basic services and social nets, and food insecurity

2.2 Literature Review

2.2.1 Types of Evaluation:

2.2.1.1 Formative Evaluation

This form of evaluation is usually done to determine the strengths and shortcomings of a program with the goal of enhancing its quality and effectiveness. It assures the program's suitability and viability, as well as acceptance, before it is fully implemented. 2012, CDC (Centers for Disease Control and Prevention).

2.2.1.2 Summative Evaluation

It happens during the project's implementation, but it's usually done at the end; and it's sometimes suggested for both quantitative and qualitative approaches to get good results. It's critical to distinguish between the outcome and the production. This form of assessment is carried out at the conclusion of any program in order to improve future program implementation and to assist decision-makers in determining whether the program should be continued (Fitzpatrick et al., 2011).

2.2.1.3 Process Evaluation

Process evaluation can be done both during and after program implementation to determine the output results. It is beneficial to conduct process evaluations at regular intervals during the development and implementation of a program, as the results can assist in improving and strengthening the program's ability, as well as monitoring how the program is working and obtaining any warnings for potential problems (CDC, 1999).

In the aftermath of many emerging infectious disease (EID) outbreaks, there has been a demand for strong and resilient health systems. The 2009 influenza A(H1N1) pandemic, the 2013–2016 Ebola epidemic in West Africa, and, most recently, the 2015–16 Zika epidemics in Latin America and Southeast Asia, all demonstrate how nations with weak health systems struggle to cope with large-scale health system shocks (Boozary, Farmer, & Jha, 2014; Castro, 2016; Purohit et al., 2018). EIDs pose a substantial risk to public health and health security around the world in our increasingly mobile culture. Everyday cross-border travel, workforce mobility, and tourism exacerbate their threat of rapid geographic spread. This

review reflects on what the literature to date has taught us about how health systems of low- and middle-income countries (LMICs) respond to emerging infectious disease (EID) outbreaks.

2.2.2 Emergency Preparedness and Planning

is described as "activities made in advance of an emergency to aid in a prompt, effective, and appropriate response to the crisis." Not only infectious diseases, but all incident categories linked to emergency probability, response, and recovery were included in the definition. The level of preparation of a community is determined by its capacities (available resources) and capabilities (actions taken to successfully recognize, characterize, and respond to emergencies) (CDC,2019). It's difficult to tell whether an occurrence is a 'emergency' (a part of daily life), a 'disaster' (a community's capacity to respond to an incident is broken), or a 'catastrophe' (regional impact and outside aid is slow to reach). Because these words are not mutually exclusive and because such incidents are known to occur in a continuum (Moore,2007), you can distinguish between them based on the severity of the incident for the community in question. However, in the literature, both concepts are used interchangeably to refer to all types of emergencies. As a result, in this review, the three terms will be utilized as defined in the literature.

In recent decades, the frequency of outbreaks and the range of infections have both expanded dramatically. Emerging and reemerging illnesses are becoming a greater threat to the world as a result of globalization, urbanization, the rapid growth and mobility of the global population, and the speed of travel. Within hours, any communicable disease can spread to any corner of the globe. Infectious illness outbreaks have enormous socioeconomic consequences (Walter et al, 2016), making them a high priority on the legislative agenda.

An outbreak's consequences can be measured in terms of illness, death, fear and anxiety, time away from work, direct and indirect expenditures, and changes in healthcare organization (Medhav,2017). Preparedness and reaction are critical at all levels, from local healthcare providers to global policymakers, as outbreaks pose a threat to the entire healthcare system and even society as a whole.

Several projects to improve readiness and response have been supported in the recent decade (MacDonald,2010). To achieve high-quality preparedness, well-defined quality measures

describing ideal preparedness are required. Measures of preparedness should take into account both capacity and capabilities. Such indicators should be turned into a useful collection of quality indicators for assessing present practice and progress toward pre-determined goals. We need agreed-upon readiness and response measures to see if current and previous efforts have enhanced epidemic response or made it more difficult to ensure accountability and prioritize future investments. As a result, readiness and response should be part of a long-term quality improvement strategy (Phillips,2008).

Setting aims (Tylor, 2014), defining performance, gathering performance data, altering processes, analyzing the effects of change, and using feedback to guide and set up the next measurement cycle are all part of the PLAN-DO-STUDY-ACT cycle. This methodical technique results in a continuous improvement cycle.

Despite the fact that various preparedness measures have been developed and executed, many of them are insufficient, inconsistent, and partially contradictory (Granberg,2013). Furthermore, there is extremely minimal proof of their usefulness (Kleespies,2000). This absence of defined and agreed-upon metrics makes it difficult for healthcare personnel, facilities, and officials to navigate a tangle of rules and beliefs about what constitutes good preparation. According to studies, defining essential preparedness capacities and capabilities that can be used to benchmark and improve preparedness is a good idea (Tang,2015). Previous evaluations sought to summarize the preparedness literature and establish evidence 1 of preparedness efficacy, but they did not specify generic critical characteristics for good practice.

A well-practiced emergency response plan developed as part of the planning process allows for efficient resource coordination. Actions taken immediately before, during, and after a hazard impact are intended to save lives, reduce economic losses, and alleviate suffering. The mobilization of relevant emergency services and first responders in the disaster region is part of the reaction phase (*Link,2012*). An initial wave of key emergency services, such as firefighters, police, and ambulance staff, is expected to be dispatched.

The phase of the disaster-management cycle that receives the most attention and resources is emergency response (*WHO,2015*). Environmental health services may have a significant impact on the health and well-being of affected communities during this era. However, the initial response's impact is mostly a test of previously planned local and national

preparedness and mitigation measures (*WHO,2015*). Furthermore, the way the emergency response is organized and managed will have a considerable impact on post-disaster recovery and future development potential. As a result, the emergency response phase should be seen as a vital component of the disaster management process. Emergency response can be a cyclical process that involves frequent assessment, planning, action, and review in order to respond properly to changing needs and capacity. It begins with an initial assessment and may be initiated by a disastrous occurring on its own.

2.2.2.1 Overall Palestinian Healthcare System

Background

The Ministry of Health, the United Nations Relief and Works Agency (UNRWA), non-governmental organizations (NGOs), and private for-profit companies are the four major health service providers in Palestine. The Ministry of Health offers primary, secondary, and certain tertiary health care, as well as purchasing tertiary services from both domestic and international private providers. The Ministry of Health is responsible for administering and overseeing the immunization program, public health initiatives, and the licensing and registration of private clinics and non-public health institutions (*WHO,2012*). Apart from out-of-pocket health financing, which is the first source of health funding in Palestine, health care financing is mostly provided by the Ministry of Health. Aside from the Ministry of Health, there are just a few other public health providers, namely the Military Health Services. In addition to the poor and vulnerable populations that are financially covered by the Ministry of Social Welfare, there is a Governmental Health Insurance Scheme that covers civil service employees, voluntary persons, and groups. There are some private insurance activities, however they only cover a small percentage of the population (3 %). Since 1995, there has been no change in the interrelationships between the Ministry of Health and other health service providers in Palestine.

2.2.2.2 Palestine Emergency Response Plan

The COVID-19 Response Plan for the Occupied Palestinian Territory (oPt) lays out the humanitarian community's joint strategy, which includes UNRWA, for responding to the pandemic's public health needs and immediate humanitarian consequences in the West Bank, including East Jerusalem, and the Gaza Strip. It is led by the Health Cluster's Strategic Preparedness and Response Plan, which was published on March 14, 2020, and is intended

to guide a coordinated effort in support of the Ministry of Health (MoH) and the Government of Palestine's overall operations. See **Annex 1.**

In this way, it will serve as a vital link between the mostly partner-driven Health Cluster response and the broader socio-economic recovery strategy in Palestine, which will be aided by the World Bank and others. Over the next three months, this plan aims to mobilize support for the most urgent and vital initiatives (*MoH,2020*). The plan's main focus is still on preventing, preparing for, and treating the Novel Coronavirus (COVID-19) epidemic.

The following overall objectives are at the heart of the strategy. (Covid-19 reaction strategy for occupied Palestinian territory):

1. To stop COVID-19 from spreading further in Palestine.
2. To offer proper care for COVID-19 patients, as well as support for their families and close contacts; and
3. To lessen the pandemic's worst effects.

2.2.2.3 Actors in the Palestinian health sector

The Palestinian health sector consists of four primary suppliers of health services: The Ministry of Health (Including Military Medical Services), the United Nations Relief and Works Agency for Palestine Refugees (UNRWA), the civil sector (Non-Governmental Organizations), and the private sector. There are three types of health care: primary, secondary, and tertiary. (*Giacaman et al.,2003*)

2.2.2.4 Gaza Covid-19 Emergency Health Response Overview

The Ministry of Health is the Gaza Strip's main emergency health care provider . Other emergency health care providers in the GS include UNRWA, NGOs, and the private sector. Basic, secondary, and tertiary education are all provided by the Ministry of Health (MoH). Both the mother and the child are given free services.

When the covid-19 pandemic was declared, a multi-sectoral response was undertaken, with a focus on ethical program delivery and life-saving support (*OCHA,2020*). All linked measures are aimed at aiding the Palestinian authorities in their efforts, which are led by the Ministry of Health (MoH). All resources were mobilized to help the Ministry of Health

detect and respond to the epidemic early and prevent it from spreading further. MHPSS (mental health and psychosocial support) activities are an important part of these treatments. Efforts have also been made to coordinate and streamline the actions of a variety of partners with the authorities.

The following are examples of emergency response:

- Healthcare services were provided based on the phased approach according to the epidemiological situation, health services were shifted gradually from Phase to another.
- Early triage mechanisms have been established in all important basic healthcare centers
- The COVID-19 Home Medicines Service is available for people in home isolation and for vulnerable patient groups (Such as NCD patients) who wish to limit their potential exposure to novel coronavirus (COVID-19) in the community.
- Telemedicine service was established during Covid-19 pandemic to reduce potential disease spread and prevent overloading of the healthcare system through at-home COVID-19 screening, diagnosis, and monitoring.
- COVID-19 Vaccine promotion continued by the health centers for both the community and the staff members.
- With the aid of WHO, the Ministry of Health established rapid response teams in each governorate, and contact tracing is underway.

Despite these efforts, one study mentioned that there is little collaboration and inter-agency task forces in preparedness and response was observed against Covid-19 pandemic (*Alkhaldi et al.,2020*), and the mechanisms and governance remain ambiguous. Thus, better governance and leadership are critical in diseases that threaten public health, such as the COVID-19 (*Abuzerr et al.,2021*).

- Phases of Emergency Management:

According to emergency health plan developed by ministry of health, disasters are viewed by emergency managers as recurring events with three stages: pre-event, response, and recovery. Each stage has its own set of activities to participate in. Please see the list below (Figure 2.2)

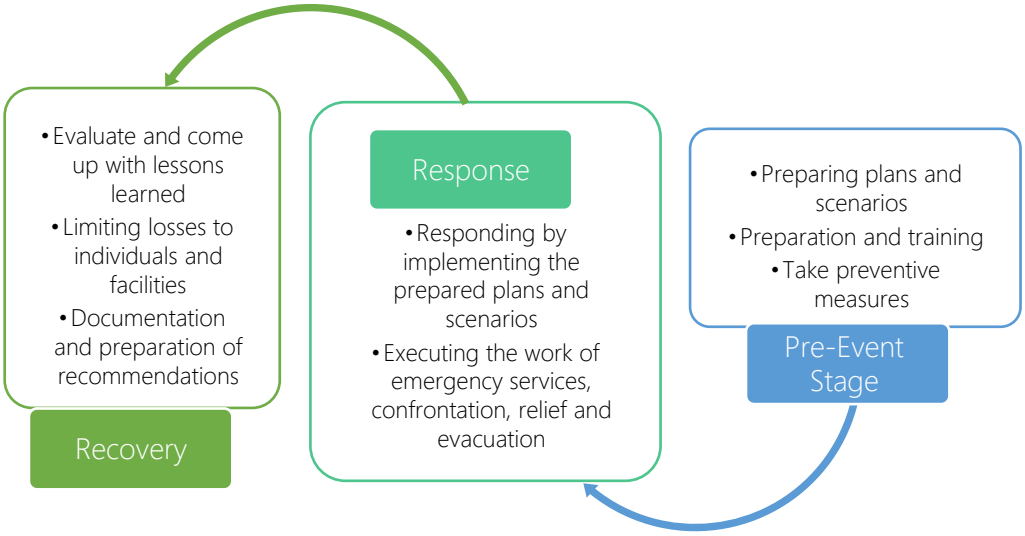

Figure (2.2): Phases of Emergency Management

(Source: Emergency Health Plan – Ministry of Health-Gaza 2018-2019)

-Levels of leadership for Emergency Management in the Gaza Strip:

Leadership, specifically health leadership, is an unquantifiable capability that has the ability to affect every element of a person's professional life and its problems and is most apparent in times of crisis. Health leadership is gaining traction, particularly when it comes to discussing what to do in stressful or emergency situations. See (Figure2.3).

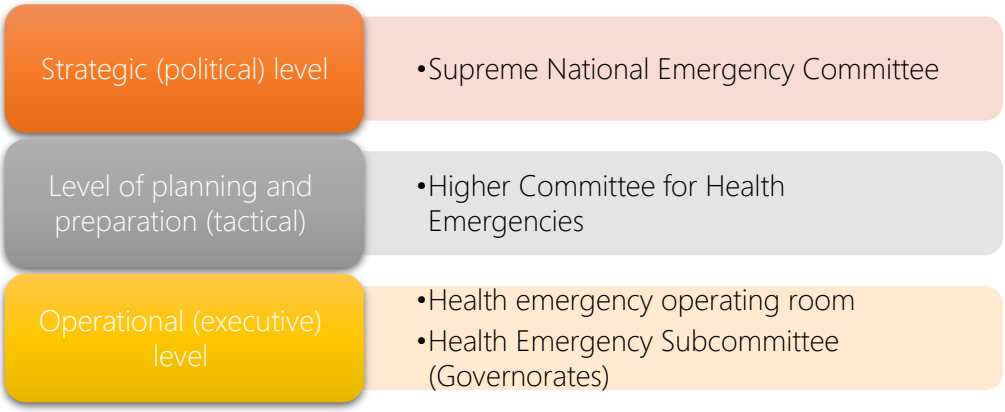

Figure (2.3): Levels of leadership for Emergency Management in the Gaza Strip:

(Source: Emergency Health Plan – Ministry of Health-Gaza 2018-2019)

2.2.2.5 Timeline of the Covid-19 Disease Infections in Gaza

Jan 2020 :

- At Prime Minister Council: Formation of National Supreme Committee to combat covid-19 pandemic in Gaza headed by general secretariat and membership of undersecretary of Ministry of Health, undersecretary of Ministry of Interior, Ministry of education, Ministry of Social Affairs.
- At Ministry of Health level: Formation of emergency health cell headed by undersecretary and membership of the Board Directors in addition to the manager of IPC unit, preventive medicine unit, and Hospital unit.
- Establishing the first quarantine center for 60 returnees from China at Rafah cross border

February 2020:

- Formation of sub-committees in cooperation with NGOs
- Starting building field hospital with capacity of 30 beds including 6 intensive care beds near Rafah cross border

March 2020:

- Decision to quarantine all travelers who cross borders to enter Gaza.

- In Mid-March the decision had become effective.
- Initially schools were used as quarantine centers.
- In 21 March, the first two Covid-19 cases were discovered coming back from Egypt crossing Rafah border at 9:00 PM
- On 22 March and at 1 AM, the event was announced officially to public and the two cases were transferred to Rafah field hospital
- Below public health measures were adopted:
    - Measuring temperature: for every traveler once crossing Palestinian borders, if suspected, he/she will be isolated and do PCR test if positive, to be referred to isolation hospital, of negative to be referred to quarantine center. If not suspected, to be referred to quarantine center.

July 2020:

- Isolation of positive cases was shifted to Turkey hospital due to overload

August 2020:

- On 24 August, the first community transmission Covid-19 cases were identified in Gaza.
- Below measures were implemented:
    - Lockdown for 48 hours in all Gaza areas.
    - Closure of mosques, schools, halls.
    - No movements between governorates.
    - Evacuation of European hospital to manage Covid-19 Cases.
- On 26 August, the first Covid-19 death was documented in Gaza.

November 2020:

- Due to overload on quarantine centers, home quarantine was initiated on 12 November.
- PCR was limited mainly to contacts and suspect Covid-19 cases.
- First Covid-19 wave started on 21 November and ended on 22 January 2021.

February 2021:

- On 22 February, Ministry of Health announced starting Covid-19 vaccination with priority given to health workers, elderlies and chronic disease patients.

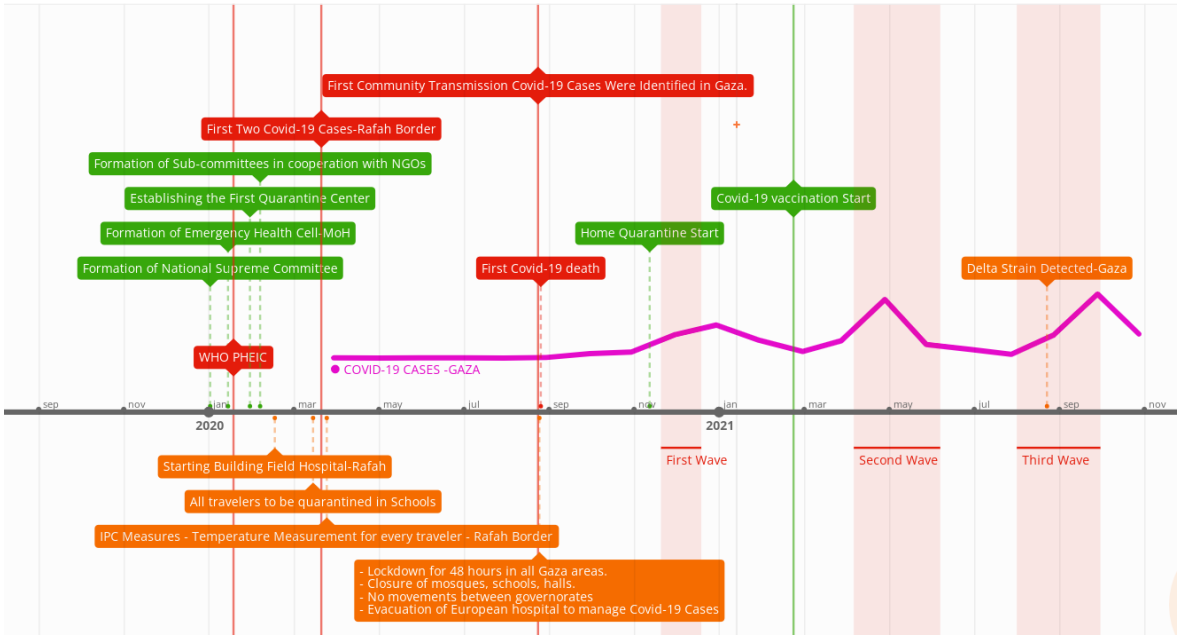

Figure (2.4): Timeline CIVID-19 Pandemic Events

2.2.3 Surveillance and Case Management

2.2.3.1 Covid-19 Pandemic Country Profile

The global COVID-19 emergency struck the occupied Palestinian region in early March 2020, when the first confirmed cases having the virus were detected. This activated the declaration of a state of emergency by the Palestinian Prime Minister and the imposition of several measures to control the spread. The humanitarian world is backing the authorities in handling the crisis. Currently COVID-19 infections are falling in Palestine, with average of 595 new infections reported every day. (About 24% of the peak — the maximum daily average reported on April 9). Active cases of COVID-19 are continuing to slightly decrease across the Palestine, and Gaza Governorate still has the majority of cases. Further cases of the infectious Delta strain are emerging. *See Table (2.1).* Several reports are informing that West Bank is living in the fourth wave of COVID-19. The chart below is showing the daily confirmed cases, its estimated that Palestine is living nowadays the fourth wave began on the mid-August 2021.See below (Figure 2.4).

Table (2.1): Epidemiological Situation (until 16.10.2021)

Summary of the Epidemiological Situation in Palestine	
Population	4,917,149
Covid-19 Cases	447,882
Recovery Cases	430,940
Deaths	4,576
Active Cases	4,846

(Source: Ministry of Health – Palestine)

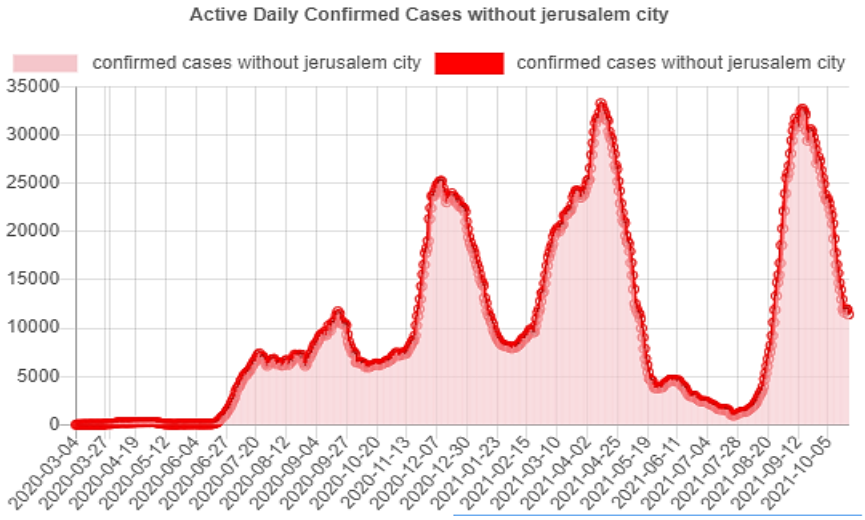

Figure (2.5): Active Daily Confirmed Cases

(*Source: MoH- Palestine 2021*)

Below chart (Figure 2.5) is illustrating the cumulative number of confirmed deaths per million people in different middle east countries (including Palestine), Palestine has one of highest reported rate of Covid-19 deaths (per million people) in Middle East, although the number of confirmed Covid-19 deaths may not be exact count of true number of the deaths due to limited testing and challenges in determining of the cause of death.

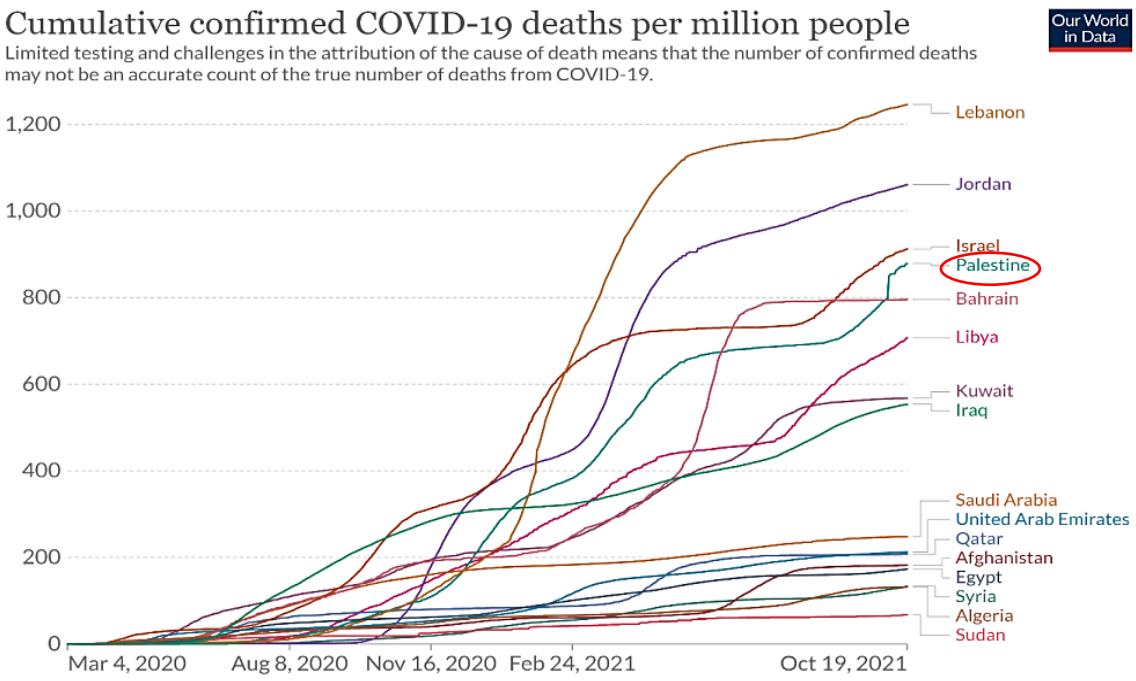

Figure (2.6): Cumulative Confirmed Covid-19 Deaths per Million People

(Source: John Hopkins University)

2.2.3.2 Covid-19 Pandemic Gaza Profile

Although has a slightly lower population size than WB, Gaza has higher Covid-19 rates. Below table (*MoH report,2021*) provides a recent epidemiological summary of COVID-19 activity in Gaza & WB till 18.10.2021. *See Table (2.2)*

Table (2.2): Covid-19 Pandemic Gaza Profile

Summary of the Epidemiological Situation in Gaza Strip	
Population	2,106,745
Confirmed Cases	179,437
Recovery Cases	167,343
Deaths	1,500
Active Cases	10,594
The number of cases per 1,000 people	85.17
Number of active cases per 1,000 population	5.03
Deaths per 1,000 cases	8.36

(Source: Ministry of Health – Palestine)

1. Covid-19 confirmed Cases is about 86 (Per 1000 population) in Gaza, while it is slightly lower in WB, about 80 (Per 1000 population).
2. Among confirmed cases, 0.93 are active in WB, while its much higher in Gaza about 5.4%
3. Covid-19 death cases percentage in Gaza and WB are 0.83% and 1.19% respectively.

While Gaza has much worse indicators and prognosis than WB about confirmed cases and their outcome, there is variation in distribution of Covid-19 tests which may lead to limited testing capacity in comparison with WB. Gaza is able to test 379 (per 1000 Pop), while in WB, it's almost double the value, about 630 (Per 1,000 Pop.). *See below Table (2.3)*

Table (2.3): Comparison between Gaza and WB on outcomes of Covid-19 Cases

	Population	Covid-19 Tests (Per 1,000 Pop.)	Covid-19 Cases (Per 1,000 Pop.)	Covid-19 Outcome		
				% Recovered Cases	% Active Cases	% Death Cases
Total	4,917,149	2,570,995	406,029	389,977	11,844	4,208
Gaza	43% (2,106,745)	379 (798,620)	85 (179,636)	93.7% (168,394)	5.4% (9736)	0.83% (1506)
WB	57% (2,810,404)	630 (1,772,375)	80 (226,393)	97.8% (221,583)	0.93% (2108)	1.19% (2702)

(Source: Ministry of Health – Palestine)

Gaza is experiencing its third wave (Although West Bank is now experiencing the fourth wave of the COVID-19 pandemic). On 23 August, local authorities confirmed the presence of the COVID-19 Delta variant in Gaza, a dangerous and the most transmissible SARS-CoV-2 virus to date. This Covid-19 strains resulted in higher confirmed cases, about 50653 (higher than 1st and 2nd wave) but severe 240, critical 72 and deaths 300 cases notably decreased from previous waves. See *Table (2.4)*

Table (2.4): Covid-19 Waves Summary in Gaza

	First Wave	Second Wave	Third Wave
Incidence	25%	33%	30%
Start	21/11/2020	15/03/2021	22/08/2021
Peak	19/12/2020	20/04/2021	20/09/2021
Stability	14/12/2020 - 20/12/2020	14/04/2021 - 20/04/2021	15/09/2021- 20/09/2021
End	24/01/2020	1/6/2021	25/10/2021
Cases	10737	35389	50653
Admissions	476	425	400
Critical Cases	43	48	44
Severe Cases	190	249	240
Deaths	403	452	300

(Source: Ministry of Health – Gaza)

2.2.3.3 Outcome Covid-19 Cases

Among all detected Covid-19 cases in Gaza (179,636): 94% of the cases recovered, 5% are active cases, and about 1% died due to Covid-19. See (Figure 2.7).

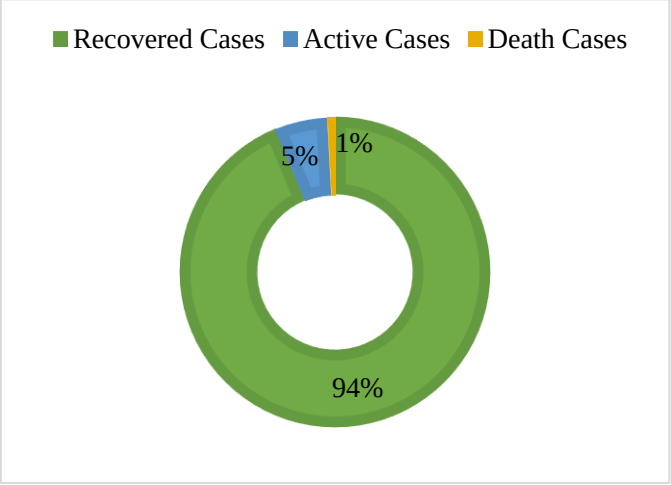

Figure (2.7): Outcome of Covid-19 Cases – Gaza

(till October 2021)

As depicted from below *Table (2.5)* , there are multiple transmission routes through which people may become infected with Covid-19 virus .Community transmission is the leading route for Covid-19 transmission in Palestine (and obviously in Gaza) , and considering the chronic blockage under which Gaza is living for years (No workers inside 1948 ,No tourism , limited passage at point of entry) This unique situation may explained the delay of Covid-19 transmission to Gaza (First community transmission cases were reported on 24 August 2020).Due to its exceptional condition of nearly total isolation as a result of almost 15-year siege , Gaza's ability to fight COVID-19 pandemic is not like any other area in the world. Besieged by Israel to the north and east, Egypt from the south, and the Mediterranean Sea in the west, Gaza has two port entries: The Rafah Crossing, controlled by Egypt and has very limited passengers flow, and the Erez Crossing, tightly directed by the movement of individuals is essential to controlling the spread of the infection. Hence, Gaza did not see its first cases until late of March 2020, recognized in two men coming to Gaza from Pakistan who were quickly isolated in Rafah hospital.

Table (2.5): Distribution of confirmed cases by transmission route in Palestine

Classifications of Confirmed Cases	No. of registered cases	Percentage %
Total	417528	100%
Workers	169	0.04%
Contacts with workers	261	0.06%
Detect at Point of Entry	72	0.02%
Contacts with Palestinians inside occupied 1948	58	0.01%
Travelers	901	0.22%
Contacts with Travelers	12	0%
Community Transmission	385791	92.40%
Contacts with the tourist (delegation)	40	0.01%
Health care staff	6135	1.47%
Contacts with health care team(staff)	8	0%
Freed Prisoners	8	0%
Other	24073	5.77%

(Source: Ministry of Health – Palestine)

-COVID-19 Hospitalizations (Detailed):

Below chart provides data on hospitalizations and severity classifications of covid-19 cases admitted to hospital. A rise in the number of patients with COVID-19 could overburden hospitals, also this number is also a valid indicator for epidemic growth. As seen below hospital admissions can reflect any change in epidemiological situation. For example, all types of admission (Moderate, Severe or Critical Cases) were increasing during 1st and 2nd waves in Dec.2020 and Apr.2021.While moderate cases in 1st and 2nd waves were almost the same, severe cases increased significantly in 2nd (above 1200) wave compared to the 1st wave (800 cases). See *(Figure 2.8)*

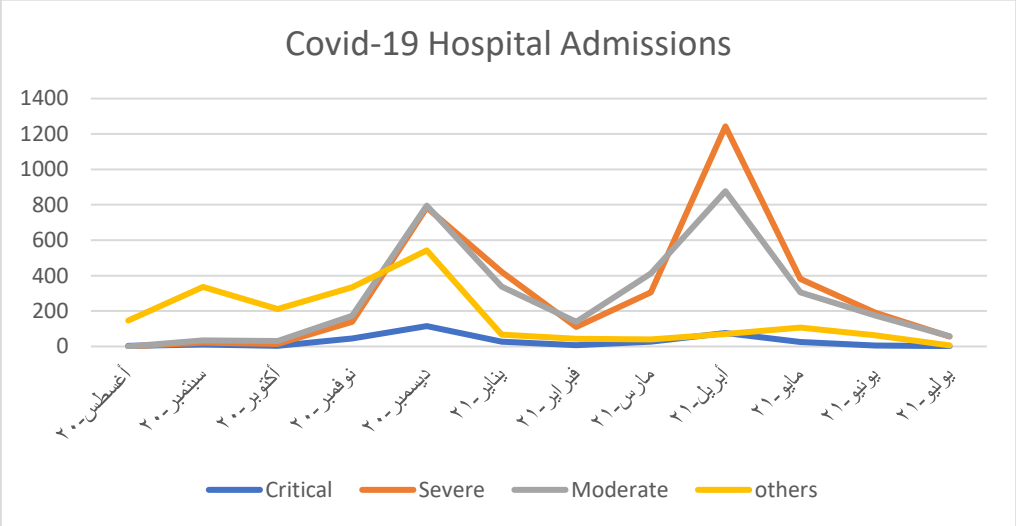

Figure (2.8): Covid-19 Hospital Admissions

Covid-19 Deaths (Detailed):

These days Gaza is living the 3rd wave, the peak of 1st and 2nd wave has significant number of deaths in Dec.2020 (246) and in Apr.2021 (281) simultaneously, the peak of 3rd wave was in Sept.2021 and has a smaller number of deaths; about 241.this decrease could be related to vaccines introduction. *See (Figure 2.9),* although key informant from MoH argued*; "According to a WHO analysis, mortality in the Gaza Strip unrelated to the Covid 19 epidemic increased by only 1% in 2020 compared to the years before the outbreak. ".*

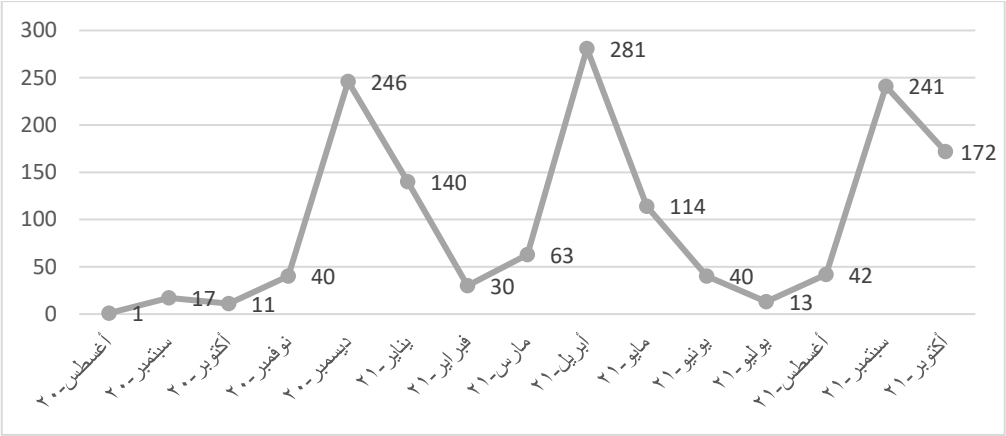

Figure (2.9): Covid-19 Deaths - Gaza

Below chart (Figure 2.10) shows the deaths per age groups, it's obvious that the death possibility is increasing significantly by getting older, especially >60 years old, and this could be linked to having pre-existing medical conditions such as: Cardiovascular disease, Diabetes, Chronic respiratory disease, Hypertension or Cancer. As of July 2021, the highest number of deaths due to the coronavirus in Gaza was among individuals aged 70 to 79 years old.

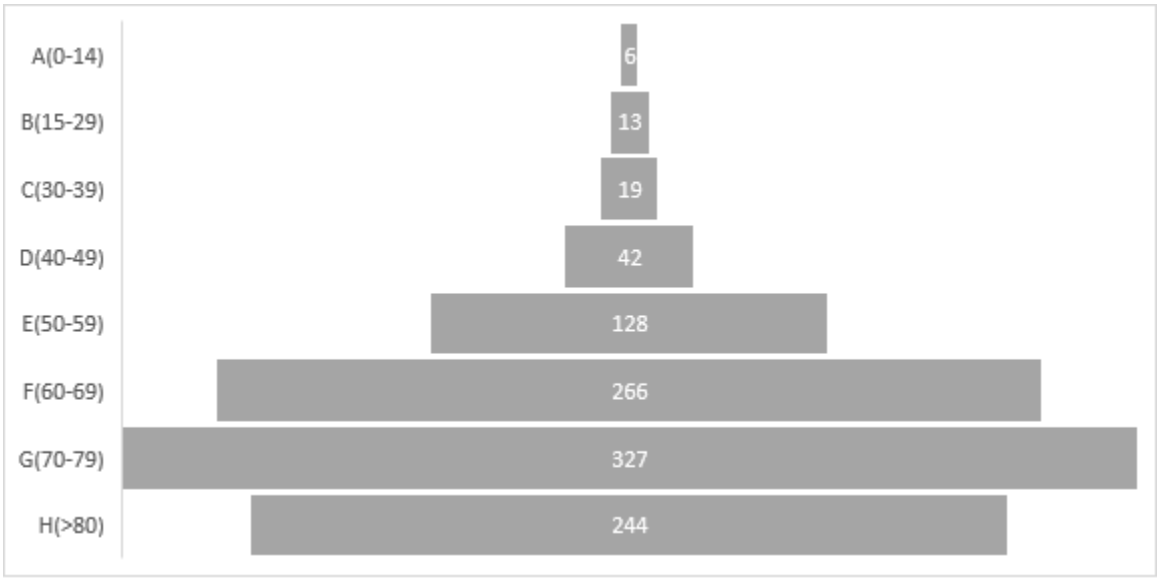

Figure (2.10): Covid-19 Deaths per Age Group-Gaza

Also, the deaths were segregated according to gender (Figure 2.11), being male alone increased the possibility of dying if infected with Covid-19 virus by about 22%, as below pie chart shows; 61% of all deaths in Gaza are males, while only 39% are females.

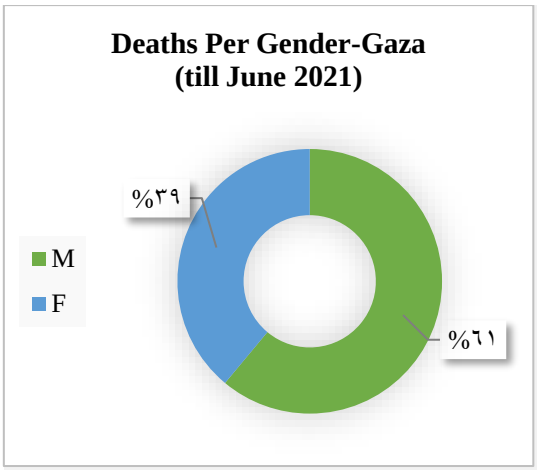

Figure (2.11): Deaths Per Gender-Gaza

2.2.4 COVID-19 Vaccinations

Primary COVID-19 prevention is critical in all countries, but particularly so in the occupied Palestinian area, which includes the West Bank and Gaza Strip, due to its limited capacity to deal with a surge of clinical cases. Since 2007, Israel has imposed a more severe blockage on the Gaza Strip, resulting in a shortage of medical supplies and clinical capability (*Lancet ,2021).* Months after the Covid-19 vaccine became broadly available, the number of vaccinated Palestinians had stagnated. The doses' late arrival — combined with anti-vaccine conspiracy theories — was keeping people interest of getting vaccine low. Although infection rates in Gaza remain high, vaccination uptake is still sluggish amid the area's two million residents. One study stated that there is reluctance of many, including medical staff to be vaccinated remains a key concern (*Devi, 2021*)

COVAX is a global institution representing partnership between the World Health Organization (WHO), Gavi - the Vaccine Alliance, United Nation's Children Fund (UNICEF) and the Coalition for Epidemic Preparedness Innovations (CEPI) working on the fair dissemination of COVID-19 vaccines supplied through UNICEF. It includes 190 countries with a total population of more than 7 billion people. WHO and UNICEF are supporting the Government of Palestine's national vaccination campaign? The international COVAX scheme, backed by the WHO, supposed to cover up to 20% of vaccine demand for the Palestinians. The Palestinians have obtained some limited quantities of vaccines from somewhere else. A delivery of 10,000 doses of Russian-made vaccine has arrived, 2,000 of which have been sent on to Gaza. Gaza has also received 20,000 Russian vaccine doses contributed by the UAE. (*OCHA, 2021*)

Bringing vaccines to Gaza has a logistic challenge due to restrictions imposed on the area, which has been under siege by Israel and Egypt since the militant Islamist movement Hamas took charge of Gaza in 2007.

- **Vaccination Strategies**:

To increase the existing capacity and use the available staff efficiently, the MoH defined a three-phase approach for vaccination expansion strategy where: *See Below (Figure 2.12)*

- 1st implementation phase – "focused approach" will be dedicated to vaccination of the front-line health service providers, including in UNRWA health facilities
- 2nd implementation phase – "First Extension Phase" – will be devoted to immunization of the second priority group, which will consist of health service providers not included in the target group of the first phase, immunocompromised individuals, police and security staff, schoolteachers and staff and 60+ age group individuals, including in UNRWA facilities and Palestine refugees.
- 3rd implementation phase – "Full Extension Phase" – will be devoted to the vaccination of target population groups that have not been targeted during the first two phases of immunization, such as refugees which compose around 40 % from Palestinian population, 40-60 years old age groups, entire population, depending on the epidemiology of COVID-19, including those who are UNRWA refugees (***MoH,2021***).

Figure 1: COVID-19 Vaccination Phases and Target Groups

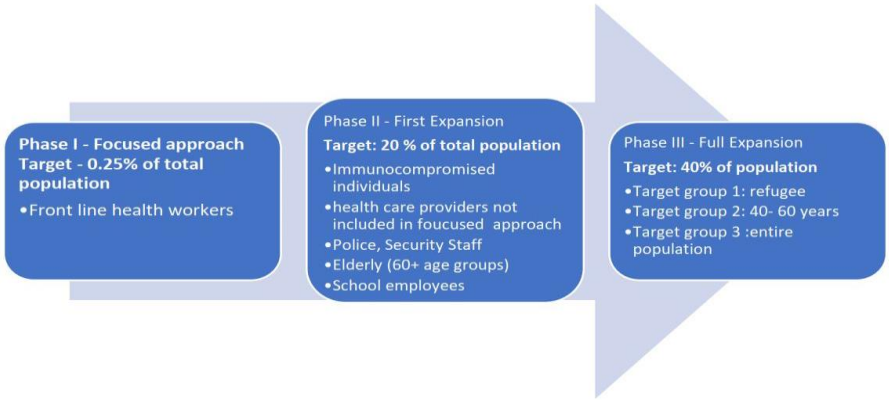

Figure (2.12): Covid-19 Vaccination Phases & target Groups

(Source: National Deployment and Vaccination Plan (NDVP) -Palestine 2021)

Below *Table (2.6)* shows vaccines allocation to Gaza (till 15 Sept. 2021), Pfizer vaccine represent the highest allocation (37%), then Moderna (24%), while the least allocation is for Sputnik.

Table (2.6): Vaccination Allocation in Gaza

VACCINE	Number of Doses	Percentage %
Moderna	200,000	24%
Sputnik V	62,000	7%
Sputnik light	179,200	22%
AstraZeneca	58,000	7%
Pfizer	308,418	37%
Sinopharm	20,000	2%
Total	**827,618**	**100%**

(Source: OCHA, Sept 2021)

Below table shows how Palestine compares to other countries related to vaccination coverage, while world vaccine doses (per 100) is (85.4), its (170.2) for Israel, (70.6) for Jordan, (44.07) for Palestine. For people with only one dose (per 100), while the world percentage is (47.8%), its (67.01%) for Israel, (37.29%) for Jordan, (28.72%) for Palestine. For people fully vaccinated (per 100), while the world percentage is 36.31%, its 61.58 for Israel, (33.31%) for Jordan, (22.52%) for Palestine. For Booster doses (per 100), the world percentage is (0.77%), while its (44.62%) for Israel and (0.05%) for Palestine. *See Figure (2.13)*

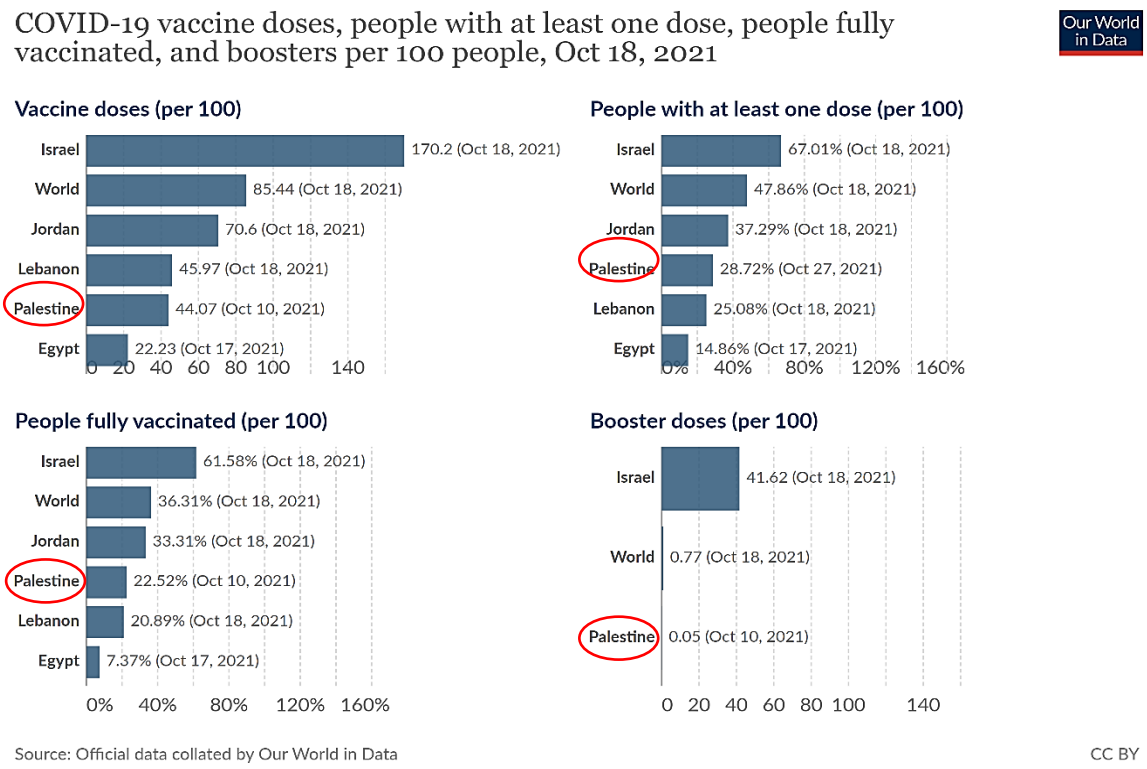

Figure (2.13): Covid-19 Vaccination Status in the world (Selected countries)

(Source: Our World in Data (Till 18 Oct.2021)

Below Pie chart *(Figure 2.14)* demonstrate the vaccination status of Gaza population, about 16% are partially vaccinated, while 15% are completely vaccination (either two doses or Sputnik light), and only 1% received booster doses, while the remaining population 68% are not vaccinated yet!

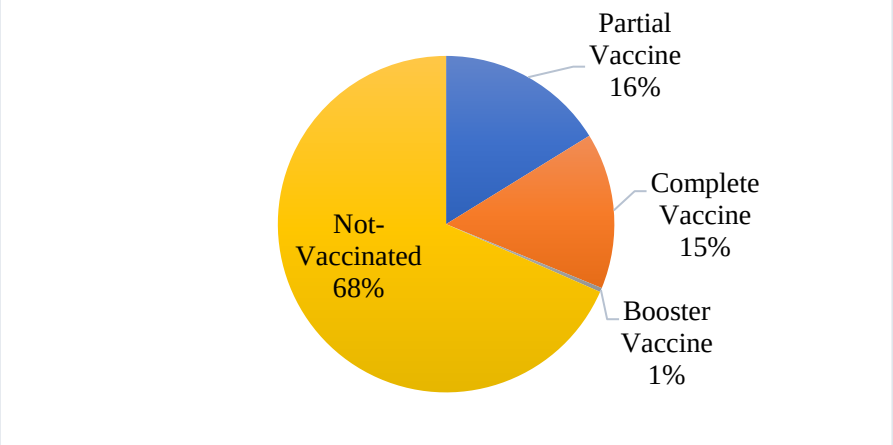

Figure (2.14): Covid-19 Vaccination Status

(Source: Ministry of Health – Palestine Oct.2021)

-Distribution of Vaccination Centers in Gaza

MoH and UNRWA joint together since the launch of Covid-19 vaccination campaign in Gaza by establishing vaccination centers (Initially 7 centers for each) distributed among Gaza`s five Governorates. Later, more centers were added. Additionally, extra work shifts (evening or night shifts) were approved to improve accessibility for vaccines.

2.2.5 National Laboratories and COVID-19 Testing

COVID-19 lab tests are existing can check for current infection or past infection.

- A viral test knows if you have a current infection. Two types of viral tests can be used: nucleic acid amplification tests (NAATs) and antigen tests.
- An antibody test (also known as a serology test) may discover if you had infection in the past. Antibody tests should not be used to diagnose a current infection.

Covid-19 tests are very important tool for controlling the spread of this pandemic, detecting covid-19 cases has several benefits; Isolating cases can somehow reduce transmission, additionally, discovering cases earlier increase the possibility for improvement and not progressing to more critical status or even death. Below Table (2.7) shows estimated number of collected Covid lab tests in Gaza; About 798620 tests which represent only 31% of total tests done in Palestine (While its 69% in WB). Although positive rate is 13% in Gaza and 4.3% in WB (UN,2021).

Table (2.7): Covid-19 Laboratory tests

Collected Covid-19 Laboratory tests		
Governorate	**Number of Specimens (Swaps)**	**Percentage %**
Gaza Laboratory	798620	31%
West Bank	1772375	69%
Total	2570995	100%

(Source: Ministry of Health – Palestine Oct.2021)

-The positive rate: A vital indicator for understanding the pandemic

It offers us two significant perceptions: Firstly, as a measure of how adequately countries are testing for Covid-19 infections because it shows the level of testing comparative to the extent of the outbreak. To be able to appropriately monitor and control the spread of the virus, states with more extensive outbreaks need to do more tests; and secondly, to let us follow up the spread of the virus.

Along with criteria circulated by WHO in May 2020, a positive rate of less than 5% is one indicator that the epidemic is under control in a country. (WHO, 2020). Hence, following this criterion, below chart (Figure 2.15) clearly shows that the epidemiological situation in Gaza is far away from being under control as almost all monthly positive rates were above 10% !

Figure (2.15): Covid-19 Tests Positive Rate

(Source: Ministry of Health – Gaza Oct.2021)

-Are the spikes in Covid-19 cases due to more Covid-19 testing?

No. During epidemic wave, the actual number of people getting sick with the Covid-19 virus is growing. We can recognize this as in addition to positive COVID-19 tests, the number of symptomatic individuals, hospital admissions and later, deaths, follow the similar pattern.

- How Palestine (Gaza and WB) compares to other countries!

As below (Figure 2.16) illustrates, when comparing Palestine (Including Gaza) to other countries, we notice that number of new Covid-19 cases (per 1M) for the world is 51.97, while its much higher in Israel (152.04), (124.62) for Palestine, (117.22) for Jordan and (1.29) for Saudi Arabia. For new tests Israel leads the list with 10.21 (per 1000). For positive rate, it's very high in Palestine (9,6%), while its 4.43% for Jordan and much less (1.49%) in Israel. For reproduction rate (*Number of people infected by one infectious person, if its below 1, the number of infected people decreases*), Jordan (1.15), Syria (1.08) and Egypt (1.05) leads the list (above one) while its below 1 (*which mean number of infected people decreases*)for Saudi Arabia (0.94) , Israel (0.61) and Palestine (0.37).

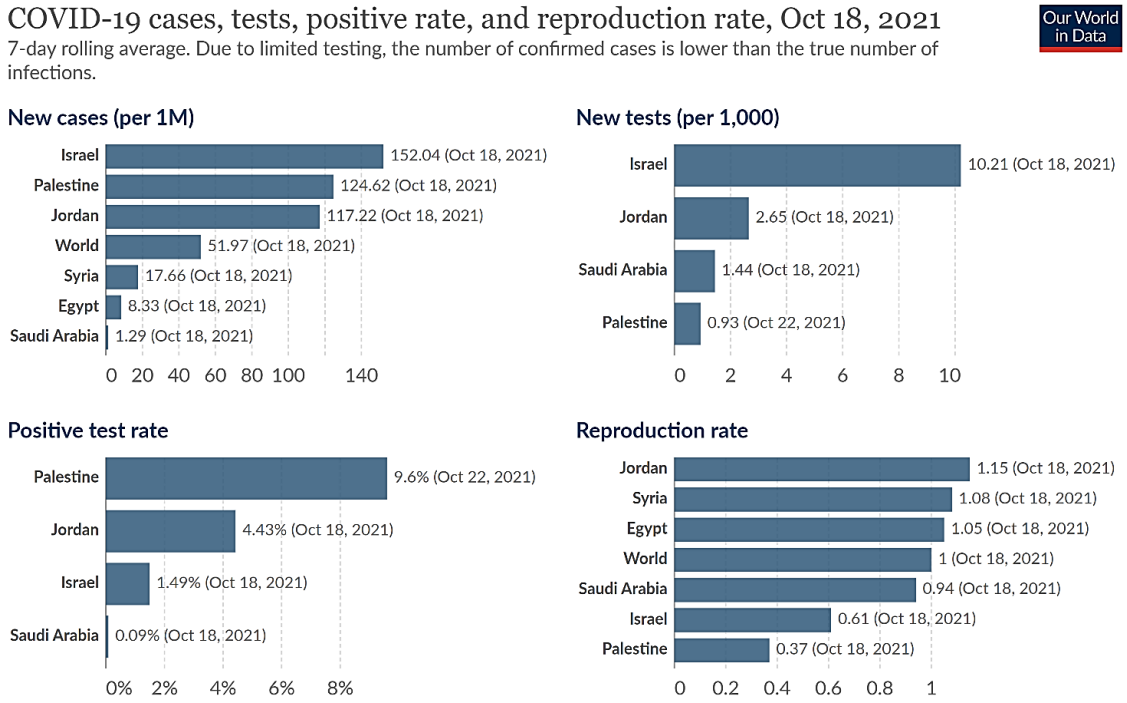

Figure (2.16): Covid-19 New Cases, New Tests and Positive Rate

(John Hopkins University – till Oct 2021)

2.2.6 Risk Communication and Community engagement

Communities must be fully engaged, and the need to transition from recognizing and treating severe cases to detecting and isolating all COVID-19 instances must be emphasized. Behavioral preventative strategies must be maintained, with critical roles played by all

individuals. Local governments, NGOs, and others prepared a variety of public awareness campaigns and activities to encourage the public to support the lockdown as well as the usage of preventive measures (facemasks, sanitizers, social distancing, and others). These events and campaigns are being extensively promoted on social media, in the press, on local radio stations, and in other ways in order to reach as many people as possible in order to lessen the danger of outbreaks (*Abuzerr et al.,2021*)

2.2.7 Infection, Prevention Control Measures

In just a few months, the coronavirus disease 2019 (COVID-19) pandemic managed to bring to the forefront a debate that infection prevention and control (IPC) specialists have been urging for decades about how to stop illnesses from spreading. Implementing the fundamentals of IPC has been a difficulty for all countries hit by an exponential COVID-19 infection curve. In well-resourced and stable situations, preventing nosocomial spread of the disease has been tough, but even more so in the Middle East's war context (*El Mouallem , 2021*) . Several calls were raised to enhance targeted responses and promote contextual training, IPC must be prioritized, given the attention it deserves, and backed up with contextualized data. This is especially critical in conflict contexts where basic resources are few (*El Mouallem , 2021*).

2.2.8 Covid-19-related Innovations

- **Telemedicine:** Operating since April 2020, even before COVID-19 spread to the local community in Gaza, the hotlines allow patients to reach their doctors and receive medical care for urgent cases. In the midst of the COVID-19 outbreak, toll-free telemedicine hotlines are becoming a literal lifesaver for Palestine refugees and others in Gaza. All essential health services at primary health clinics have been discontinued since the Gaza Strip's entire lockdown, and services are now limited to the provision of healthcare through hotlines. Also, video meetings were arranged for vulnerable categories such as Type 1 Diabetes Mellitus to ensure proper management is provided.
- **Health Mobile Apps**: The coronavirus disease (COVID-19) response was enhanced significantly by mobile health (mHealth) apps. There is, however, no resource that provides a comprehensive overview of the available mHealth apps developed to combat the epidemic. The first COVID-19 apps to be developed and highly publicized were contact tracing apps that alerted users if they had come into touch with another person

afflicted with the coronavirus. Also, those who tested for Covid-19 in Gaza were able to access their results through app created by MoH called “Sehhaty”. Later on, these apps were employed as simulation programs in training.

- **Medication Home Delivery:** In response to the COVID-19 epidemic and to decrease the risk of transmission in the community, the Gaza Strip started delivering important, life-saving medications to Palestine refugee patients at their homes. The goal of this effort was to give NCD patients with their medication for a three-month period.
- **Respiratory Triage System**

  Patients presenting with fever and influenza-like symptoms would be triaged, cohorted, and then assessed by respiratory team working in separate area and wearing necessary PPE.

Chapter Three

Methodology

3.1 Evaluation Design

The design of this study is mixed method; it involves applying quantitative and qualitative data. Mixed methods research has noteworthy potential to get more understanding of emergency practices by MoH, UNRWA, Health Non-Governmental Organizations - HNGOs and Private sector. By merging what is learnt from different methods, these approaches can help to define complex healthcare systems, identify the mechanisms of complex problems such as emergency activities and understand aspects of human interaction such as communication, behavior and team performance.

This study is observational, cross-sectional study. Across sectional design reflects the obtainable facts at one point of time of data collection (Levin, 2006). Furthermore, cross sectional studies are quick, inexpensive, could study many outcomes, and could be done by questionnaire (Mann, 2003).

3.2 Evaluation Setting

The study is going to be conducted at MoH, UNRWA, NGOs (International Health Non-Governmental Organizations-IHNGOs, and Local Health Non-Governmental Organizations- LHNGOs) and Private in the Gaza Strip. **See Annex 2,** the researcher is interested in collecting data from:

1- Different perspectives (healthcare providers, Senior Managers and Community (refugees and non-refugees)
2- Tools are addressing both inputs, process and Impact indicators.

The results will be triangulated which will facilitate a multi-layered rich analysis and reinforcement of the overall analysis.

3.3 Evaluation Period:

Time period to be covered will be from January 1, 2020 (i.e., the period in which health facilities could have begun preparing for the pandemic) to September 2021.See **Annex 7**.

3.4 Study Population & Sample Size

The research is a mixed of quantitative and qualitative data. Below Table (3.1) summarize study population and sample size per each tool.

Table (3.1): Study Population & Sample Size

Type	Tool	Target group	Population	Sample Size
Quantitative	Desk Review	Emergency-related documents		
	Survey (online)	Frontline health workers (MoH, UNRWA, NGOs, Private, etc.)	14632	374 (Using Epi Info with 95% confidence level)
Qualitative	Key Informant Interview	Health Emergency Policy Makers		10 interviewees
	Survey (online)	Frontline health workers (MoH, UNRWA, NGOs, Private, etc.)	14632	311

3.4.1 Quantitative part

- In terms of the quantitative component, the research population included a desk review for emergency documents (reports, statements, charts, etc.).
- Furthermore, health workers (total no.: 14632) who lead the response against Covid-19 pandemic. As shown in below table, the sample size was calculated to be 374 HWs, however it was expanded to 408 clients to account for non-respondents (4). For a sample calculation, the researcher utilized the following parameters: The highest permissible percentage point for error is 5%; the confidence level is 95%.

3.4.2 Qualitative part

Regarding the qualitative study,

- Non- probability purposive sample was used for KII-Key Informant Interview.
- Probability sample for open-ended questions in health worker`s survey

3.5 Sampling methods & Inclusion/Exclusion Criteria

Sampling is a method of selecting individuals or a subset of the population in order to derive statistical inferences and estimate characteristics from them. The inclusion criteria are consistent, dependable, homogeneous, and objective in identifying the research population. Factors or qualities that render the recruited group ineligible for the research are considered as exclusion criteria. See Table (3.2)

Table (3.2): Sampling methods & Inclusion/Exclusion Criteria

Tool	Target group	Sampling method	Criteria	
Desk Review	• Formal policy documents, • Implementation plans and reports • Official statistics • Program monitoring data • Program records	Stratified Random Sampling	Inclusion	Exclusion
			Emergency health records, this category included all the records related to emergency preparedness in general, or specific to Covid-19 pandemic in Gaza.	Health record that was not related to emergency health preparedness in general or specific to Covid-19 pandemic was excluded from the study.
Online Survey	Frontline Health workers in Covid-19 Pandemic in Gaza	Stratified Random Sampling	All contracted frontline health workers participated in Covid-19 emergency response (physicians, nurses and midwives, health managers, etc.) who were employed for at least six months their health institutions.	All newly contracted health workers (less than six months)
Key Informant Interview	Policy makers for emergency health response in Gaza.	Purposive Sampling	Policy makers, senior staff, first level managers, who lead or manage in emergency planning against Covid-19 pandemic	

3.6 Instruments/tools: Quantitative study

Questionnaire:

The quantitative data was gathered using a well-structured questionnaire, with the majority of questions being closed-ended. Questionnaire was self-created based on the WHO Covid-19 emergency health response pillars. See Annex 5. To reduce contact and to respect IPC measures, it was designed as online form through SurveyMonkey site. A link was shared with sample participants through SMS. The questionnaire was piloted with 20 health workers was conducted to assess the questionnaire's appropriateness. Based on the findings of the pilot study, the researcher modified the questionnaire. The data acquired during the pilot study was not included in the study sample because several modifications were made after the pilot.

3.7 Instruments/tools: Qualitative study

Key Informant Interview

Ten KIIs with key policymakers. See Annex 4, from various health providers were conducted to meet the study's requirements and to triangulate the quantitative results. The participants were chosen with the intention of gathering useful information and ensuring a diversity of opinions. The data was gathered, reviewed, and understood using a qualitative technique. A set of guiding questions was devised. The guiding questions included a wide range of topics, including present practices, barriers to emergency health service utilization, and strategies for improving emergency health response in the future. *See* Annex 6

3.8 Scientific rigor

3.8.1 Reliability

To demonstrate the appropriate clustering of items, the data was tested for internal consistency of its domains. Cronbach's alpha, a classic statistical approach for analyzing the coherency of each item within each domain, was used to examine each domain independently. As shown in the below Table (3.3), Cronbach`s Alpha value ranged from accepted (0.600) to very good (0.841)

Table (3.3): Cronbach alpha coefficient for each WHO pillars for Covid-19 health response.

Sn	Items	Cronbach's Alpha
1.	Health worker`s knowledge	0.600
2.	Health worker`s preparedness and response	0.841
3.	Infection prevention and control& case management	0.803
4.	Risk assessment and communication -support	0.714
5.	Operational support, logistics and governance	0.798

3.8.2 Face validity

It refers to the tool's transparency or usefulness in gathering the required data. The questionnaire was designed in an ordered manner to make data collection and entry as simple as possible. The questionnaire layout was examined and modified multiple times during the validation process until the final version of the questionnaire appeared satisfactory.

3.8.3 Content validity

It focuses on the construction of items that can be used to give a sufficient and representative sample of all items that could be used to assess the construct of interest (Kimberlin and Wintersten, 2008). There is no statistical test that can be used to determine the content area and cover it. Because content validity is normally determined by the opinions of experts in the field, the questionnaire and interview questions were examined by twelve experts from various backgrounds (Annex 3). The goal of the evaluation was to determine the relevance of each domain. In addition, the researcher takes into account all expert criticism and suggestions, resulting in a final version with interview questions that matched all expert feedback.

3.9 Data Collection

The researcher collected the data personally, and it took him around two months to do so. Around 200 questions were completed each month. All the in-depth interviews were performed by the researcher. Primary data collection will take place in the form of a cross sectional online survey for health workers and KIIs for health policy makers. This data will complement secondary data sources, which will be used for this evaluation.

3.10 Data entry and data analysis

3.10.1 Quantitative part.

For quantitative data input and data analysis, the researcher utilized the Statistical Package for Social Sciences (SPSS) application version 20 and followed various stages.

- Data input began shortly after the data was collected.
- The Researcher and a Statistician coded and entered the variables from the questionnaire into SPSS.
- Following the completion of data entry, data cleaning was carried out.
- The frequency distribution was carried out.

To study the relationships between the different variables and the varied relationships between them, cross tabulation, and bi-variate statistical tests such as Chi square test, and t-tests, or one-way ANOVA were utilized.

3.10.2 Qualitative part

Through open-ended questions and KII, after conducting an open coding theme analysis, the researcher created a data entry methodology that included data cleaning, categorization, and coding. In a qualitative method, coding is an interpretive tool. The majority of coding must be separated into themes. A code is assigned to each theme. The researcher created a summary of the relationships between the codes when the coding was completed. To validate the findings and provide rich information, the quantitative and qualitative data were compared and merged.

3.11 Ethics:

3.11.1 Participant Privacy:

Individual privacy is secured by a variety of procedures, including data protection and informed consent, which allows people to choose whether or not to engage in a study and to see the terms of their participation. It is overseen by the following groups:

1. Research ethics committees (Helsinki Approval).
2 .through the legal system.
3. Individuals' self-protection as a result of their knowledge of the research.

3.11.2 Potential Risk and Benefits:

The research is judged to be low-risk because the dangers are comparable to those encountered in everyday life. *See below Table (3.4).*

Table (3.4): Potential Risk and Benefits

Group	Potential benefits	Potential Risks	Risk Minimizing Strategies
Society	• Advocacy role based on the study's findings in order to enhance the community's health. • The emergency program or its operations should be improved. If program assessments are deemed to be ineffective, they may be discontinued. • The community has a right to know what the study's findings are and what their ramifications might be.	No	• Data collection without the use of IDs. • Obtaining the bare minimum of data required for the study. • Only carrying out procedures that are required to meet the study's objectives. • Include a safety monitoring plan, the availability of skilled staff who can respond to crises, and data confidentiality protocols (e.g., encryption, codes, and passwords).
Participants	• Learning benefits • Psychological or emotional benefits	No	

3.11.3 Informed Consent

The following are the primary aspects of "Informed Consent:"

1) The potential participant will be given enough information to make an informed decision about whether or not to participate based on an understanding of the risks and alternatives in a non-coercive environment.
2) The potential participant's decision on the consent issue will be documented.
3) The participant must agree that her or his data will be used for a specific research purpose and understand what that means.

3.11.4 Other Ethical Considerations

A statement detailing the research's objective, methods, and dissemination strategy (including plans to share data) will be written and translated into the local language, as well as a supplementary consent form. Each participant will also receive a clear spoken clarification. Confidentiality obligations will be met by ensuring that recordings are not shared, transcripts are anonymized, and any information that may be used to identify participants is removed or hidden from transcripts. Participants will be provided sections of the transcript to ensure that no unwarranted risks with their interview data are being taken. Because respondents would be expected to talk in their official capacities or institutional responsibilities, confidentiality will not be guaranteed unless it is requested. However, interviewers may be more calm if some parts of their interview are not recorded or made public, as is commonly the case. In certain cases, the recording will be paused or chunks of text will be removed from shareable transcripts

3.12 Data Management Plan

3.12.1 Existing Data:

Quantitative analysis of Covid-19 emergency-related data is required to meet the research objectives. Some quantitative data is available; however, it is not detailed enough. They would not allow as much time to examine the emergency health response to a Covid-19 pandemic in their current form as is desirable. Qualitative data that is not available from other sources is also required for the research aims. Some data already exists and will be triangulated with the conclusions of the planned study, as well as data gathered as part of the study.

3.12.2 Expected Outcome and Dissemination Plan

The subsequent distribution strategy has been designed using research evidence for putting knowledge into practice, ensuring that the research results inform practice and thereby improve emergency response in general and against the Covid-19 pandemic in particular. For public engagements, we will also collaborate with our local authorities (local health boards and municipalities). We know from research that research is best distributed through many channels, ideally with face-to-face engagement. *See Table (3.5)*

For this study, there are six main target audiences:

a) Policymakers and local government officials.
b) Health-care professionals, local health departments and healthcare commissioners.
c) Patients and the public.
d) International organisations (funding agencies).
e) Academia.
f) Media .

Table (3.5): Expected outcome and dissemination plan

Evaluation Audiences	Information Needs	Dissemination Strategies
Evaluation Participants	Overview of what the evaluation found; next steps	Article in our newsletter; full report provided upon request to evaluation participants
Donors/Funder	Full evaluation report, detailing methods, data, and results	Two-page summary; full report
Health actors in Covid-19 emergency response	Highlights of key findings and next steps for our collaborative activities	One-page summary of results of shared activities; discussion at meeting with partnering organizations; online interactive "map" showing our inter-connected activities
My own organization: UNRWA	Highlights of findings; ideas for maintaining, strengthening, or growing the program	10-minute presentation of results (with charts) at staff meeting
Evaluators, researchers involved in similar work	Technical details of methods and data; full details of results; ideas for related programs and policy	Guest blog post for blog that researchers read; social media (using hashtags that researchers follow)
Policymakers	Brief highlights of key findings related to policy issues	One-page fact sheet with bullet-points summarizing key findings
The public	Understanding and awareness of the issue you're addressing and the need for what you're doing.	Letter to the editor in local newspaper

Chapter Four

Findings and Discussion

4.1 Quantitative Data Analysis

4.1.1 Descriptive Statistic

4.1.1.1 Socio-Demographic Characteristics of the Study

-Distribution of the study participants according to their Personal data

The quantitative data were collected through online questionnaire targeting 311 health workers from different health providers (MoH, UNRWA, NGOs, Private) who participated in emergency response to Covid-19 pandemic in Gaza.

- Table (4.1) shows that about (69.8%) of health workers stated that they were part of early emergency teams within their health institutions.
- Table also shows that more than (55.6%) of the participants were females. While males represent 44.4% of the sample.
- Regarding the age of the study participants, the mean age was 36.59 years with (SD 8.4), the majority of the study participants were from the age group 31 to 40 years old with a percentage of 40.1 %. The group which had participants with ages less than 30 years had a percentage of 28.5%. As for the group with ages between 41 to 45 years old, it had a percentage of 15.2%. The study participants whose ages were above 45 years had a percentage of 16.2% of the overall participants of the study.
- Concerning the marital status of the participants, findings of study showed that the majority of the study participants were married (a percentage of 82% of overall participants) while unmarried participants constitute less than one-quarter (a percentage of 18% of the study sample).
- Table shows that more than half of study participants had bachelor's degree (54.7% of participants). On the other hand, about one-third (31.5%) of the study participant had higher education (Master, PhD or Higher degree).

Table (4.1): Distribution of the study participants according to their Personal data

Items	Nu.	%
Continue working during Covid-19 pandemic		
Yes	308	99.0
No	3	1.0
Total	311	100.0
Part of the early emergency teams		
Yes	217	69.8
No	94	30.2
Total	311	100.0
Gender		
Male	138	44.4
Female	173	55.6
Total	311	100.0
Age		
30 and less	88	28.5
From 31 to 40	124	40.1
From 41 to 45	47	15.2
More than 45 Years	50	16.2
Total	309	100.0
Mean = 36.59, MD= 35.0, Std= 8.41		
Marital Status		
Not Married	56	18.0
Married	255	82.0
Total	311	100.0
Years of Education		
Associate degree	43	13.8
Bachelor	170	54.7
Higher education	98	31.5
Total	311	100.0

-Distribution of the study participants according to their Personal data related to work. See below Table (4.2)

Occupation`s distribution of study participants is almost a representative of the health human resources in Gaza (MoH, Annual Report, 2020). Nurse & midwifery is the largest job category involved in this sample (34.7%). See below *Table (4.2),* followed by GPs (27%), followed by admin and services 11.6%, paramedical 8.4%, specialist 7.4%, pharmacist 6.8%, dentist 3.5% and health worker 0.6%. Although most of study participant has no managerial experience (69.5%), 29.5% have senior positions such as director, chairman, head department or team leader. Since work during Covid-19 emergency require high level of commitment and associated with high risk, most of work`s contracts for health staff were permanent to allow for rapid and appropriate response , later and due to increased work load , health providers had to recruit temporary staff in addition to permanent to manage addition Covid patients ,as the epidemiological situation become more familiar , policy makers and health providers allow for volunteer at limited extent and with close supervision. Among HW participated in this survey, majority (67.5%) were working for MoH (either in Hospitals or Primary care), UNRWA-Health Department is represented by 20.3%, NGOs 7.4%, then Private represent 4.8%, this distribution almost represent the average level of involvement of each health provider in emergency response in addition to routine health system in Gaza. Although in Gaza there are multiple health NGOs and well-established private centers providing several services (Primary, Secondary or Tertiary), their role in Covid-19 emergency response was limited mainly to health promotion and education related to Covid-19.

71.7% of participants have at least three-years' experience, only 28.3% have less than three-years. Covid-19 pandemic forced policy makers and health professionals to approve new services and facilities, majority of participants worked in such facilities (Telemedicine, Triage , Respiratory , Covid-19 hospital , etc.) , Many participant mentioned that they worked in telemedicine service (24.8%), which was adopted service to compensate for face-face service , next comes triage point (21.9%) , which was another service to differentiate between respiratory and non-respiratory patients, only few mentioned working in mobile clinic or home visits (5.1%) .

Table (4.2): Distribution of the study participants according to their Personal data related to work

Items	Nu.	%
Occupation		
Midwifery & Nurse	108	34.7
Practitioner General	84	27.0
Administration and Services	36	11.6
Paramedical	26	8.4
Specialist Doctor	23	7.4
Pharmacy	21	6.8
Dentist	11	3.5
Health workers	2	0.6
Total	311	100.0
Managerial Level		
I Don't have	216	69.5
Head Department	39	12.5
Team leader	37	11.9
Director	15	4.8
Chairman Committee	4	1.3
Total	311	100.0
Type of your work contract		
Permanent	259	83.3
Temporary	50	16.1
Volunteer	2	0.6
Total	311	100.0
Organization you are working for		
MOH Hospital	153	49.2
UNRWA	63	20.3
MoH Primary Health Care	57	18.3
NGO's	23	7.4
Private	15	4.8
Total	311	100.0
Experience of working in your organization		
Less than 3 Years	88	28.3
From 3 to 9	82	26.4
10 and more	141	45.3
Total	311	100.0
Have you ever worked in any of the following Covid-19-related health facilities		
No, I Don't work in Such facilities	97	31.2
Telemedicine	77	24.8
Triage Point	68	21.9
Covid - 19 Hospital	47	15.1
Respiratory Team	36	11.6
Isolation Centers	26	8.4
ICU Covid- 19	20	6.4
Quarantine Centers	17	5.5
Mobile Clinics – Home Visit	16	5.1
Other (Medical Point and Pharmacy)	6	1.9

4.1.1.2 Facility-Level Coordination and Planning

-Distribution of the study participants according to their respondent about health worker's knowledge. See Table (4.3)

About 37.9% of HWs believe that Covid-19 originated from bats, 24.8% don't believe its bat-origin, while the remaining, about 37.3% don't know the answer! This debate on Covid-19 origin is still until these days, along-awaited report recently released by WHO, which investigated about the origin of the COVID-19 pandemic concluded that: "Coronaviruses most highly related to SARS-CoV-2 are found in bats and pangolins, suggesting that these mammals may be the reservoir of the virus that causes COVID-19. However, neither of the viruses identified so far from these mammalian species is sufficiently similar to SARS-CoV-2 to serve as its direct progenitor" (WHO, Joint Report 2021).

Also, 58.5% of HWs approved that Covid-19 mode of transmission is airborne, while 35.4% don't believe this information.

With regards to preventive measures that are most effective in reducing the risk of contracting COVID-19, wearing face mask was the most agreed upon measure (88.1%), measures that comes next are Physical distancing and Washing hands, while that least agreed upon measure was Wearing Gloves.

Almost all HWs agreed that Incubation period of COVID-19 is around days 2-14 (93.6%). additionally, 88.7% agreed that COVID-19 may pass without symptoms, although its scientifically evidence, about 11.3% either don't agree or don't know the answer!

HWs agreed that Persons with Respiratory illness/low immunity are the most group as risk from getting seriously ill from COVID – 19 (82.3%), then elderlies (70.4%), but only (37.6%) agreed that HWs themselves are at risk from being seriously ill from Covid-19, the least agreed upon group was children (2.6%) HWs were asked if Covid-19 is fatal disease, about (37.3%) either didn't agree or don't know the answer, while only (62.7%) agreed this statement. this is consistent with key-informant who said: "*One of the main weakness is that there is passive attitude from number of health staff toward the reality of the disease* " .

Table (4.2): Distribution of the study participants according to their respondent health worker's knowledge

Items	Nu.	%
Novel coronavirus (COVID-19) is thought to be originated from bats		
Yes	118	37.9
No	77	24.8
I don't Know	116	37.3
Total	311	100.0
The route of transmission of Covid-19 is Airborne?		
Yes	182	58.5
No	110	35.4
I don't Know	19	6.1
Total	311	12.5
Prevention measures that are most effective in reducing the risk of contracting COVID-19		
Wearing a face mask	274	88.1
Physical distancing	259	83.3
Washing hands	258	83.0
Stop shaking hands	217	69.8
Alcohol hand rub	205	65.9
Disinfecting /cleaning	196	63.0
Reduce contact	189	60.8
Wearing gloves	113	36.3
Incubation period of COVID-19 is around days 2-14		
Yes	291	93.6
No	11	3.5
I don't Know	9	2.9
Total	311	100.0
COVID-19 may pass without symptoms		
Yes	276	88.7
No	22	7.1
I don't Know	13	4.2
Total	311	100.0
Group of people is most risk from getting seriously ill from COVID – 19		
Persons with Respiratory illness/low immunity	256	82.3
Elderly	219	70.4
Persons with pre-existing health condition (Diabetics, Hypertension)	207	66.6
Health Workers	117	37.6
Pregnant/lactating	88	28.3
Everyone	70	22.5
Adults 18 years and above	25	8.0
Children	8	2.6
COVID-19 could be a fatal disease		
Yes	195	62.7
No	57	18.3
I don't Know	59	19.0
Total	311	100.0
Knowledge Mean = 68.30, Md = 60.00 , STD = 19.19		

-Distribution of the study participants according to respondent about Health worker's preparedness and responds. See Table (4.3)

- Only (77.8%) of HWs agreed that their institution has well prepared health emergency plan for COVID – 19, while (22.3%) either didn't agree on this statement or don't know the answer.
- About (83.7%) of HWs agreed that emergency plan has clear instructions or guidelines, while (7.8%) didn't agree, (8.5%) don't know the answer.
- Only (76.1%) agree that this plan is periodically updated, (23.9%) either disagree or don't know.
- (51.3%) mentioned that their facility didn't share a hard copy of its preparedness emergency plan, (12.4%) don't know answer, while only (36.3%) agree that there is hard copy.
- About (46.4%) of HWs mentioned that they were not engaged in any level in emergency planning against Covid-19, (17.3%) don't know, only (35.7%) were involved somehow in emergency planning. Key-informant mentioned on this regard: "*During emergency response, we were working with - planning by doing- mechanism".*
- About (67.6%) of HWs agreed that their institution has a clear chain of command, (15.7%) disagree while (16.7%) don't know.
- Only (60.5%) agreed that work in their health institution is fully computerized, (29.1%) confirm that work is not computerized, about 10.5% don't know.
- Only (24.5%) of HWs mentioned that they participated in effective joint emergency exercise including other facilities or departments
- About (11.8%) denied introduction of any effective new services through health facility as a response to the Covid-19, about (13.7%) don't know about this issue and (74.5%) agreed this statement. although "***There is lack of a thorough assessment of innovative services such as Telemedicine and its efficacy*** "key-informant commented.
- Only (60.1%) agreed that there is well-prepared an isolation room for suspected cases, about (39.8%) either denied or don't know of having such preparation.
- Only (8.5%) have been paid for working extra hours during the Covid-19 pandemic, about (83.7%) disagree such statement

- Only (29.4%) of HWs agree that their health facility provides emotional and spiritual support for front-line staff engaged in emergency response, about half of HWs (50.7%) mentioned that their institution doesn't provide such support
- About (46.4%) of HWs deny that their institution manages health services targeting home quarantine people, (18.3%) don't know!
- About (68%) agreed that their institution is directly responsible to treat Covid-19 positive cases, while (25.2%) denied.

Table (4.3): Distribution of the study participants according to respondent about Health worker's preparedness and responds

Items	Yes		No		I don't Know	
	Nu.	%	Nu.	%	Nu.	%
My organization has well prepared health emergency plan for COVID – 19	238	77.8	32	10.5	36	11.8
The plan has clear instructions or guidelines to follow during the emergency response against COVID- 19 pandemic	256	83.7	24	7.8	26	8.5
The plan is periodically updated based on Covid-19 epidemiological changes	233	76.1	33	10.8	40	13.1
My facility shares a hard copy of its preparedness emergency plan with all staff?	157	51.3	11	36.3	38	12.4
Somehow, I was engaged in emergency planning against Covid-19	111	35.7	142	46.4	53	17.3
During an emergency, the organization has a clear chain of command	207	67.6	48	15.7	51	16.7
Work in my health institution is fully computerized	185	60.5	89	29.1	32	10.5
I participated in effective joint emergency exercise including other facilities or departments	75	24.5	188	61.4	43	14.1
There are effective new services introduced in your health facility as a response to the Covid-19	228	74.5	36	11.8	42	13.7
There is well-prepared an isolation room for suspected cases	184	60.1	x80	26.1	42	13.7
I have been paid for working extra hours during the Covid-19 pandemic	26	8.5	256	83.7	24	7.8
Your health facility provides emotional and spiritual support for front-line staff engaged in emergency response	90	29.4	155	50.7	61	19.9
My Facility is directly responsible to manage health services that are targeting home quarantine people	108	35.3	142	46.4	56	18.3
Your health facility is directly responsible to treat Covid-19 positive cases	208	68	77	25.2	21	6.9
Mean = 53.00, Md = 57.14, STD = 23.12						

- ***The Type of Emergency Simulation Training Provided for Health Workers***

When HWs were asked about type of emergency simulation training they received, (28%) mentioned they didn't receive any type of training, neither practical nor theoretical! (21%) received theoretical training alone, (18%) received practical training alone, while only (33%) received both theoretical & practical. *(Figure 4.1)*

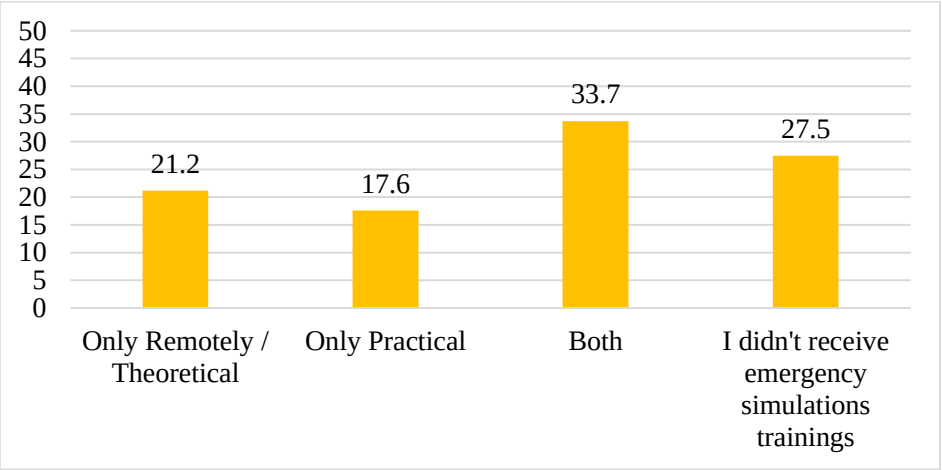

Figure (4.1): The type of emergency simulation training

-The type of emergency training received related to the Covid-19

Additionally, HWs were asked if they received Covid-19-related emergency training, about (27%) didn't receive any type of training, (26%) received only theoretical, while 13% received practical Covid-19-related training alone, only (35%) received both types of training. *(Figure 4.2).* From key informant view, one participant stated: "Actually, *each category of workers received training tailored to their specific needs, everyone who requires training received it in a variety of forms and methods, with the type and method of training varying according to the needs of each category.).*

Another key-informant stated that "*Yes, we acknowledge that we have a weakness in this area, which was exacerbated during the pandemic since we relied heavily on remote training; we have weakness in training quality; either due to supervision or training frequency".*

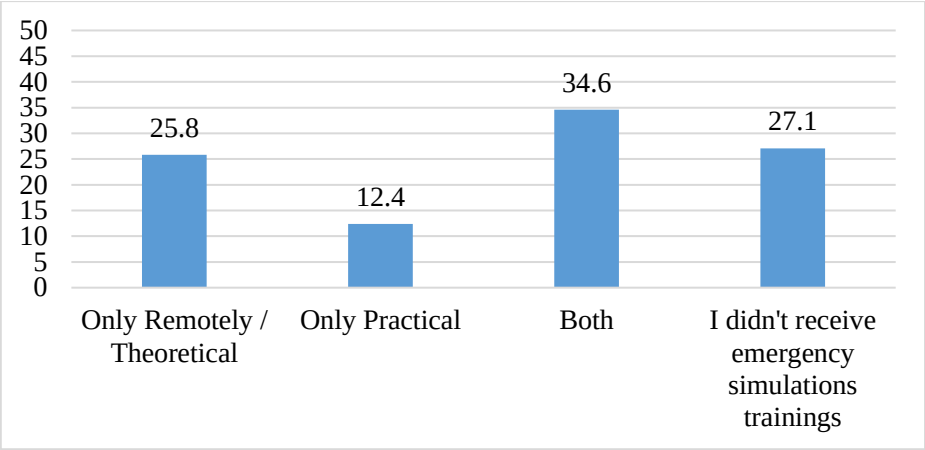

Figure (4.2): The type of emergency training received related to the Covid-19

-Association of Managerial level and Engagement in emergency planning. See (Figure 4.3)

- Among those without managerial position, 32.1% were engaged at some point in emergency planning, while 51.4% were not engaged at all.
- Among those with managerial positions, only 62% of all sample health managers were engaged at some point in emergency planning
  - All chairman committee (100%) were engaged in emergency planning
  - 73.3% of directors were engaged in emergency planning
  - Only 39.5% of head departments were engaged
  - Only 35.1% of team leaders were engaged.
- Key-informant argued this statement saying: "*A lot of people contributed to the plan's modification and ideas, but plan's development was restricted to a small number of people*". Another key-informant commented that "*Further studies are needed to analyze how HCWs perceive engagement and what are levels of planning existed! "*

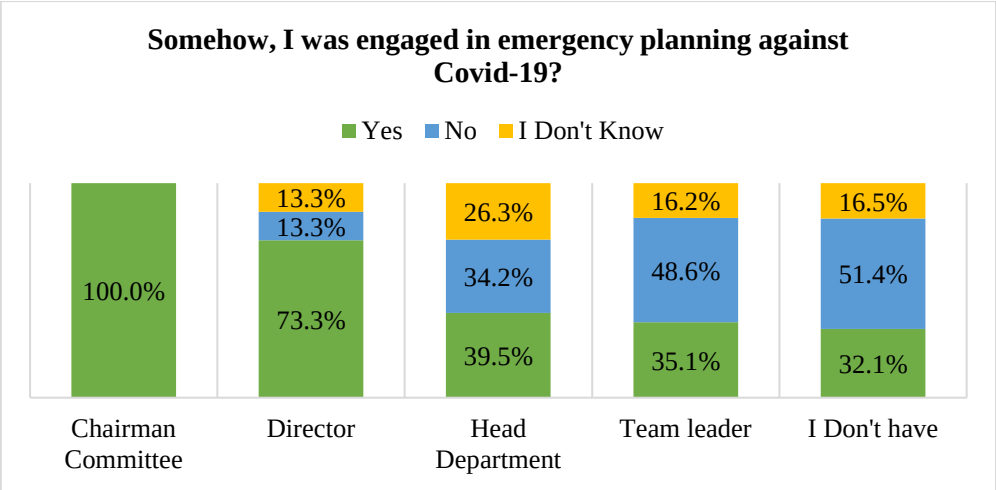

Figure (4.3): Association of Managerial level and Engagement in emergency planning

- *Association of Covid-specific training among all HWs only served in Covid-related facilities only. See (Figure 4.4)*

Below pie chart demonstrated the share of HWs served in at least in one of Covid-19 related facilities (such as Telemedicine, Triaging, Respiratory points, Quarantine centers, isolation centers, etc.) and who received Covid-specific training.

- About 40% of those who only served in Covid-19 related facilities in Gaza received complete training (Theoretical and Practical), 36% only one type,
- About 24% of those staff didn't receive any type of training at all.

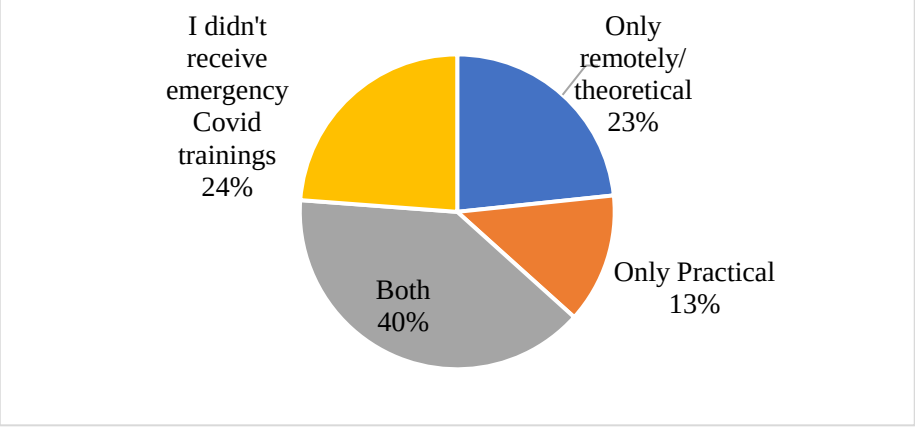

Figure (4.4): Association of Covid-specific training among HWs who only served in Covid-related facilities

-Association of Covid-specific training among HWs (segregated by health provider) served in Covid-related facilities only

- 80.4% of MoH-Hospital confirm that that worked in at least one of Covid-19-related facilities, also 66.7% of MoH-PHC HWs confirm this statement. See Figure (4.5)
- About 57.1% of UNRWA and 52.2% NGOs HWs mentioned that they worked in such workplaces
- The least % is for private 33.3%, although it has the highest training %
- Only 34%, 41% of MoH-Hospital and MoH-PHC staff respectively have complete training

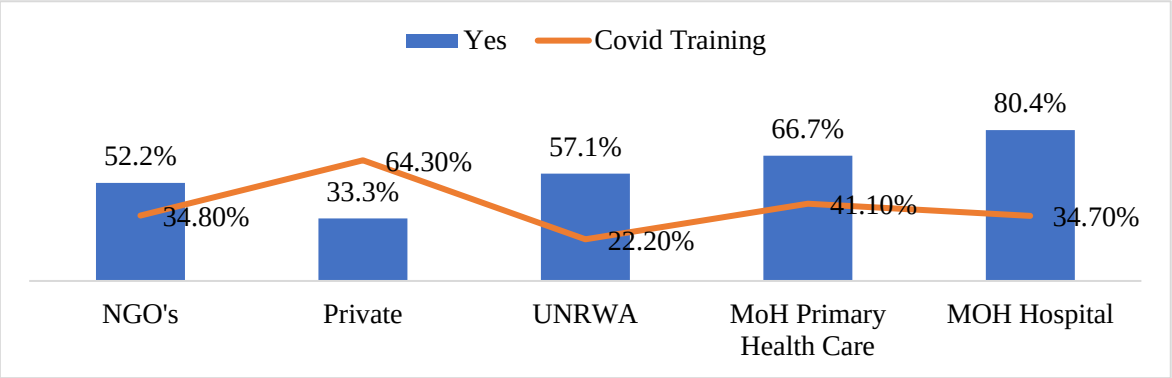

Figure (4.5): Association of Covid-specific training among HWs (segregated by health provider) served in Covid-related facilities only

- <u>Extra payment for HCWs for working during Covid-19 pandemic</u>

  Below charts shows that about 84% of HCWs didn't receive any extra payment for working during Covid-19 pandemic in Gaza. One key informant stated that "*Unfortunately, during Covid-10 pandemic, the cost price of health service unit has increased due IPC measures, while financial resources has declined".* While another key-informant was consistent with the low satisfaction on this regard *"One of the weaknesses in the emergency health response is that employees were not promoted or financially compensated for the critical job they did throughout the epidemic.".*

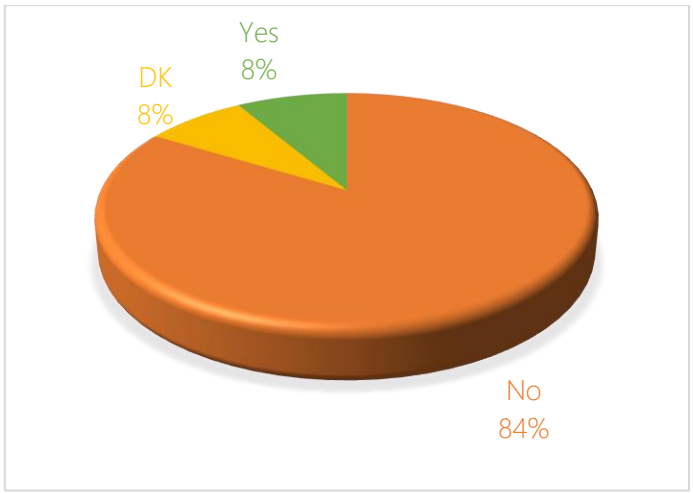

Figure (4.6): Extra Payment for HCWs

- **<u>Spiritual and emotional support for HCWs during Covid-19 pandemic</u>**

  Spiritual and emotional support was provided only for 29% of HCWs. One policymaker commented "*In emergency situation, usually there is no place for this kind of support, we were all busy fighting against pandemic!* ". Another key informant approved this gap *"Yes, we are aware of this kind of staff support and we are working on it "*

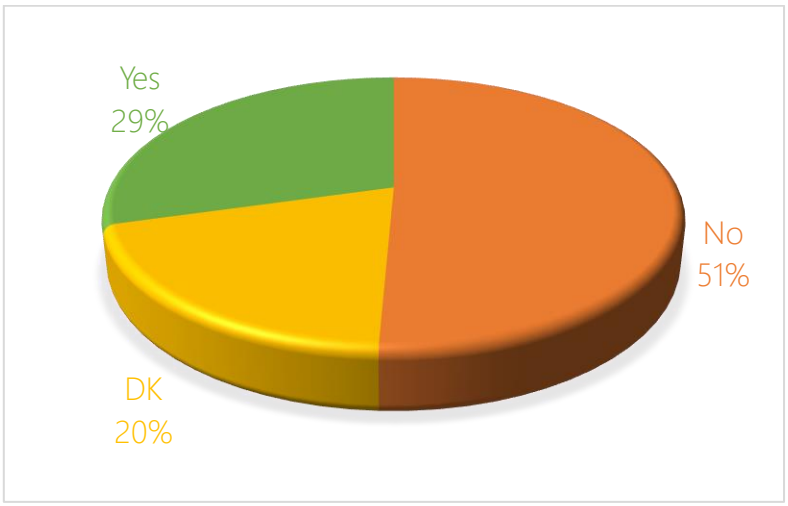

Figure (4.7): Emotional and spiritual support

4.1.1.3 Infection Prevention and Control& Case Management

<u>Distribution of the study participants according to respondent about Control and case management. See Table (4.4)</u>

- Majority of (87%) HWs agreed that their health care facility has effective IPC guidelines for health workers,

- About half (52%) HWs mentioned that they served in multiple stations within your facility during the Covid-19 pandemic.
- About 70% of HWs agreed that PPE items are available in sufficient quantity in their health care facility
- The most commonly missing PPE was Respirator as N95 (45%), while the least missing PPE was gloves, while about third of HWs (34.7%) mentioned that Nothing missing, all items available.
- About (60.1%) agreed that all disinfectants items are available, according to HWs the most commonly missing disinfectants was alcohol spray
- Only half (52%) of HWs mentioned that there is a focal point who continuously supervise adherence of staff for PPE
- About 2/3 (68.3%) denied that health facility screen staff on daily arrival for the possibility of Covid-19 infection
- About 1/3 (34.1%) of HWs denied that High-touch surfaces are frequently decontaminated (at least three times daily) at their health facility.
- Only half of HWs (53.8%) agreed that their institution has enough oxygen supplies (either as cylinders or network)
- `About 1/3 of HWs (36.3%) disagree that the infrastructure of the institution was suitable in responding to the Covid pandemic, while only (43.7%) agreed with this statement
- Almost 2/3 (70.9%)of HWs confirmed that the organization is equipped with sufficient telephone lines, cell phones, and other resources to communicate
- About (37.3%) of HWs either don't know or denied that their facility regularly disseminates case definitions
- About (44.8%) of HWs either don't know or denied that Staff are updated/familiar with the emergency plans of national /governmental authorities against Covid -19.

Table (4.4): Distribution of the study participants according to respondent about Infection Prevention Control and case management

Items	Yes		No		I don't Know	
	Nu.	%	Nu.	%	Nu.	%
Your health care facility has effective IPC guidelines for health workers	260	86.7	15	5.0	25	8.3
I have served in multiple stations within your facility during the Covid-19 pandemic	156	52.0	117	39.0	27	9.0
PPE items are available in sufficient quantity in the health care facility? Compare	210	70.0	60	20.0	30	10.0
Which PPE is usually missing in the health care facility						
Medical/surgical masks	73	23.5	238	76.5	0	0.0
Face shield or goggles/glasses	119	38.3	192	61.7	0	0.0
Gloves	62	19.9	249	80.1	0	0.0
Gown and coverall	64	20.6	247	79.4	0	0.0
Head cove	68	21.9	243	78.1	0	0.0
Respirator (e.g. N95)	140	45	171	55.0	0	0.0
Shoe covers	71	22.8	240	77.2	0	0.0
Nothing missing, all item available	108	34.7	203	65.3	0	0.0
Which disinfectants are usually missing in the health care facility						
Water and soap	16	5.1	295	94.9	0	0.0
Alcohol Gel	35	11.3	276	88.7	0	0.0
Alcohol Spray	87	28	224	72.0	0	0.0
Chlorine	30	9.6	281	90.4	0	0.0
Nothing missing, all item available	187	60.1	124	39.9	0	0.0
There is a focal point who continuously supervise adherence of staff for PPE	156	52	87	29.0	57	19.0
Your health care facility screen staff on daily arrival for the possibility of Covid-19 infection	62	20.7	205	68.3	33	11.0
High-touch surfaces are frequently decontaminated (at least three times daily) at your health facility	145	48.5	102	34.1	52	17.4
Your institution has enough oxygen supplies (either as cylinders or network)	161	53.8	73	24.4	65	21.7
The infrastructure of the institution was suitable in responding to the Covid pandemic.	131	43.7	109	36.3	60	20.0
The organization is equipped with sufficient telephone lines, cell phones, and other resources to communicate quickly and effectively in an emergency situation	173	70.9	40	16.4	31	12.7
Your facility regularly disseminates case definitions for confirmed, suspected and probable cases -Covid -19 compare	153	62.7	43	17.6	48	19.7
Staff are updated/familiar with the emergency plans of national /governmental authorities against Covid -19	137	56.1	55	22.5	52	21.3
Mean = 50.98, Md = 54.55, STD = 26.71						

-IPC training on (PPE). *See* ***(Figure 4.6)***

HWs were asked if they received IPC training on PPE, about (14%) didn't receive any type of training, (23%) received only theoretical, while (11%) received practical PPE training alone, about half of HWs (52%) received both types of training

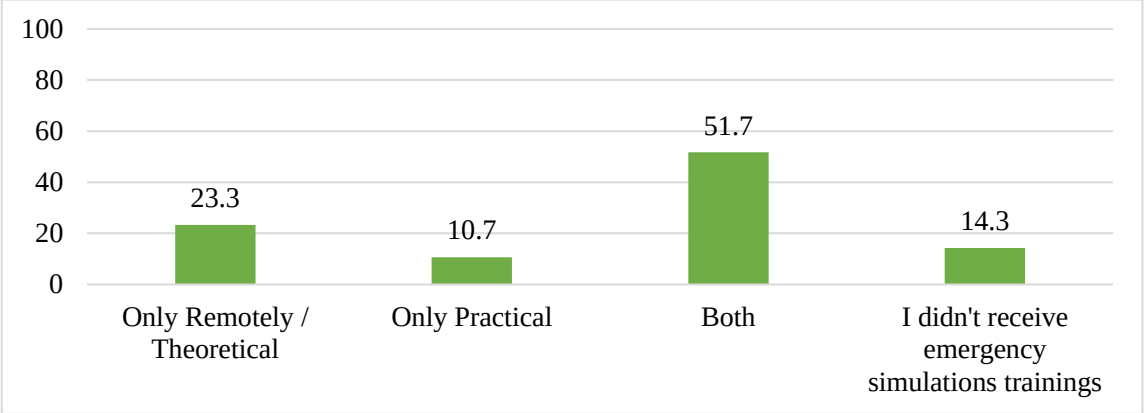

Figure (4.8): IPC training on (PPE) was carried out

The health care facility adopts a universal masking policy for all (health workers and patient). See (Figure 4.7)

Health facilities are considered a risky area that could spread infection, thus, they adopted several strict measure to limit infection transmission, most commonly was wearing face masks, (12.3%) of HWs agreed that there is NO universal masking policy at all adopted in their institution, (12%) agreed that this policy is partially implemented (either on patients or HWs) , (7%) don't know , only (67%) agreed that there is universal masking policy adopted at their institution (On both patients and HWs)

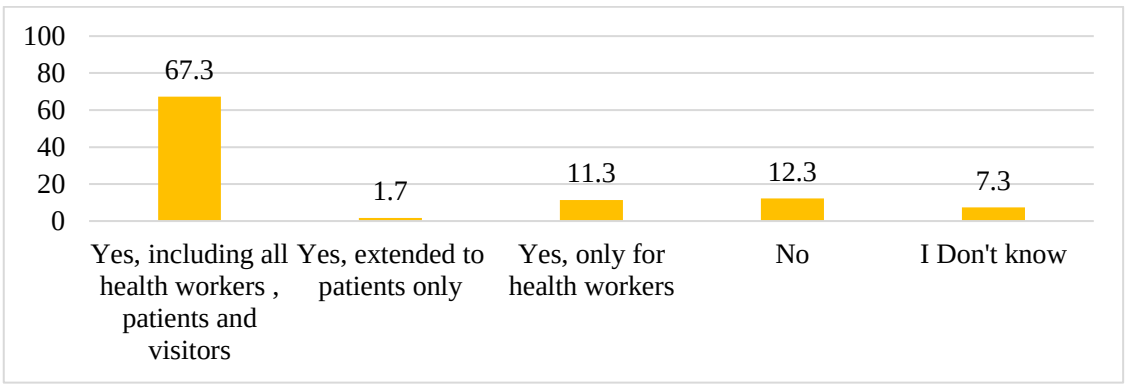

Figure (4.9): The health care facility adopts a universal masking policy

4.1.1.4 Risk Assessment and Communication -Support

Distribution of the study participants according to respondent about risk assessment and Communication Support. See Table (4.5)

- Until the date of study, 26% of HWs were not tested at any point for Covid-19
- Only (43.2%) confirm that they were diagnosed as Covid-19 case (either as suspect on confirm)
- About (30.5%) of HWs either don't know or deny that their institution is fully aware of their medical history
- (37.4%) don't know or deny that there are special measures for Vulnerable patients (such as elderlies, pregnant women, and children)
- only (25.9%) agreed that there is community engagement at the level of their organization, while (74%) of HWs don't know or deny this statement.
- About (67.1%) agreed that there is known contacts/channels with relevant governmental health officials for isolation or quarantine measures
- About (70.8%) agreed that there are flexible referral procedures exist for Covid-19 patients
- Only (57.2%) agreed that there is well-stablished feedback system and subsequent follow-up mechanism for Covid-19 cases.

Table (4.5): Distribution of the study participants according to respondent about risk assessment and Communication Support

Items	Yes		No		I don't Know	
	Nu.	%	Nu.	%	Nu.	%
Have you been tested for Covid - 19	179	73.7	64	26.3	0	0.0
During your work, have you been diagnosed as a suspected or probable, or confirmed COVID-19	105	43.2	137	56.4	1	0.4
Your institution fully aware of your medical history	169	69.5	42	17.3	32	13.2
Vulnerable patients (such as elderlies, pregnant women, and children) are managed through special measures to reduce risk to Covid-19 virus	152	62.6	38	15.6	53	21.8

Table (4.5): Continued

At the level of your organization, the community is involved in emergency preparedness for Covid-19	63	25.9	115	47.3	65	26.7
There are designated contacts/channels with relevant governmental health officials for isolation or quarantine measures of suspected/confirmed cases of Covid-19	163	67.1	28	10.7	54	22.2
There are flexible referral procedures exist for patients who are diagnosed as suspected or confirmed Covid –19 Cases	172	70.8	33	13.6	38	15.6
Feedback system and subsequent follow-up mechanism in place for suspected or confirmed Covid-19 cases	139	57.2	48	19.8	56	23.0
Mean = 58.74, Md= 62.50, STD = 24.96						

4.1.1.5 Operational Support, Logistics and Governance

Distribution of the study participants according to respondent about Operational Support, Logistics and Governance: See Table (4.6)

- About (78.6%) agreed that transportation for staff during emergency response was well arranged.
- Only (51.9%) mentioned that ambulance services during Covid-19 pandemic were adequate
- About (30%) don't know or deny good supervision supporting their work in Covid-19 response.
- Only (59.7%) agreed that their health facility takes timely and corrective actions if objectives are not being met
- About (63.8%) agreed that staff were deployed properly at the beginning of an emergency, (20.2%) deny this statement, while (16%) don't know
- Only (55.1%) of HWs agreed that there is effective inter-sectoral cooperation in response to the Covid-19 pandemic (between the Ministry of interior, Transport, Finance, Etc.). It is critical to improve coordination across providers and sectors in order to ensure the delivery of integrated health services that view health as primarily a social notion rather than a medical one (*Abu Hamad.,2021*), although key-informant argued "*Other Governmental sectors in Education, Ministry of interior, social welfare and Awqaf played cooperative role*".

Table (4.6): Distribution of the study participants according to respondent about Operational Support, Logistics and Governance

Items	Yes		No		I don't Know	
	Nu.	%	Nu.	%	Nu.	%
Transportation for staff during emergency response/lockdown is well arranged	191	78.6	35	14.4	17	7.0
Ambulance services during Covid-19 pandemic were adequate	126	51.9	47	19.3	70	28.8
Do you have good supervision supporting your work in Covid-19 response	170	70	35	14.4	38	15.6
My health facility takes timely and corrective actions if objectives are not being met	145	59.7	43	17.7	55	22.6
Staff were deployed properly at the beginning of an emergency	155	63.8	49	20.2	39	16.0
There is effective inter-sectoral cooperation in response to the Covid-19 pandemic (between the Ministry of interior, Transport, Finance, Etc.)	134	55.1	47	19.3	62	25.5
Mean = 63.17, Md = 66.67, STD = 30.69						

4.1.1.6 Essential Health Services

Distribution of the study participants according to respondent about maintaining essential services. See Table (4.7)

- About (73.6%) agreed that their health facility has predefined an essential health services package (prior to the COVID-19 pandemic
- HWs agreed that the top main cause of disruption in service utilization during Covid-19 pandemic was; Closure of outpatient services as per government directive (73.7%), the next agreed upon cause was; Financial difficulties during outbreak and lockdown (56%), the next suggested cause was; Government or public transport lockdowns hindering access to the health facilities for patients, while the least suggest causes was Closure of population level screening program (22.6%) and Insufficient personal protective equipment (PPE) available for health care providers to provide services (23.5%), Key-informant stated that "*Health programs were normally adjusted to pre-existing bad conditions, Covid-19 pandemic disrupted that adaptation* "

- HWs agreed that the most used approaches to overcome the disruptions to essential health services in their health facility are Telemedicine deployment to reduce in-person consultation (66.7%) and triaging to identify priorities (64.2%) respectively, while the least used approaches were removal of user fees (23%) and Task shifting / role delegation (25.5%). which is consistent with statement from key-informant who said: "Our *health work focused on outreach and compensation for stopping essential services such as Telemedicine and mobile clinic*".

Table (4.7): Distribution of the study participants according to respondent about maintaining essential services

Items	Yes		No		I don't Know	
	Nu.	**%**	**Nu.**	**%**	**Nu.**	**%**
Your health facility has predefined an essential health services package (prior to the COVID-19 pandemic?	178	73.6	29	12.0	35	14.5
During Covid-10 pandemic, what are the main causes of disruption(s) and/or change(s) in service utilization?						
Closure of outpatient services as per government directive	179	73.7	64	26.3	NA	
Closure of outpatient disease specific consultation clinic	91	37.4	152	62.6		
Closure of population level screening program	55	22.6	188	77.4		
Decrease in outpatient volume due to patient not presenting	58	23.9	185	76.1		
Decrease in inpatient volume due to cancellation of elective cases	89	36.6	154	63.4		
Inpatient services /hospital bed not available	60	24.7	183	75.3		
Insufficient staff to provide services	94	38.7	149	61.3		
Related clinical staff deployed to provide COVID-19 relief	92	37.9	151	62.1		
Insufficient personal protective equipment (PPE) available for health care providers to provide services	57	23.5	186	76.5		
Unavailability/stock out of essential medicines, medical diagnostics, or other health products at health facilities	67	27.6	176	72.4		
Changes in treatment policies for fever symptoms (e.g., stay at home policies)	79	32.5	164	67.5		
Government or public transport lockdowns hindering access to the health facilities for patients	107	44	136	56.0		
Financial difficulties during outbreak and lockdown	136	56	107	44.0		
During the Covid-19 pandemic, what approaches are being used to overcome the disruptions to essential health services in your health facility						
Telemedicine deployment to reduce in-person consultation	162	66.7	81	33.3	NA	
Task shifting / role delegation	62	25.5	181	74.5		
Novel supply-chain and/or dispensing approaches for medicines through other channels	100	41.2	143	58.8		
Triaging to identify priorities	156	64.2	87	35.8		
Redirection of patients to alternative health care facilities	121	49.8	122	50.2		
Community outreach to inform on service disruptions and changes	92	37.9	151	62.1		
Removal of user fees	56	23	187	77.0		

-Association between health providers and availability of essential health services: *See* ***(Figure 4.10)***

- UNRWA is the most health provider whose staff has agreement (89.1%) on availability of essential health services.
- The least agreement is by staff of MoH-Hospital (62.3%) and MoH-PHC (74.5).

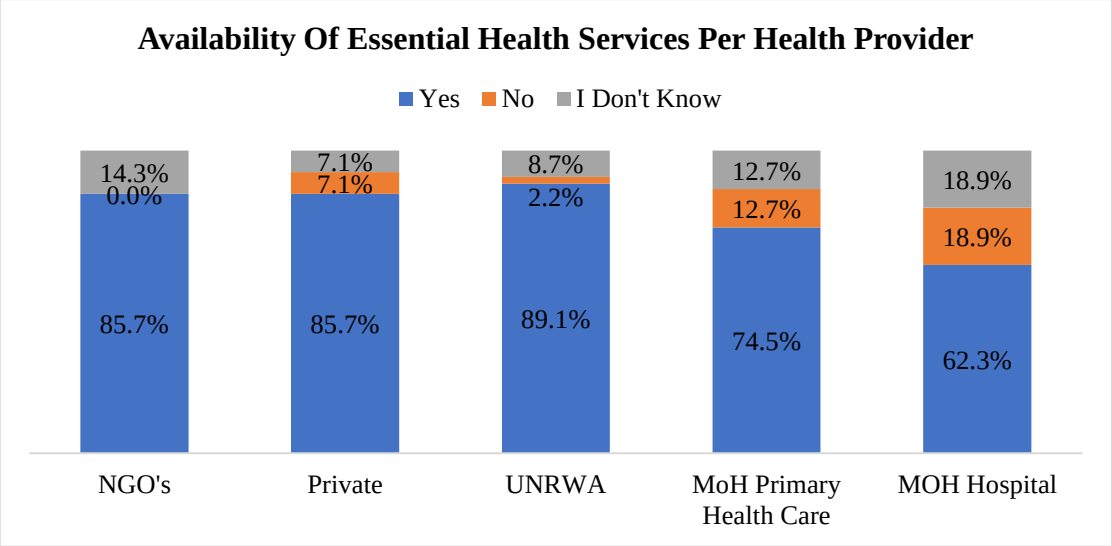

Figure (4.10): Association between health providers and availability of essential health services

4.1.1.7 Surveillance, Laboratory, and Points of Entry

Distribution of the study participants according to respondent about Surveillance, Laboratory, and points of entry: See Table (4.8)

- (85.3%) of HWs mentioned that samples for Covid-19 are collected at their facility.
- (77%) of HWs agreed that Rapid test are available at their institution, while (61.7%) agreed that PCR is available within their institution, only (16.5%) mentioned that Antibody diagnostic test is available within their institution.
- Only (62.2%) mentioned that their health institution has direct access to governmental lab PCR results
- Only (49.6%) agreed that there is effective surveillance team/system in place
- Majority (84.5%) of HWs agreed that Quarantine and lockdown were effective measures against Covid-19 pandemic to Gaza

- About (29.4%) of HWs were vaccinated by Sputnik, (25.6%) were vaccinated by Pfizer, only (0.4%) were vaccinated by AstraZeneca, (26.9%) were not vaccinated at time of the study but show willing, (16.4%) were not vaccinated and mentioned that they will not!
- (80.3%) of HWs agreed that staff is free to choose the type of vaccination he wants to receive
- Only (63%) agreed that citizen is free to choose the type of vaccination he wants to receive.
- On this regard, a key-informant stated: *"Unlike many countries around the world , We adopt strict measure by imposition complete quarantine system for a period of 21 days for each returnee from travel, and this is delay the entry or spread of the virus, and this gave sufficient time to prepare the infrastructure and all requirements to deal with the pandemic, in addition to winning the opportunity to benefit from the experiences of the world"* .

Table (4.8): Distribution of the study participants according to respondent about Surveillance, Laboratory, and points of entry

Items	Nu.	%
Samples for Covid-19 are collected at your facility		
Yes	203	85. 3
No	32	13.4
I don't Know	3	1.3
Total	238	100.0
What is type of diagnostic test available in your institution		
Antigen/Rapid Test	187	77.0
PCR	150	61.7
Antibody	40	16.5
Whole genome sequencing	2	0.8
Partial genome sequencing	2	0.8
Your health institution has direct access to governmental lab PCR results		
Yes	148	62.2
No	43	18.1
I don't Know	47	19.7
Total	238	100.0
There is an effective surveillance team/system in place		
Yes	118	49.6
No	43	18.1
I don't Know	77	32.4
Total	238	100.0

Table (4.8a): Continued

Quarantine and lockdown were effective measures against Covid-19 pandemic to Gaza		
Yes	201	84.5
No	20	8.4
I don't Know	17	7.1
Total	238	100.0
What was your vaccine name		
Pfizer	61	25.6
Sputnik	70	29.4
AstraZeneca	1	0.4
I am not vaccinated now but I will	64	26.9
I am not vaccinated now and won`t	39	16.4
Other (I was a case)	3	1.3
Total	238	100.0
Staff is free to choose the type of vaccination he wants to receive		
Yes	191	80.3
No	23	9.7
I don't Know	24	10.1
Total	238	100.0
Citizen is free to choose the type of vaccination he wants to receive		
Yes	150	63.0
No	49	20.6
I don't Know	39	16.4
Total	238	100.0

4.1.2 Inferential Statistics

4.1.2.1 Differences between Participants Knowledge and Personal data related to work

With regards to difference in the scores of Participants Knowledge and Personal data related to work, Table (4.9) shows that:

- There is no statistical significance in relationship between being in early emergency health team (although represent about one-third (30%) of all participants) and overall score of participant Covid-19-related knowledge, with (P=0.999). Although several studies verify the positive relationship between knowledge of emergencies and perceived level of personal emergency preparedness (Groves, Season, "Knowledge, Involvement and Emergency Preparedness" (2013), having such negative relationship in this study, either suggest items measured the Covid-19 emergency knowledge is not

enough to reflect such difference, or early emergency teams lack of enough preparedness at least at the knowledge level.

- There is no statistical significance (P=0.090) in relationship between gender and Participants Covid-19-related Knowledge (Although in our sample males represent 44% and females 56% of early emergency teams (216)
- There is no statistical significance (P=0.134) in relationship between Age group and Participants Covid-19-related Knowledge (Although staff below 40 years represent 69% of early emergency teams (216), the age group "From 31 to 40" has the highest mean for knowledge (70.4)
- There is no statistical significance (P=0.376) in relationship between Marital Status and Participants Covid-19-related Knowledge
- There is no statistical significance (P=0.336) in relationship between education and Participants Covid-19-related Knowledge (Although participants with higher education represent about one third (31.5%) of the sample) .

Table (4.9): Differences between Participants Knowledge and Personal Data

	Demographic Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Early Emergency Health Teams	Yes	217	68.29	19.18	-0.001	0.999
	No	94	68.30	19.32		
Gender	Male	138	66.23	19.75	-1.699	0.090
	Female	173	69.94	18.63		
Age	30 and less	88	69.09	19.40	1.875	0.134
	From 31 to 40	124	70.48	19.33		
	From 41 to 45	47	65.11	18.40		
	More than 45 Years	50	64.00	18.52		
	Total	309	68.22	19.16		
Marital Status	Not Married	56	70.36	14.77	0.887	0.376
	Married	255	67.84	20.03		
Education	Associate degree	43	65.12	16.38	1.095	0.336
	Bachelor	170	68.00	19.87		
	Higher education	98	70.20	19.10		
	Total	311	68.30	19.19		

4.1.2.2 Differences between Participants Knowledge and Personal Data related to work

- Table 4.10 shows that there is no relationship (P= 0.340) between occupations and level of knowledge (P=0.340) (Although pharmacist has the highest knowledge mean, while Administrators and Service Providers has the lowest mean).

- There is no statistical significance (P=0.466) in relationship between managerial level and Participants Covid-19-related Knowledge (Knowledge level is not affected by having/or not managerial position).
- Also no significant relationship (P=0.611) between type of work contract and level of knowledge (Fixed and temporary contracted staff have almost the same mean of knowledge).
- There is no statistical significance (P=0.277) in relationship between Organization staff is working for and level of knowledge (There is no significant different between different health providers in terms of staff`s knowledge).
- There is no statistical significance (P=0.277) in relationship between Work experience and level of knowledge.

Table (4.10): Differences between Participants Knowledge and Personal Data related to work

	Demographic Data	N	Mean	Std	Test	Sig.
Occupation	Practitioner General	84	67.86	18.11	1.137	0.340
	Specialist Doctor	23	72.17	20.66		
	Dentist	11	67.27	18.49		
	Pharmacy	21	73.33	21.29		
	Midwifery & Nurse	108	69.44	20.18		
	Paramedical	26	67.69	16.08		
	Health workers	2	70.00	14.14		
	Administration and Services	36	61.11	18.48		
	Total	311	68.30	19.19		
Managerial Level	I Don't have	216	68.52	18.84	0.896	0.466
	Team leader	37	65.41	20.36		
	Chairman Committee	4	75.00	10.00		
	Head Department	39	71.28	21.42		
	Director	15	62.67	16.68		
	Total	311	68.30	19.19		
type of your work contract	Permanent	259	68.73	19.12	0.494	0.611
	Temporary	50	66.40	19.98		
	Volunteer	2	60.00	0.00		
	Total	311	68.30	19.19		
Organization you are working for	MOH Hospital	153	69.80	19.07	1.281	0.277
	MoH Primary Health Care	57	64.91	19.74		
	UNRWA	63	69.21	17.16		
	Private	15	70.67	16.68		
	NGO's	23	62.61	24.35		
	Total	311	68.30	19.19		
Experience of working in your organization	Less than 3 Years	88	68.41	19.11	0.183	0.833
	From 3 to 9	82	69.27	19.42		
	10 and more	141	67.66	19.22		
	Total	311	68.30	19.19		

4.1.2.3 Differences between Participants Preparedness and Personal Data

- Table (4.11) showed that there is statistical significance (P=0.001) in relationship between being in early emergency teams and Participants Preparedness, the mean of preparedness is higher (55.83) in members of early emergency teams than those who are not.
- There is statistical significance (P=0.004) in relationship between gender and Participants Preparedness, as below table shows males (57.1) are more prepared than females (49.6)
- Table 4.11 shows that there is statistical significance (P=0.000) between age group and emergency preparedness, the most prepared age group is "More than 45 Years" with mean (63.5) and the least prepared age group is "30 and less "with mean (44.3)
- There is statistical significance (0.005) between marital status and emergency preparedness, married staff (54.6) are more prepared than non-married (45.1)
- There is no statistical significance (P=0.038) between education and emergency preparedness

Table (4.11): Differences between Participants Preparedness and Response and Personal Data

	Demographic Data	N	Mean	Std	Test	Sig.
Early Emergency Teams	Yes	217	55.83	22.96	3.374	0.001
	No	94	46.35	22.21		
Gender	Male	138	57.14	23.11	2.881	0.004
	Female	173	49.63	22.64		
Age	30 and less	88	44.32	25.10	8.295	0.000
	From 31 to 40	124	54.03	23.06		
	From 41 to 45	47	54.71	22.35		
	More than 45 Years	50	63.57	14.16		
	Total	309	52.91	23.18		
Marital Status	Not Married	56	45.15	23.08	-2.823	0.005
	Married	255	54.68	22.82		
Education	Associate degree	43	59.47	22.63	3.294	0.038
	Bachelor	170	50.21	23.48		
	Higher education	98	54.88	22.13		
	Total	311	52.96	23.12		

4.1.2.4 Differences between Participants Preparedness and Personal Data related to work

- Table (4.12) shows that there is statistical significance (P=0.001) between occupation and Participants Preparedness, health workers have the highest mean (71.4) of preparedness, while general practitioners have the lowest mean (46.7)

- There no statistical significance (P=0.035) between managerial level and level of emergency preparedness, those without managerial experience have almost the same level of emergency preparedness
- Additionally, the relationship between type of contract and emergency preparedness is not statistically significant (P=0.068)
- There is statistically significant (P=0.000) relationship between organization staff belong to and the level of emergency preparedness, UNRWA staff has the highest mean (65.4) of emergency preparedness score, while governmental hospital staff has the lowest level of preparedness (46.5)
- Also, there strong relationship (P=0.000) between work experience and level of preparedness, staff with "10 or more years" of experience has the highest mean of emergency preparedness (58.6), while those with "three or less years "of experience has the lowest mean score (46.7) of emergency preparedness

Table (4.12): Differences between Participants Preparedness and Response and Personal Data related to work

	Demographic Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Occupation	Practitioner General	84	46.77	23.77	3.619	0.001
	Specialist Doctor	23	54.66	21.60		
	Dentist	11	67.53	22.22		
	Pharmacy	21	52.72	21.84		
	Midwifery & Nurse	108	51.32	23.94		
	Paramedical	26	52.75	23.13		
	Health workers	2	71.43	10.10		
	Administration and Services	36	66.07	13.59		
	Total	311	52.96	23.12		
Managerial Level	I Don't have	216	50.50	23.19	2.619	0.035
	Team leader	37	57.34	20.24		
	Chairman Committee	4	55.36	18.79		
	Head Department	39	56.96	24.22		
	Director	15	66.67	21.54		
	Total	311	52.96	23.12		
type of your work contract	Permanent	259	54.16	21.92	2.704	0.068
	Temporary	50	46.29	27.84		
	Volunteer	2	64.29	30.30		
	Total	311	52.96	23.12		
Organization you are working for	MOH Hospital	153	46.50	22.90	10.834	0.000
	MoH Primary Health Care	57	50.13	25.09		
	UNRWA	63	65.42	14.47		
	Private	15	58.57	27.29		
	NGO's	23	65.22	17.54		
	Total	311	52.96	23.12		
Experience of working in your organization	Less than 3 Years	88	46.75	25.28	8.488	0.000
	From 3 to 9	82	49.91	24.73		
	10 and more	141	58.61	19.25		
	Total	311	52.96	23.12		

4.1.2.5 Differences between Participants Infection Prevention Control & Case management and Personal Data

- In Table (4.13), there is statistical significance (P=0.002) in relationship between being in early emergency teams and level of IPC and case management, the mean score of IPC & Case management is higher (54.0) in members of early emergency teams than those who are not (43.9)
- There is statistical significance (P=0.000) in relationship between gender and level of IPC and case management, as below table shows males (56.7) are more prepared than females (46.3)
- Table (4.13) shows that there is statistical significance (P=0.006) between age group and level of IPC and case management, age group of "More than 45 Years" has the highest mean score (56.4) and age group is "30 and less "has the least mean score (44.6)
- There is no statistical significance (0.961) between marital status and emergency preparedness
- There is no statistical significance (P=0.441) between education and emergency preparedness

Table (4.13): Differences between Control and Case management and Personal Data

	Demographic Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Early emergency teams	Yes	217	54.04	27.24	3.116	0.002
	No	94	43.91	24.13		
Gender	Male	138	56.79	24.41	3.485	0.000
	Female	173	46.35	27.62		
Age	30 and less	88	44.63	28.37	4.206	0.006
	From 31 to 40	124	49.71	26.70		
	From 41 to 45	47	56.48	26.67		
	More than 45 Years	50	59.45	20.88		
	Total	309	50.87	26.76		
Marital Status	Not Married	56	51.14	26.94	0.049	0.961
	Married	255	50.94	26.71		
Education	Associate degree	43	55.81	27.46	0.821	0.441
	Bachelor	170	50.32	26.22		
	Higher education	98	50.00	27.26		
	Total	311	50.98	26.71		

4.1.2.6 Differences between Control and Case management and Personal Data related to work

- In Table (4.14), there is statistical significance (P=0.018) relationship between occupation and level of IPC and case management, dentists have the highest mean (74.3), while general practitioners have the lowest mean (45.1)

- There is statistical significance (P=0.001) between managerial level and level of IPC and case management, Directors have the highest mean score (69.0), while those without managerial position have the least score (47.0).
- Additionally, the relationship between type of contract and level of IPC and case management is not statistically significant (P=0.260).
- There is statistically significant (P=0.000) relationship between organization staff belong to and the level of IPC and case management, Private and UNRWA staff has the highest mean (64) of level of IPC and case management, while governmental hospital staff has the lowest level of preparedness (43.7).
- Also, there strong relationship (P=0.000) between work experience and level of IPC and Case management, staff with "10 or more years" of experience has the highest mean (57.3), while those with "3-9 years "of experience has the lowest mean score (44.4) of level of IPC and case management.

Table (4.14): Differences between Control and Case management and Personal Data related to work

	Demographic Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Occupation	Practitioner General	84	45.13	27.16	2.470	0.018
	Specialist Doctor	23	46.64	29.05		
	Dentist	11	74.38	12.74		
	Pharmacy	21	50.65	23.81		
	Midwifery & Nurse	108	50.93	27.40		
	Paramedical	26	52.80	27.34		
	Health workers	2	50.00	6.43		
	Administration and Services	36	59.34	22.32		
	Total	311	50.98	26.71		
Managerial Level	I Don't have	216	47.01	26.54	4.943	0.001
	Team leader	37	61.43	23.51		
	Chairman Committee	4	61.36	8.70		
	Head Department	39	55.01	26.13		
	Director	15	69.09	27.01		
	Total	311	50.98	26.71		
type of your work contract	Permanent	259	51.39	25.84	1.352	0.260
	Temporary	50	47.82	30.94		
	Volunteer	2	77.27	6.43		
	Total	311	50.98	26.71		
Organization you are working for	MOH Hospital	153	43.73	25.69	9.303	0.000
	MoH Primary Health Care	57	48.48	27.67		
	UNRWA	63	63.78	20.29		
	Private	15	64.24	33.40		
	NGO's	23	61.66	24.20		
	Total	311	50.98	26.71		
Experience of working in your organization	Less than 3 Years	88	46.80	27.48	7.912	0.000
	From 3 to 9	82	44.46	28.10		
	10 and more	141	57.38	24.01		
	Total	311	50.98	26.71		

4.1.2.7 Differences between Risk assessment and Communication support and Personal Data

- In Table (4.15), there is statistical significance (P=0.000) in relationship between being in early emergency teams and risk assessment and communication support, the mean score of risk assessment and communication support is higher (50.8) in members of early emergency teams than those who are not (34.4)
- There is statistical significance (P=0.001) in relationship between gender and level of risk assessment and communication support, as below table shows males (52.63) have higher score than females (40.53)
- There is no statistical significance (P=0.196) between age group and level of risk assessment and communication support
- There is no statistical significance (0.807) between marital status and emergency preparedness
- There is no statistical significance (P=0.654) between education and emergency preparedness

Table (4.15): Differences between Risk assessment and Communication and Personal Data

	Demographic Data	N	Mean	Std	Test	Sig.
Early Emergency teams	Yes	217	50.86	32.48	4.156	0.000
	No	94	34.44	30.87		
Gender	Male	138	52.63	30.97	3.277	0.001
	Female	173	40.53	33.37		
Age	30 and less	88	39.91	30.79	1.572	0.196
	From 31 to 40	124	47.48	33.55		
	From 41 to 45	47	46.81	34.72		
	More than 45 Years	50	51.50	32.40		
	Total	309	45.87	32.87		
Marital Status	Not Married	56	46.88	28.53	0.245	0.807
	Married	255	45.69	33.75		
Education	Associate degree	43	50.00	35.04	0.425	0.654
	Bachelor	170	45.66	31.49		
	Higher education	98	44.52	34.29		
	Total	311	45.90	32.83		

4.1.2.8 Differences between Risk assessment and Communication and Personal Data related to work

- In Table (4.16), there is statistical significance (P=0.002) relationship between occupation and level of risk assessment and communication support, dentists have the highest mean (67.05), while health workers have the lowest mean (18.75)

- There is statistical significance (P=0.006) between managerial level and level of risk assessment and communication support, Chairman Committee have the highest mean score (81.25), while those without managerial position have the least score (41.72)
- There is no statistical significance (0.772) between type of contract and level of risk assessment and communication support.
- There is statistically significant (P=0.001) relationship between organization staff belong to and the level of risk assessment and communication support, Private staff has the highest mean (66.67) of level risk assessment and communication support, while governmental hospital staff has the lowest level of preparedness (37.17).
- There is no statistical significance (P=0.129) between work experience and the level of risk assessment and communication support.

Table (4.16): Differences between Risk assessment and Communication and Personal Data related to work

	Personal Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Occupation	Practitioner General	84	37.20	31.70	3.285	0.002
	Specialist Doctor	23	42.93	35.52		
	Dentist	11	67.05	28.65		
	Pharmacy	21	46.43	25.66		
	Midwifery & Nurse	108	44.68	35.61		
	Paramedical	26	51.92	28.66		
	Health workers	2	18.75	26.52		
	Administration and Services	36	62.15	24.55		
	Total	311	45.90	32.83		
Managerial Level	I Don't have	216	41.72	32.73	3.704	0.006
	Team leader	37	53.04	27.55		
	Chairman Committee	4	81.25	21.65		
	Head Department	39	53.85	33.95		
	Director	15	58.33	33.63		
	Total	311	45.90	32.83		
type of your work contract	Permanent	259	45.85	33.36	0.258	0.772
	Temporary	50	45.50	30.80		
	Volunteer	2	62.50	0.00	0.258	0.772
	Total	259	45.85	33.36		
Organization you are working for	MOH Hospital	153	37.17	31.90	7.744	0.001
	MoH Primary Health Care	57	60.09	27.99		
	UNRWA	63	46.83	35.21		
	Private	15	66.67	27.82		
	NGO's	23	52.72	27.94		
	Total	311	45.90	32.83		
Experience of working in your organization	Less than 3 Years	88	43.18	30.79	2.064	0.129
	From 3 to 9	82	41.77	32.94		
	10 and more	141	50.00	33.74		
	Total	311	45.90	32.83		

4.1.2.9 Differences between Operational support, logistics and governance and Personal Data

- In Table (4.17), there is statistical significance (P=0.001) in relationship between being in early emergency teams and level of Operational support, logistics and governance, the mean score of operational support, logistics and governance is higher (53.99) in members of early emergency teams than those who are not (38.65)
- There is statistical significance (P=0.005) in relationship between gender and level of operational support, logistics and governance, as below table shows males (56.04) are more prepared than females (44.03)
- There is statistical significance (P=0.006) relationship between age group and level operational support, logistics and governance, age group of "More than 45 Years" has the highest mean score (64.33) and age group is "30 and less "has the least mean score (38.26)
- There is no statistical significance (P=0.803) between marital status and operational support, logistics and governance.
- There is no statistical significance (P=0.287) between education and operational support, logistics and governance.

Table (4.17): Differences between Operational support, logistics and governance and Personal Data

	Personal Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Early Emergency Teams	Yes	217	53.99	37.19	3.352	0.001
	No	94	38.65	36.76		
Gender	Male	138	56.04	35.68	2.825	0.005
	Female	173	44.03	38.46		
Age	30 and less	88	38.26	37.24	5.559	0.001
	From 31 to 40	124	49.46	37.42		
	From 41 to 45	47	53.19	36.55		
	More than 45 Years	50	64.33	35.48		
	Total	309	49.24	37.74		
Marital Status	Not Married	56	48.21	39.53	-0.250	0.803
	Married	255	49.61	37.32		
Education	Associate degree	43	57.75	41.84	1.253	0.287
	Bachelor	170	47.75	35.57		
	Higher education	98	48.47	39.18		
	Total	311	49.36	37.67		

4.1.2.10 Differences between Operational support, logistics and governance and Personal Data related to work

- In Table (4.18), There is statistical significance (P=0.001) relationship between occupation and level of operational support, logistics and governance, dentists have the highest mean (66.67), while health workers have the lowest mean (16.67)
- There is statistical significance (P=0.001) between managerial level and level of operational support, logistics and governance, Chairman Committee have the highest mean score (79.17), while those without managerial position have the least score (43.60).
- There is no statistical significance (0.360) relationship between type of contract and level of operational support, logistics and governance.
- There is statistically significant (P=0.000) relationship between organization staff belong to and the level of operational support, logistics and governance, NGOs staff have the highest mean score (72.4%), while MoH-Hospital staff has the lowest level of preparedness (36.93).
- Also, there strong relationship (P=0.004) between work experience and level of operational support, logistics and governance, staff with "10 or more years" of experience has the highest mean of emergency preparedness (57.09), while those with "3-9 years "of experience has the lowest mean score (42.48).

Table (4.18): Differences Operational support, logistics and governance and Personal Data related to work

	Personal Data	**N**	**Mean**	**Std**	**Test**	**Sig.**
Occupation	Practitioner General	84	38.29	37.65	5.059	0.001
	Specialist Doctor	23	38.41	38.08		
	Dentist	11	66.67	27.89		
	Pharmacy	21	53.17	34.41		
	Midwifery & Nurse	108	47.22	38.97		
	Paramedical	26	60.26	32.69		
	Health workers	2	16.67	23.57		
	Administration and Services	36	75.00	25.67		
	Total	311	49.36	37.67		
Managerial Level	I Don't have	216	43.60	37.61	4.924	0.001
	Team leader	37	62.16	33.48		
	Chairman Committee	4	79.17	15.96		
	Head Department	39	57.69	35.22		
	Director	15	71.11	38.56		
	Total	311	49.36	37.67		

Table (4.18a): Continued

type of your work contract	Permanent	259	49.74	37.41	1.026	0.360
	Temporary	50	46.00	39.20		
	Volunteer	2	83.33	23.57		
	Total	311	49.36	37.67		
Organization you are working for	MOH Hospital	153	36.93	36.12	10.027	0.001
	MoH Primary Health Care	57	60.23	32.39		
	UNRWA	63	57.14	39.00		
	Private	15	66.67	37.27		
	NGO's	23	72.46	28.70		
	Total	311	49.36	37.67		
Experience of working in your organization	Less than 3 Years	88	43.37	37.87	5.613	0.004
	From 3 to 9	82	42.48	37.60		
	10 and more	141	57.09	36.36		
	Total	311	49.36	37.67		

4.1.2.11 Association between health facility has predefined an essential health services package and personal data

- In Table (4.19), There is no statistical significance (P=0.335) relationship between being in early emergency teams and availability of essential health services.
- There is no statistical significance (P=0.751) relationship between gender and availability of essential health services package.
- There is statistical significance (P=0.001) relationship between age groups and availability of essential health services package, about (73.8%) of health staff confirm on the presence predefined an essential health services package in their health facility, while (11.7%) deny its availability, the agreement on presence of essential health services is increasing as health staff progress in age. On contrary denial % is decreasing as health staff is getting younger.
- There is no statistical significance (P=0.377) between marital status and availability of essential health services package.
- There is no statistical significance (P=0.385) between education and availability of essential health services package.

Table (4.19): Association between health facility has predefined an essential health services package and personal data

Personal Data	Our health facility has predefined an essential health services package								X^2	Sig.
	Yes		No		I Don't Know		Total			
	Nu	%	Nu	%	Nu	%	Nu	%		
Emergency teams										
Yes	132	76.4	18	10.2	27	15.3	177	100.0	**2.189**	**0.335**
No	46	70.8	11	16.9	8	12.3	65	100.0		
Total	**178**	**73.6**	**29**	**12.0**	**35**	**14.5**	**242**	**100.0**		
Gender										
Male	88	73.3	16	13.3	16	13.3	120	100.0	**0.573**	**0.751**
Female	90	73.8	13	10.7	19	15.6	122	100.0		
Total	**178**	**73.6**	**29**	**12.0**	**35**	**14.5**	**242**	**100.0**		
Age										
30 and less	35	53.0	13	19.7	18	27.3	66	100.0	**26.280**	**0.001**
From 31 to 40	75	76.5	11	11.2	12	12.2	98	100.0		
From 41 to 45	34	97.1	0	0.0	1	2.9	35	100.0		
More than 45 Years	33	80.5	4	9.8	4	9.8	41	100.0		
Total	**177**	**73.8**	**28**	**11.7**	**35**	**14.6**	**240**	**100.0**		
Marital Status										
No Married	30	66.7	8	17.8	7	15.6	45	100.0	**1.951**	**0.377**
Married	148	75.1	21	10.7	28	14.2	197	100.0		
Total	**178**	**73.6**	**29**	**12.0**	**35**	**14.5**	**242**	**100.0**		
Education										
Associate degree	28	84.8	1	3.0	4	12.1	33	100.0	**4.157**	**0.385**
Bachelor	96	71.1	17	12.6	22	16.3	135	100.0		
Higher education	54	73.0	11	14.9	9	12.2	74	100.0		
Total	**178**	**73.6**	**29**	**12.0**	**35**	**14.5**	**242**	**100.0**		

4.1.2.12 Association between health facility has predefined an essential health services package and personal data related to work

Among all health providers (73.6%) confirm availability of essential health services package, (12%) denied its presence, and (14.5%) are unaware about this issue.

- In Table (4.20), There is statistical significance (P=0.009) relationship between occupations and availability of essential health services package, Administrators and Services providers (91.4) and dentists (90.0%) are the top occupations that agree on the presence of essential health services package in health facility, while general

practitioners (56.1%) have the least agreement its presence. The unawareness % about presence of predefined essential health services package in health facility is highest among general practitioners (26.4%) and paramedical staff (20.9%) and lowest among dentists (0%) and pharmacists (0%).

- There is no statistical significance (P=0.189) relationship between managerial level and presence of essential health services package in health facility. No significant difference among different categories of managerial levels (team leader, chairman, no manager role, etc.) with regard to agreement/uncertainness on presence of essential health services package in health facility.
- There is no statistical significance (P=0.400) relationship between type of contract and availability of essential health services package. No significant difference among different categories of contract types (permanent or temporary) regarding agreement/uncertainness on presence of essential health services package in health facility.
- There is statistically significant (P=0.022) relationship between organization staff belong to and availability of essential health services package. UNRWA are the top health provider whose staff have agreement (89.1%) on the presence of essential health services package, while the MoH-Hospital are the least (62.3%) health provider whose staff have agreement on this regard. The highest % of unawareness/uncertainness about availability of essential health services package was among staff of MoH-Hospital (18.9%) and NGOs (14.3%)
- Also, there is statistically significant relationship (P=0.001) between work experience and availability of essential health services package, "10 or more years" work experience is the top category whose staff have agreement (84.7%) on the presence of essential health services package in health facility, while "Less than 3 Years" are the least work experience category whose staff have agreement (56.7%). Additionally, with regard to level of unawareness/uncertainness, "Less than 3 Years" is the highest category whose staff are unaware/uncertain (26.9%), while on contrary "10 or more years" is the lowest (8.1%).

Table (4.20): Association between health facilities has predefined an essential health services package and personal data related to work

Personal Data	Our health facility has predefined an essential health services package								X^2	Sig.
	Yes		No		I Don't Know		Total			
	Nu	%	Nu	%	Nu	%	Nu	%		
Occupation										
Practitioner General	32	56.1	10	17.5	15	26.3	57	100.0	29.378	0.009
Specialist Doctor	13	81.3	1	6.3	2	12.5	16	100.0		
Dentist	9	90.0	1	10.0	0	0.0	10	100.0		
Pharmacy	16	88.9	2	11.1	0	0.0	18	100.0		
Midwifery & Nurse	58	71.6	12	14.8	11	13.6	81	100.0		
Paramedical	18	75.0	1	4.2	5	20.8	24	100.0		
Health workers	0	0.0	0	0.0	1	100.0	1	100.0		
Administration and Services	32	91.4	2	57	1	2.9	35	100.0		
Total	178	73.6	29	12.0	35	14.5	242	100.0		
Managerial Level										
I Don't have	111	69.4	19	11.9	30	18.8	160	100.0	11.222	0.189
Team leader	25	78.1	5	15.6	2	6.3	32	100.0		
Chairman Committee	4	100.0	0	0.0	0	0.0	4	100.0		
Head Department	28	84.8	2	6.1	3	9.1	33	100.0		
Director	10	76.9	3	23.1	0	0.0	13	100.0		
Total	178	73.6	29	12.0	35	14.5	242	100.0		
Type of your work contract										
Permanent	151	75.1	21	10.4	29	14.4	201	100.0	4.046	0.400
Temporary	25	64.1	8	20.5	6	15.4	39	100.0		
Volunteer	2	100.0	0	0.0	0	0.0	2	100.0		
Total	178	73.6	29	12.0	35	14.5	242	100.0		
Organization you are working for										
MOH Hospital	66	62.3	20	18.9	20	18.9	106	100.0	17.881	0.022
MOH PHC	41	74.5	7	12.7	7	12.7	55	100.0		
UNRWA	41	89.1	1	2.2	4	8.7	46	100.0		
Private	12	85.7	1	7.1	1	7.1	14	100.0		
NGO's	18	85.7	0	0.0	3	14.3	21	100.0		
Total	178	73.6	29	12.0	35	14.5	242	100.0		
Experience of working in your organization										
Less than 3 Years	38	56.7	11	16.4	18	26.9	67	100.0	18.793	0.001
From 3 to 9	46	71.9	10	15.6	8	12.5	64	100.0		
10 and more	94	84.7	8	7.2	9	8.1	111	100.0		
Total	178	73.6	29	12.0	35	14.5	242	100.0		

4.1.2.13 Association between Samples for Covid-19 are collected at your facility and personal data

Among all health providers (85.3%) confirm the collection of samples for Covid-19 at their health facilities, (13.4%) denied its presence, and (1.3%) are unaware/uncertain about this issue. See Table (4.21)

- There is no statistical significance (P=0.939) relationship between being in early emergency teams and awareness about collection of Covid-19 at health facility. No significant difference among both categories about agreement/uncertainness on collection of Covid-19 samples at health facility in health facility.
- There is no statistical significance (P=0.104) relationship between gender and awareness about collection of Covid-19 at health facility. There is no significant difference among both genders (Male and female) about agreement/uncertainness on collection of Covid-19 samples at health facility.
- There is no statistical significance (P=0.683) relationship between age groups and awareness about collection of Covid-19 at health facility, No significant difference among different categories of age groups with regard to agreement/uncertainness on collection of Covid-19 samples at health facility.
- There is no statistical significance (P=0.061) between marital status and awareness about collection of Covid-19 at health facility. No significant difference among both categories (married, not married) regarding agreement/uncertainness on collection of Covid-19 samples at health facility.
- There is no statistical significance (P=0.385) between education level and awareness about collection of Covid-19 at health facility. No significant difference among different categories of education level (Associate degree, Bachelor, Higher education) regarding agreement/uncertainness on collection of Covid-19 samples at health facility.

Table (4.21): Association between Samples for Covid-19 is collected at your facility and personal data.

Personal Data	Samples for Covid-19 are collected at your facility								X^2	Sig.
	Yes		No		I Don't Know		Total			
	Nu	%	Nu	%	Nu	%	Nu	%		
Early Emergency teams										
Yes	148	85.1	24	13.8	2	1.1	174	100.0	0.126	0.939
No	55	85.9	8	12.5	1	1.6	64	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Gender										
Male	106	89.1	13	10.9	0	0.0	119	100.0	4.524	0.104
Female	97	81.5	19	16.0	3	2.5	119	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Age										
30 and less	51	79.7	12	18.8	1	1.6	64	100.0	3.956	0.683
From 31 to 40	87	88.8	10	10.2	1	1.0	98	100.0		
From 41 to 45	30	85.7	4	11.4	1	2.9	35	100.0		
More than 45 Years	33	84.6	6	15.4	0	0.0	39	100.0		
Total	201	85.2	32	13.6	3	1.3	236	100.0		
Marital Status										
No Married	35	77.8	8	17.8	2	4.4	45	100.0	5.605	0.061
Married	168	87.0	24	12.4	1	0.5	193	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Education										
Associate degree	24	75.0	8	25.0	0	0.0	32	100.0	4.157	0.385
Bachelor	113	85.0	18	13.5	2	1.5	133	100.0		
Higher education	66	90.4	6	8.2	1	1.4	73	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		

4.1.2.14 Association between Samples for Covid-19 are collected at your facility and personal data related to work

- In Table (4.22), There is no statistical significance (P=0.917) relationship between occupations and awareness about collection of Covid-19 at health facility. No significant difference among categories of occupations (General Practitioner, Dentist, Pharmacy, etc.) about agreement/uncertainness on collection of Covid-19 samples at health facility in health facility.
- There is no statistical significance (P=0.457) relationship between managerial level and awareness about collection of Covid-19 at health facility. There is no significant difference among categories of managerial level (team leader, chairman, no manager role, etc.) about agreement/uncertainness on collection of Covid-19 samples at health facility.
- There is statistical significance (P=0.001) relationship between work contract and awareness about collection of Covid-19 at health facility, "Permanent" work contract is

the top category whose staff have agreement (87.9%) on the collection of Covid-19 at their health facility.

- There is statistical significance (P=0.001) between Organization staff work for, and awareness about collection of Covid-19 at health facility. UNRWA is the top health provider whose staff have agreement (95.6%) on the collection of Covid-19 at their health facility, while private is the health provider on this regard (57.0%). With regard to unawareness/uncertainness, NGO's is the highest health provider whose staff are unaware/uncertain (5%).
- There is no statistical significance (P=0.685) between work experience and awareness about collection of Covid-19 at health facility. No significant difference among different categories of work experience (Less than 3 Years, From 3 to 9, 10 and more) about agreement/uncertainness on collection of Covid-19 samples at health facility.

Table (4.22): Association between Samples for Covid-19 are collected at your facility and personal data related to work

Personal Data	**Samples for Covid-19 are collected at your facility**								X^2	Sig.
	Yes		**No**		**I Don't Know**		**Total**			
	Nu	**%**	**Nu**	**%**	**Nu**	**%**	**Nu**	**%**		
Occupation										
Practitioner General	49	86.0	7	12.3	1	1.8	57	100.0	**7.432**	**0.917**
Specialist Doctor	15	93.8	1	6.3	0	0.0	16	100.0		
Dentist	8	88.9	1	11.1	0	0.0	9	100.0		
Pharmacy	14	77.8	3	16.7	1	5.6	18	100.0		
Midwifery & Nurse	66	83.5	13	16.5	1	5.6	79	100.0		
Paramedical	21	91.3	2	8.7	0	0.0	23	100.0		
Health workers	1	100.0	0	0.0	0	0.0	1	100.0		
Administration and Services	29	82.9	5	14.3	1	2.9	35	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Managerial Level										
I Don't have	128	91.5	27	17.2	2	1.3	157	100.0	**7.762**	**0.457**
Team leader	29	93.5	1	3.2	1	3.2	31	100.0		
Chairman Committee	4	100.0	0	0.0	0	0.0	4	100.0		
Head Department	30	90.0	3	9.1	0	0.0	33	100.0		
Director	12	92.3	1	7.7	0	0.0	13	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Type of your work contract										
Permanent	174	87.9	21	10.6	3	1.5	198	100.0	**18.120**	**0.001**
Temporary	29	76.3	9	23.7	0	0.0	38	100.0		
Volunteer	0	0.0	2	100.0	0	0.0	2	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Organization you are working for										
MOH Hospital	93	89.4	10	9.6	1	1.0	104	100.0	**28.375**	**0.001**
MOH PHC	47	85.5	8	14.5	0	0.0	55	100.0		
UNRWA	43	95.6	1	2.2	1	2.2	45	100.0		
Private	8	57.	6	42.9	0	0.0	14	100.0		
NGO's	12	60.0	7	35.0	1	5.0	20	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		
Experience of working in your organization										
Less than 3 Years	54	81.8	11	16.7	1	1.5	66	100.0	**2.276**	**0.685**
From 3 to 9	54	85.7	9	14.3	0	0.0	63	100.0		
10 and more	95	87.2	12	11.0	2	1.8	109	100.0		
Total	203	85.3	32	13.4	3	1.3	238	100.0		

4.2 Qualitative Data Analysis

4.2.1 Health Workers

Based on the answers of health staff for two open-ended questions

- What's are the main strength factors in emergency health response in Gaza?
- What's are the main challenges/weakness factors in emergency health response in Gaza?

After reviewing all the answers by respondents, data were grouped according to below suggested codes and subcodes using NVivo 12 software. See Table (4.23).

Table (4.23): Codes and Subcodes for HWs Qualitative Analysis

Code Name	Code Name
Laboratory	Emergency Response
Process	Triaging
Quantity	Telemedicine Service
Financial	Planning & Preparation
Incentives & Rewards	Emergency Monitoring Policies
Public Support	IPC & Health and Social Measures
Weak Health Resources	Closing Gathering Places
Vaccinations	Close Markets and Shops
Appropriate vaccinations	Closing Wedding Halls
Vaccination Availability	Closing Funeral Halls
People Vaccination	Lockdown
Staff Vaccination	IPC Measures
Vaccination Awareness	
Infrastructure	
Research	
Health System	
Epidemiology Center	
Physical Places	
Equipment and Medical Items	
Health Staff	
Staff Coordination and Support	
Staff Training	
Staff Number	
Case Management	
Non-Covid-19 Cased	
Caste Detection	
Isolation	
Quarantine	
Imposing Quarantine Policy	
Treatment and Follow Up Cases	
Awareness	
Staff Awareness	
Vaccination Awareness	
Public Awareness	

4.2.1.1 Covid-19 Health Response Word Cloud- Health Staff

Below image (Figure 4.11) illustrates summary for words mentioned by health staff open answers about evaluation of Covid-19 health response in Gaza, the word size is consistent with its weight (recurrence in HWs answers)

Figure (4.11): Self-created Word Cloud for strength and weakness of emergency health response in Gaza-Qualitative Data- NVivo

4.2.1.2 No. of respondents among generated codes

With regards to open-ended questions, below chart (Figure 4.12) illustrates the number of health staff respondents per each domain/code, the total number of respondents for strength (no.381) questions is much higher than those for the weakness (no.205). The top domains mostly mentioned as strength factor by respondents was IPC, health & social measures (no.73), Emergency response (no.69) and Awareness (no.66) respectively.

While the top code mostly mentioned as weakness factor by respondents was Awareness(no.50),and IPC , Health & social measures (no.32) and emergency response (31) respectively .It's obvious that the same factors were mentioned both as strength and also as weakness, which may reflect their importance in HWs perception on one hand , but on the other hand , it could reflect changes in adoption of these factors over time (particularly

during Covid-19 pandemic with its different phases) , thus they are considered as strength factor at a time/phase of strict adherence , while also considered as weakness factor at a time/phase of poor adherence.

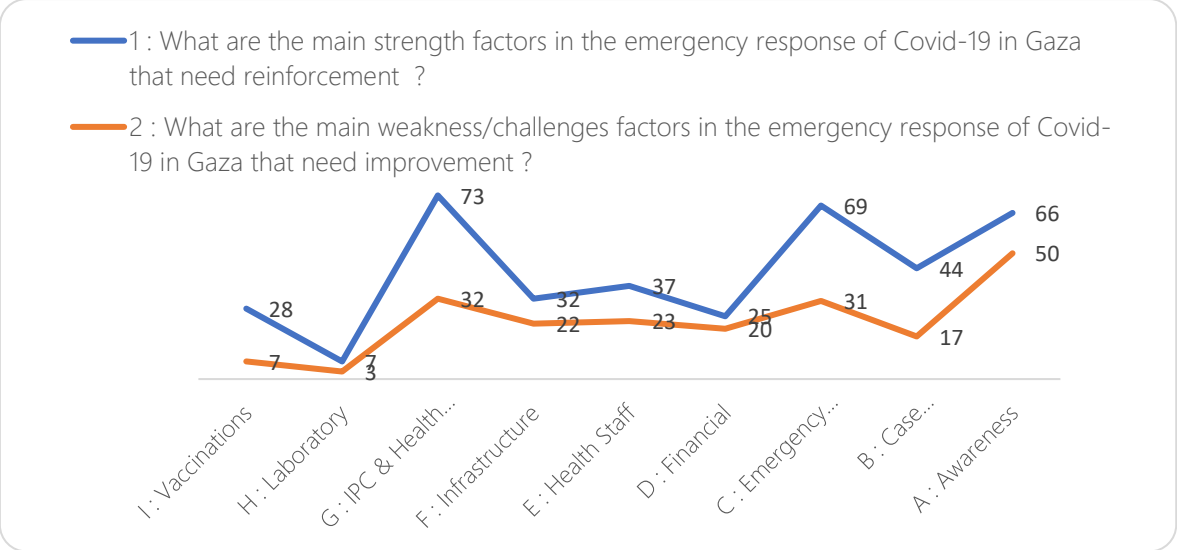

Figure (4.12): No. of respondents among generated codes

4.2.1.3 No. of references per code/domain

As below radar chart (Figure 4.13) depicted, the number of references for generated codes is much higher for strength than for weakness.

- For Strength factors, the total number of code references is as below:
  - IPC, health & social measures (no.117) is the highest code that was referred to by respondents. To ensure community safety and management of the pandemic, the decision to close schools should be reconsidered, implementing stricter and more reliable distancing policies (*Hamad et al.,2020*)
  - Emergency response (no.102) is the second common code with references
  - Awareness (no.85). is the third common code with references.
- For Challenges/Weakness factors, the total number of code references is as below:
  - Awareness (no.53), is the highest code that was referred to by respondents as weakness factor
  - Emergency response (no.41) is the second common code with references
  - IPC measures (no.38) are the third common code with references.
- It worth mentioning that the lowest number of references was for Covid-related laboratory code for both strength and weakness factors.

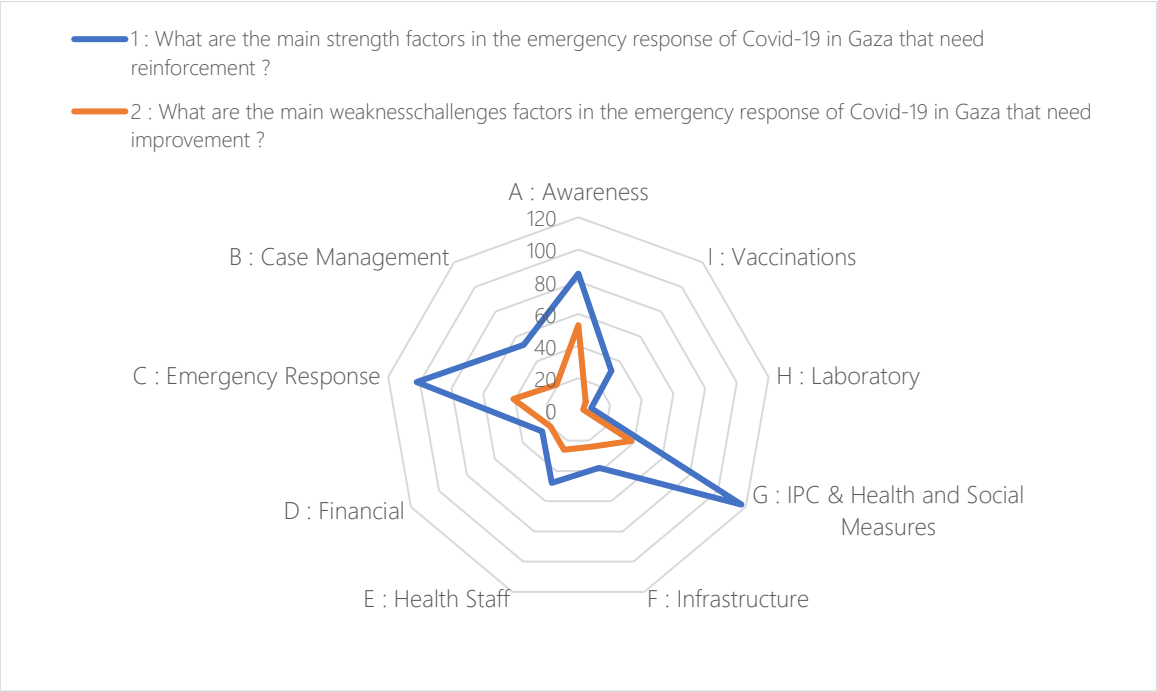

Figure (4.13): Radar chart for overall codes counts per domain and question- Health Workers

Below charts (Figure 4.14) illustrated detailed segregations of number of references per code and subcode

- In Awareness Code, three subcodes were generated (Public Awareness, Staff Awareness, Vaccination Awareness), the most common subcode in both strength and weakness question was "Public Awareness".
- In Case Management Code, six subcodes were generated (Case Detection, Isolation, Non-Covid-19 Cases, Quarantine, Imposing Quarantine Policy, Treatment and Follow Up Cases). The most common subcode in both strength and weakness question was "Treatment and Follow Up Cases"
- In Emergency Response Code, four subcodes were generated (Emergency Monitoring Policies, Planning & Preparation, Telemedicine Service, Triaging). The most common subcode in both strength and weakness question was "Emergency Monitoring Policies"
- In Financial Code, three subcodes were generated (Incentives & Rewards, Public Support, Weak Health Resources). The most common subcode in both strength and weakness question was "Weak Health Resources"

- In Health Staff Code, three subcodes were generated (Staff Coordination and Support, Staff Number, Staff Training). The most common subcode in both strength and weakness question was "Staff Number"
- In Infrastructure Code, five subcodes were generated (Epidemiology Center, Equipment's and Medical Items, Health System, Physical Places, Research). The most common subcode in both strength and weakness question was "Equipment's and Medical Items"
- In IPC & Health and Social Measures Code, two subcodes were generated (Closing Gathering Places, IPC Measures). The most common subcode in both strength and weakness question was "IPC Measures"
- In Laboratory Code, four subcodes were generated (Process, Quantity). The most common subcode in both strength is "Quantity", while in weakness its "Process ".
- In Vaccination Code, two subcodes were generated (Appropriate vaccinations, People Vaccination, Staff Vaccination, Vaccination Availability). The most common subcode in both strength and weakness question was "Staff Vaccination"

Figure (4.14): Segregations of number of references per code and subcode-Health Workers

4.2.2 Policy Makers

Based on the answers of health policy makers for below Key Informants Interview questions:

- How do you think COVID-19 pandemic affected health system in Gaza? What main domains have been affected?
- Do any cooperatives/ associations exist between other health providers/sectors? Where? Are they working?
- What are main strengths factors in Covid-19 health response in Gaza? Which existing sectors show potential for improvements?

- What are main weakness factors in Covid-19 health response in Gaza?
- What are your recommendations for the improvement of emergency health response in future? What are some immediate steps that should be taken?

After reviewing all the answers by respondents, data were grouped according to below suggested codes and subcodes using NVivo 12 software.

Table (4.24): Codes and Subcodes for Policy Makers- Qualitative Analysis

Code Name	Code Name
Impact on Health system	Recommendation
Beneficiaries	Health Staff Support
Health Staff	Improve Coordination & Planning
Medical Products	Improve Media presence
Service Provision	Improve Vaccination Coverage
Shortage funds for other projects	National Health information System
Cooperation Coordination	National Case Management Protocols
Negative	Strength Awareness Programs
Neutral	Support IPC Measures
Positive	Support laboratories
Very negative	Support New Services
Very Positive	
Strength Factors	
Case management	
Planning & Coordination	
Health Staff resilience	
HIS	
IPC measures	
Surveillance System	
Vaccination	
Youth Community	
Weakness Factors	
Planning & Coordination	
Financial	
Health staff	
Awareness	
Operational Support	
Political Situation	
IPC items	
lab items	
Vaccine Coverage	

4.2.2.1 No. of references per code/domain

- In Strength Code, eight subcodes were generated (Case management, Planning & Coordination, Health Staff resilience, HIS, IPC measures, Surveillance System, Vaccination, Youth Community), the most common subcode is "Planning & Coordination". See (Figure 4.15)
- In Weakness Code, nine subcodes were generated (Awareness, Financial, Health Staff, Operational Support, Planning & Coordination, Political Situation, Shortage IPC items, Shortage lab items, negative Vaccine Coverage). The most common subcode in weakness question is "Planning & Coordination". One key-informant confirmed this statement by saying: "*Although there was collaboration between various parties, there was difficulty designating responsibilities and carrying out duties owing to a lack of competences*"
- In Impact Code, five subcodes were generated (Beneficiaries, Health Staff, Medical Products, Service Provision, Shortage funds for other projects). The most common subcode is "Service Provision"
- In Recommendation Code, ten subcodes were generated (Health Staff Support, Coordination & Planning, Media presence, Vaccination Coverage, National Health Information System, National Management Protocols, Awareness Programs, IPC Measures, laboratories, New Services). The most common subcode policymakers suggested to improve is "Health Staff Support".

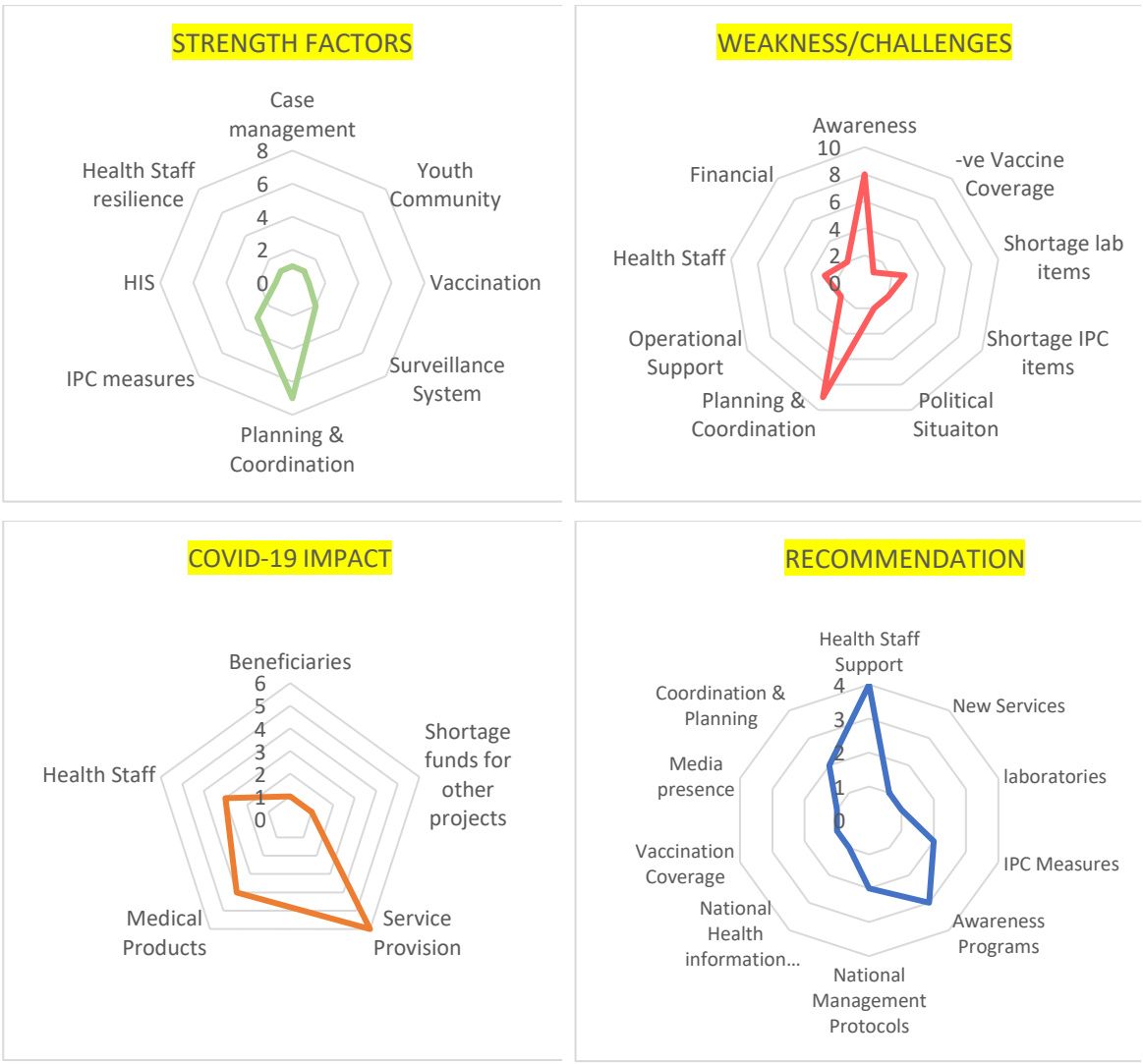

Figure (4.15): Segregations of number of references per code and subcode-Policy Makers

4.2.2.2 Covid-19 Health Response Word Cloud- Health Policymakers

Below image (Figure 4.16) illustrates summary for words mentioned by policy makers answers about evaluation of Covid-19 health response in Gaza, the word size is consistent with its weight.

Figure (4.16): Self-created Word Cloud for health Policy Makers' responses in Gaza-Qualitative Data- NVivo

4.2.2.3 No. of references per WHO Covid-19 Response Pillars

As below radar chart depicted, the number of strength/weakness references for WHO Covid-19 health response by policymakers.

❖ For <u>Strength factors</u>, the total number of pillars references is as below:

- IPC, health & social measures (no.5) is the highest pillar that was referred to by respondents
- Surveillance and Case management (no.3) is the second common strength pillar.
- Vaccination (no.2). is the third approved pillar by policymakers as strength factor.

❖ For <u>Challenges/Weakness</u> factors, the total reference of each pillar is as below:

- Risk Communication and Community Awareness (no.5) is the highest pillar that was referred to by respondents as weakness factor. Key-informant confirmed this statement: "*The local community was not involved in the response, and there was no cooperation from locals to comply, and some individuals were not convinced of the pandemic's presence, which extended to a lack of cooperation in taking the*

vaccination" . Also, In the context of covid-19, it is critical to use young people's enthusiasm for community initiatives and to involve them in pandemic response efforts (*Hamad et al.,2020*)

- Country level Coordination and Planning (no.4) is the second common pillar with references. One key-informant said: "*The concept of cooperation is not unified, and health institutions do not work according to a comprehensive plan; each one is an independent entity, the existing formats are procedural to prevent duplication of services rather than making effective health plans!"*
- Case Management and Operational Support/logistic are the third common pillar with same references (no.2).

❖ It worth mentioning that the <u>lowest</u> number of references was for <u>laboratory code</u> for both strength and weakness factors.

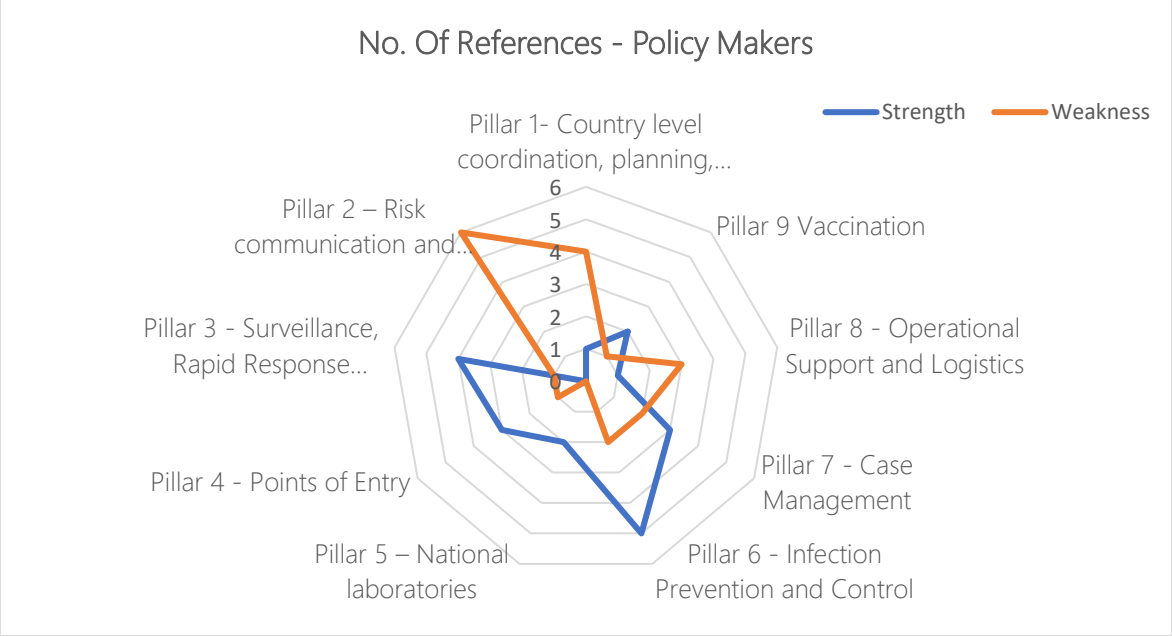

Figure (4.17): Radar chart for overall codes counts per domain and question-Policy Makers

Chapter Five

Conclusion and Recommendations

5.1 Conclusion

The present study sheds light on the current level of emergency health response in Gaza strip to fight against COVID 19 with reference to WHO pillars of Country Preparedness and Response Plan (CPRP) from both health workers and policy makers perspectives. On top of challenging and ongoing political and economic issues, Gaza is still struggling to achieve its target of total COVID-19 eradication. The emergency health response was good at operational support and logistics, according to the findings of HCWs survey, which might be explained by the cumulative experience obtained while living in chronic emergencies. However, there were disagreements over adequacy of ambulance services and intersectoral cooperation, which need to be addressed. It was evident that overall Covid-19 Preparedness-Facility-Level Coordination and Planning Pillar among HCWs was poor; Lack of spiritual and emotional support, extra-payment and effective staff emergency training were the worst items that need urgent actions. Likewise, there is large inconsistencies in HCWs` knowledge about Covid-19 infection, transmission and its perceived seriousness. Yet, there were good agreement on introductions of effective new health services such as Telemedicine, triage system and home delivery for medicines. For IPC and Case Management pillars, HCWs had good agreement on availability of PPE that needs more supervision to ensure proper adherence. There is very poor adherence to screening HCWs on daily arrival to work for possibility of Covid-19 infection, as well, infrastructure in health facilities need improvements to meet emergency context. For risk assessment and community engagement, there is very poor engagement for community in Covid-19 emergency response. For Laboratory and Surveillance Pillar, establishment of effective surveillance system and improved access of different healthcare providers (MoH, UNRWA, NGOs, Private) to results of Covid-19 tests though national laboratory platform. For health policymakers, planning/coordination was considered both as strength and weakness factor on the same time, which could be explained by timeline as it was strength on the early response to Covid-19 when there was more tightness and interest due to uncertainty, later it turned into weakness when less tightened measures were adopted by local authorities. Health awareness was considered significant weakness factor that needs to be tackled.

To successfully manage COVID-19, it would be worthwhile to engage in a variety of COVID-19 preventive measures, such as health education and creative strategies based on local evidence, in order to enhance community awareness and strengthen preventative behaviors. Incentives and psychological support system are also recommended to keep health care workers motivated. As well, legal health policies need to be reinforced through updating public health laws. Additionally, intersectoral cooperation is encouraged to handle several emergency scenarios.

There were no studies undertaken in the Gaza Strip to comprehensively assess the Covid-19 emergency health response. As a result, the study was required to evaluate emergency health system and produce evidence that could be used to improve and promote the quality of emergency health services provided, as well as possibly contribute to the development of new policies or the enhancement of existing ones to improve overall efficiency and effectiveness of emergency services provision.

5.2 Recommendations

5.2.1 General Recommendations

Controlling the COVID-19 pandemic while also protecting the health system is currently a top priority. To preserve the community health, it is vital to speed up containment and sustain the continuity of essential health services in order to offset the health, social, and financial consequences.

The following are some suggestions:

- Creative strategies to increase community awareness and engagement in community health services
- Development of effective training strategy for health staff
- Ongoing motivation system for health staff through incentives and psychological support
- Strengthen the legal health policies by updating public health laws
- Encourage inter-sectoral planning and communication through well-established national body

- Boost the capacity of health facilities in Gaza to handle different emergency health scenarios,
- Adopting national quality monitoring program for provided health services.

5.2.2 Recommendation for Further Research

1. Conduct research studies to learn more about the most important elements that affect the quality of emergency health response in Gaza context
2. Conducting further research studies to assess the long-term health impact of Covid-19 pandemic from the perspective of public in Gaza.
3. Comparative studies to assess Covid-19 emergency health response at national and international level.
4. To assess the impact of introducing Covid-19-related services (Such as Telemedicine and Triage or Quarantine, etc.)
5. To segregate study outcomes according to job categories for more targeted interventions.

"When conducting an evaluation of a scale up, one wishes to determine not just whether the desired result was achieved, but also how long it took and how much it cost relative to the demonstration project and also relative to other alternatives"

Dr.Rashad Massuad

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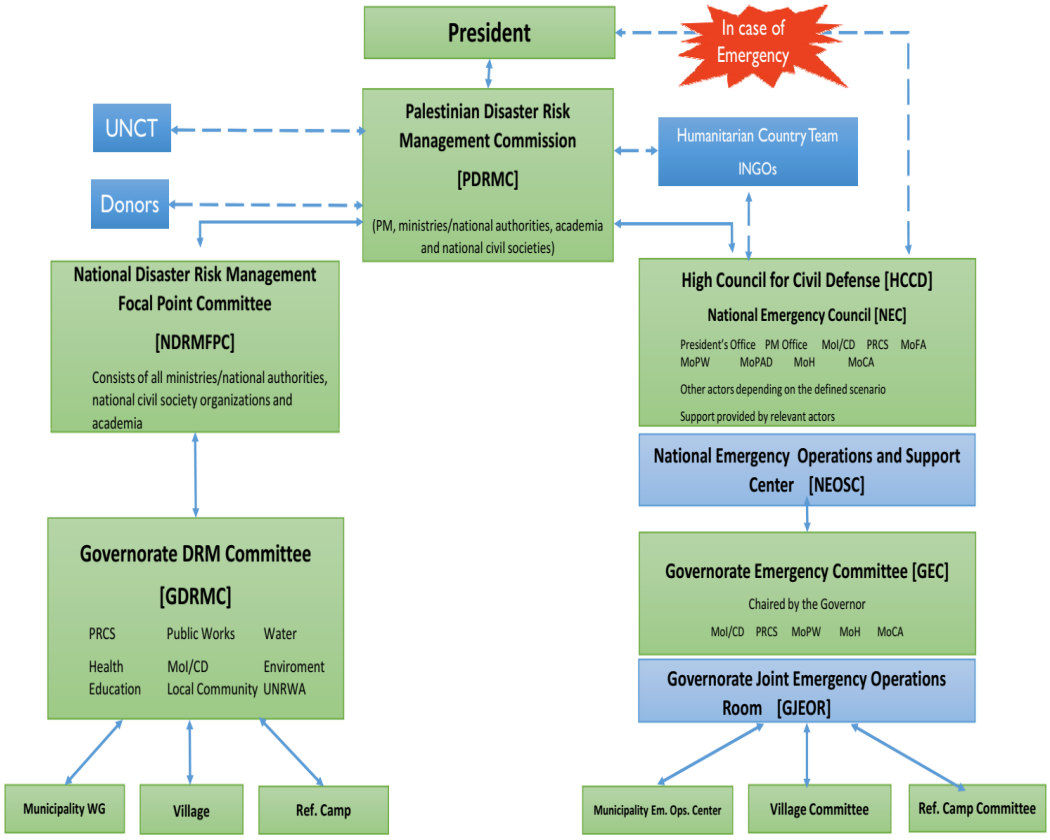
Annexes

Annex (1): Organizational structure of national disaster management responders in Palestine



Annex (2): List of Health facilities involved in the study

Organization Name
MoH-Hospitals
Shifaa Hospital
Turkey Hospital
European Hospital
Naser Hospital
MoH-PHC
UNRWA
NGOs
Union of Health Care Committees
Union of Health Work Committees
Union of Palestinian Medical Relief Committees_ Gaza.
Public Aid Society
Abdel - Shafi Community Health Association
Caritas
Near East Council of Churches
Patient Friend's Benevolent Society
Private

Annex (3): Members of validation committee

NO	NAME	POSITION
1	Dr.Yahia Abed	Al-Quds University
2	Dr.Bassam Abu Hamad	Al-Quds University
3	Dr.Khitam Abu Hamad	Al-Quds University
4	Dr Majdi Dhair	MoH
5	Dr.Motasem Salah	MoH
6	Dr.Ahmed Shatat	MoH
7	Dr.Atef Al Hout	MoH
8	Dr.Zohair Khatib	UNRWA
9	Dr.Khalil Hamad	UNRWA
11	Dr.Aed Yaghi	NGOs
12	Dr. Raed Sabbah	NGOs

Annex (4): List of key-informant interviewees

NO	NAME	POSITION
1	Dr.Abdel Naser Soboh	WHO
2	Dr Majdi Dhair	MoH
3	Dr.Motasem Salah	MoH
4	Dr.Atef Al Hout	MoH
5	Dr.Rihab Quqa	UNRWA
6	Dr.Khalil Hamad	UNRWA
7	Dr.Nisreen Halabi	UNRWA
8	Dr.Bassam Zaqout	NGOs
9	Dr. Marwan Abu Naser	NGOs
10	Dr.Yahia Abed	Al-Quds University

Annex (5): health workers questionnaire

Please click here to indicate your informed consent to participate in this study ☐

Section A : sociodemographics

1. Please insert code sent to you in SMS: …….

2. You have been **working** (even intermittently) **during** the COVID-19 pandemic
   ☐ Yes ☐ No

3. Were you part of the early emergency teams against the Covid-19 pandemic inside your institution in Gaza?
   ☐ Yes ☐ No ☐ Don't know

4. What is your sex?
   ☐ Male ☐ Female

5. What is your age? ……..

6. Marital Status
   ☐ Single ☐ Married ☐ Widowed ☐ Divorced

7. Academic achievement
   ☐ Associate degree ☐ bachelor's degree ☐ Graduate degree

8. What is your occupation
   ☐ General Practitioner ☐ Specialist Doctor ☐ Dentist
   ☐ Pharmacy ☐ Nurse & Midwifery ☐ Paramedical
   ☐ Health workers (social worker,psychologist, cleaners) ☐ Administration and Services

9. What's your managerial position
   ☐ I don't have managerial position ☐ Team leader ☐ Head Department
   ☐ Committee Chairman ☐ General Director ☐ Others: …….

10. What is the type of your work contract?
    ☐ Permanent ☐ Temporary ☐ Volunteer ☐ Others: …….

11. Please indicate the organization you are working for?
    ☐ MoH - Hospital ☐ MoH - Primary Healthcare ☐ UNRWA
    ☐ NGO ☐ Private ☐ Others: …….

12. How long have you been working for your organization?
    ☐ Less than 1 year ☐ 1 year - 3 years ☐ 3- 6 years
    ☐ 6- 10 years ☐ 10- 20 years ☐ 20+ years

13. Did ever worked in any of the following Covid-19-related health facilities? (*Check all that applies*)
☐ No , I didn't work in such facilities ☐ Quarantine Centre ☐ Isolation Center
☐ Covid-19 hospital ☐ ICU - Covid-19 ☐ Respiratory Team
☐ Telemedicine ☐ Triage Point ☐
Other:……..

Section B: facility-level coordination and planning
health worker`s knowledge

14. Novel coronavirus (COVID-19) is thought to be **originated** from **bats**?
☐ Yes ☐ No ☐ I don't know

15. The route of **transmission** of Covid-19 is Airborne?
☐ Yes ☐ No ☐ I don't know

16. I think these prevention measures are most effective in reducing the risk of contracting COVID-19? (*Check all that applies*)
☐ Disinfecting/cleaning surfaces ☐ Physical distancing ☐ Washing hands
☐ Reduce contact with others ☐ Wearing gloves ☐ Alcohol hand rub
☐ Stop shaking hands ☐ Wearing a face mask ☐
Other:……..

17. The incubation period of COVID-19 is around 2-14 days
☐ Yes ☐ No ☐ I don't know

18. COVID-19 may pass without symptoms
☐ Yes ☐ No ☐ I don't know

19. Which group of people is most at risk from getting seriously ill from COVID-19? (*Check all that applies*)
☐ Everyone ☐ Children (1-17) ☐ Adults ☐ Elderly
☐ Pregnant/lactating ☐ Health workers ☐ Persons with Respiratory illness
☐ Persons with pre-existing health condition (Diabetics, Hypertension)

20. Covid-19 could be a fatal disease?
☐ Yes ☐ No ☐ I don't know

Section B : facility-level coordination and planning
health worker`s preparedness and response

21. My organization has well-prepared health **emergency plan** for the Covid-19 pandemic?
    ☐ Yes ☐ No ☐ I don't know

22. The plan has **clear instructions or guidelines** to follow during the emergency response against Covid-19 pandemic?
    ☐ Yes ☐ No ☐ I don't know

23. The plan is **periodically updated** based on Covid-19 epidemiological changes?
    ☐ Yes ☐ No ☐ I don't know

24. My facility shares a **hard copy** of its preparedness emergency plan with all staff?
    ☐ Yes ☐ No ☐ I don't know

25. Somehow, I was **engaged** in emergency **planning** against Covid-19?
    ☐ Yes ☐ No ☐ I don't know

26. During an emergency, the organization has a clear **chain of command**?
    ☐ Yes ☐ No ☐ I don't know

27. **Work** in my health institution is **fully computerized?**
    ☐ Yes ☐ No ☐ I don't know

28. Within the **last year**, what was the type of **emergency simulation** training?
    ☐ Only remotely/theoretical ☐ only practical
    ☐ Both ☐ I didn't receive emergency simulations trainings

29. I participated in effective **joint emergency exercise** including other facilities or departments (other than health sector)
    ☐ Yes ☐ No ☐ I don't know

30. Within the last year, what was the type of **emergency training** you received related to the **Covid-19 pandemic ?**
    ☐ Only remotely/theoretical ☐ only practical
    ☐ Both ☐ I didn't receive emergency simulations trainings related to Covid-19 pandemic

31. There are effective **new services** introduced in your health facility as a response to the Covid-19 pandemic?
    ☐ Yes ☐ No ☐ I don't know

32. There is well-prepared an **isolation room** for suspected cases?
    ☐ Yes ☐ No ☐ I don't know

33. I have been **paid** for working **extra hours** during the Covid-19 pandemic?
    ☐ Yes ☐ No ☐ I don't know

34. Your health facility provides **emotional and spiritual** support for front-line staff engaged in emergency response ?
☐ Yes ☐ No ☐ I don't know

35. My Facility is directly **responsible** to manage health services that are targeting **home quarantine people (contact cases) ?**
☐ Yes ☐ No ☐ I don't know

36. Your health facility is directly **responsible** to treat **Covid-19 positive cases**?
☐ Yes ☐ No ☐ I don't know

Section C: infection prevention and control& case management

37. Your health care facility has effective **IPC guidelines** for health workers?
☐ Yes ☐ No ☐ I don't know

38. How **IPC training** on (PPE) was carried out ?
☐ Only remotely/theoretical ☐ only practical
☐ Both ☐ I didn't receive IPC training

39. I have served in **multiple stations** within your facility during the Covid-19 pandemic?
☐ Yes ☐ No ☐ I don't know

40. PPE items are available in **sufficient** quantity in the health care facility?
☐ Yes ☐ No ☐ I don't know

41. Which PPE is usually **missing** in the health care facility. *Check all that apply*
☐ Medical/surgical masks ☐ Gown and coverall ☐ Shoe covers
☐ Face shield or goggles/glasses ☐ Head cover ☐ Gloves
☐ Respirator (e.g. N95, FFP2 or equivalent) ☐ Nothing missing , all items available

42. Which disinfectants are usually **missing** in the health care facility?
☐ Water and soap ☐ Alcohol Gel ☐ Alcohol Spray
☐ Chlorine ☐ Nothing missing, all items available

43. There is a **focal point** who continuously **supervise** adherence of staff for **PPE**
☐ Yes ☐ No ☐ I don't know

44. Does the health care facility adopt a **universal masking** policy for **all** (*health workers and patients)*
☐ Yes, including all health workers , patients and visitors
☐ Yes, extended to patients only ☐ Yes, only for health workers
☐ No ☐ Don't know

45. Your health care facility **screen staff** on **daily** arrival for the possibility of Covid-19 infection (such as temperature measurement)
☐ Yes ☐ No ☐ I don't know

46. High-touch **surfaces** are frequently **decontaminated** (at least three times daily) at your health facility?
☐ Yes ☐ No ☐ I don't know

47. Your institution has enough **oxygen supplies** (either as cylinders or network)
☐ Yes ☐ No ☐ I don't know

48. The **infrastructure** of the institution was suitable in responding to the Covid pandemic (example: number of rooms, building area)
☐ Yes ☐ No ☐ I don't know

49. The organization is equipped with sufficient **telephone** lines, cell **phones**, and other resources to
communicate quickly and effectively in an emergency situation?
☐ Yes ☐ No ☐ I don't know

50. Your facility regularly **disseminates case definitions** for confirmed, suspected and probable cases of Covid-19 cases?
☐ Yes ☐ No ☐ I don't know

51. **Staff** are **updated/familiar** with the emergency plans of **national/governmental** authorities against Covid-10 pandmic ?
☐ Yes ☐ No ☐ I don't know

Section D: risk assessment and communication -support

52. Have you been **tested** for Covid-19?
☐ Yes ☐ No ☐ I don't know

53. During your work, have you been **diagnosed** as a suspected or probable, or confirmed COVID-19 cases?
☐ Yes ☐ No ☐ I don't know

54. Your **institution** fully aware of your **medical history** (if any chronic diseases) ?
☐ Yes ☐ No ☐ I don't know

55. **Vulnerable** patients (such as elderlies, pregnant women, and children) are managed through **special** measures to reduce risk to Covid-10 virus)
☐ Yes ☐ No ☐ I don't know

56. At the level of your organization, the **community** is involved in emergency preparedness for Covid-19 pandemic ?
☐ Yes ☐ No ☐ I don't know

57. There are designated **contacts/channels** with relevant **governmental** health officials for isolation or quarantine measures of suspected/confirmed cases of Covid-19 ?
☐ Yes ☐ No ☐ I don't know

58. There are flexible **referral** procedures exist for patients who are diagnosed as suspected or confirmed Covid-19 case?
☐ Yes ☐ No ☐ I don't know

59. **Feedback** system and subsequent **follow-up** mechanism in place for suspected or confirmed Covid-19 cases ?
☐ Yes ☐ No ☐ I don't know

Section E: operational support, logistics and governance

60. Transportation for staff during emergency response/lockdown is well arranged
☐ Yes ☐ No ☐ I don't know

61. **Ambulance** services during Covid-19 pandemic were adequate
☐ Yes ☐ No ☐ I don't know

62. Do you have good **supervision** supporting your work in Covid-19 response?
☐ Yes ☐ No ☐ I don't know

63. My health facility takes timely and **corrective actions** if objectives are **not being met?**
☐ Yes ☐ No ☐ I don't know

64. Staff were **deployed** properly at the **beginning** of an emergency
☐ Yes ☐ No ☐ I don't know

65. There is effective **intersectoral cooperation** in response to the Covid-19 pandemic (between the ministry of interior, transport, finance, etc.)
☐ Yes ☐ No ☐ I don't know

Section F: Essential health services

66. Your health facility has predefined an **essential health services** package (prior to the COVID-10 pandemic?
☐ Yes ☐ No ☐ I don't know

67. During Covid-10 pandemic, what are the main causes of disruption(s) and/or change(s) in service utilization? (Check all that apply)
☐ Closure of outpatient services as per government directive
☐ Closure of outpatient disease specific consultation clinics
☐ Closure of population level screening programs
☐ Decrease in outpatient volume due to patients not presenting
☐ Decrease in inpatient volume due to cancellation of elective care
☐ inpatient services/hospital beds not available
☐ Related clinical staff deployed to provide COVID-19 relief
☐ Insufficient (PPE) available for health care providers.
☐ Unavailability of essential medicines, medical diagnostics or other products.
☐ Changes in treatment policies for fever symptoms (e.g. stay at home policies)

☐ public transport lockdowns hindering access to the health facilities
☐ Financial difficulties during outbreak and lockdown

68. During the Covid-19 pandemic, what approaches are being used to overcome the disruptions to essential health services in your health facility? (Check all that apply)
☐ Telemedicine deployment to replace in-person consultations
☐ Task shifting / role delegation
☐ Novel supply-chain or dispensing approaches for medicines through other channels
☐ Decrease in outpatient volume due to patients not presenting
☐ Triaging to identify priorities
☐ Redirection of patients to alternative health care facilities
☐ Redirection of patients to alternative health care facilities
☐ Removal of user fees
☐ Other:……

Section G: Surveillance, Laboratory and points of entry

69. Samples for Covid-19 are collected at your facility
☐ Yes ☐ No ☐ I don't know

70. What is type of **diagnostic** test **available** in your institution ?
☐ Antigen/Rapid Test ☐ PCR ☐ Antibody
☐ Whole genome sequencing ☐ Partial genome sequencing ☐ Don't know

71. Your health institution has **direct** access to governmental lab **PCR results**
☐ Yes ☐ No ☐ I don't know

72. There is an effective **surveillance team/system** in place?
☐ Yes ☐ No ☐ I don't know

73. **Quarantine** and **lockdown** was effective measures against Covid-19 pandemic to Gaza?
☐ Yes ☐ No ☐ I don't know

What was your vaccine name?
☐ Pfizer ☐ Sputnik ☐ AstraZeneca
☐ I am not vaccinated now but I will ☐ I am not vaccinated now and won`t
☐ I don't know ☐ Other:…….

74. **Staff** is **free** to choose the **type** of **vaccination** he wants to receive
☐ Yes ☐ No ☐ I don't know

75. **Citizen** is **free** to choose the **type** of vaccination he wants to receive
☐ Yes ☐ No ☐ I don't know

76. **What are the main** strength **factors in the emergency response of Covid-19 in Gaza that need reinforcement?**

……
……
……
……

77. **What are the main** weakness/challenges **factors in the emergency response of Covid-19 in Gaza that improvements ?**

……
……
……
……

Annex (6): key informant interview`s questions

- Can you briefly summarize the programs that your organization is conducting that support or provide health services to populations in need during this COVID-19 pandemic?
- How do you think COVID-19 pandemic affected health system in Gaza? What main domains have been affected?
- Do any cooperatives/ associations exist between other health providers/sectors? Where? Are they working?
- What are main strengths factors in Covid-19 health response in Gaza? Which existing sectors show potential for improvements?
- What are main weakness factors in Covid-19 health response in Gaza?
- What are your recommendations for the improvement of emergency health response in future? What are some immediate steps that should be taken?

Annex (7): Study Timetable

ACTIVITY	10/11 2020	12 2020	1/2 2020	3/4 2020	6/7 2021	7/8 2021	9/10 2021	11/12 2021
Proposal Writing								
Proposal defense and approval from Helsinki Committee, MoH &UNRWA								
Development of instruments &check for validity								
Training of personnel								
Pilot Study & Modifications								
Data Collection								
Data Entry								
Data cleaning & Analysis								
Research writing								
Dissemination of finding								

Abstract in Arabic

عنوان الدراسة: تقييم الاستجابة الصحية الطارئة لمواجهة جائحة كوفيد ١٩ في قطاع غزة

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الملخص

مقدمة: يعيش المواطنون في غزة في حالات طوارئ محلية مزمنة ، مما يجعل الاستعداد لكارثة صحية وتجنبها أكثر صعوبة. نظرًا لأن كوفيد 19 هو فيروس جديد ، ما زلنا نتعلم عنه ، فقد تم تنفيذ العديد من التدخلات في مراحل مختلفة من الوباء. يهدف هذا البحث إلى تقييم الاستجابة الصحية الطارئة في غزة لوباء كوفيد 19 ، واكتساب فهم أفضل للقدرات الحالية ، وتحديد الممارسات الجيدة ومجالات التحسين في المستقبل.

الطرق البحثية: كان تصميم الدراسة عبارة عن دراسة مختلطة. حيث تضمنت كلا من البيانات الكمية والنوعية. تم جمع البيانات الكمية من مسح العاملين الصحيين الذين قدموا خدمات صحية خلال الجائحة في غزة {67٪) ووكالة الغوث (20٪) والمنظمات غير الحكومية (7٪) والقطاع الخاص (5٪)}.

في المجموع ، شارك 311 من العاملين الصحيين في الدراسة الكمية. تم جمع البيانات النوعية من خلال مقابلات مع صانعي السياسات الصحية.

تم إجراء تحليل البيانات الكمية باستخدام برنامج SPSS، بالنسبة للبيانات النوعية ، تم استخدام طريقة التحليل الموضوعي للترميز المفتوح.

النتائج: أظهرت أن 99٪ من العاملين الصحيين في الدراسة يواصلون العمل أثناء جائحة Covid-19 ، و 70٪ كانوا جزءًا من فرق الطوارئ المبكرة ، و 30٪ لديهم مستوى إداري معين ، و 70٪ عملوا في المرافق ذات الصلة بـ كوفيد 19 . كان لدى المشاركين معرفة صحية جيدة في حالات الطوارئ بنسبة 68٪. متوسط درجة التأهب هو 53٪ ، ذكر 33٪ فقط أنهم تلقوا تدريبًا فعالاً (نظري وعملي) في حالات الطوارئ (بلغت النسبة 40٪ بين أولئك الذين خدموا في المرافق المتعلقة بـ كوفيد 19)، وافق حوالي 62٪ ممن لديهم مستويات إدارية على أنهم يشاركون في التخطيط للطوارئ. متوسط الدرجة لـ IPC وإدارة الحالات المرضية هو 51٪. متوسط درجة تقييم المخاطر ودعم الاتصال هو 59٪ ، 26٪ فقط لديهم اتفاق على وجود اشراك المجتمع في الاستعداد للطوارئ في مؤسستهم. متوسط الدرجة للدعم التشغيلي واللوجستيات والحوكمة هو 63٪. كان السبب الرئيسي للاضطراب في استخدام الخدمات أثناء جائحة كوفيد 10 هو إغلاق خدمات المرضى العيادات الخارجية (74٪) ، يتبعها الصعوبات المالية (56٪) ، في حين كانت الأساليب الرئيسية المستخدمة للتغلب على الاضطرابات في الخدمات الصحية الأساسية هي التطبيب عن بعد (67٪) و فرز الحالات المرضية (64٪). على الرغم من أن معظم مقدمي الرعاية الصحية يجمعون عينات كوفيد19 85) ٪ (، إلا أن (49.6٪) فقط وافقوا على وجود نظام مراقبة فعال في عملهم.

ارتبط مستوى التأهب لمكافحة العدوى وإدارة الحالات المرضية إحصائيًا بشكل كبير مع التالي : التواجد في فرق الطوارئ المبكرة والجنس والفئات العمرية والحالة الاجتماعية والمهن والتنظيم والخبرة العملية. هناك ارتباط إحصائي كبير بين الوظائف والتالي: استقرار محطات العمل ، وتوافر معدات الحماية الشخصية ، وملاءمة البنية التحتية ، ودفع حوافز مالية إضافية.

الخلاصة: خلصت الدراسة الحالية إلى أن النظام الصحي في غزة كان قادرًا على تحمل عبء موجات كوفيد السابقة. على الرغم من تحسن العديد من العوامل / الركائز الداخلية ، فقد لعب عاملين خارجيين دورًا جديرًا بالملاحظة ؛ الوقت والقيود المفروضة على نقاط الدخول ، والتي أخرت انتقال العدوى في المجتمع ، وأتاحت وقتًا ثميناً لإدخال اللقاحات ، بالإضافة الي استفادة صانعي السياسات الصحية من تجارب البلدان الأخرى. يمكن تبرير ذلك من خلال النظام الصحي الهش بالفعل في غزة قبل وصول جائحة كوفيد 19. لإدارة جائحة كوفيد 19 بنجاح ، سيكون من المفيد تبني مجموعة متنوعة من التدابير الوقائية ، مثل التثقيف الصحي والاستراتيجيات الإبداعية القائمة على الأدلة العلمية . من أجل تعزيز وعي المجتمع وتقوية السلوكيات الوقائية. يوصى أيضًا بالحوافز ونظام الدعم النفسي للحفاظ على تحفيز العاملين في مجال الرعاية الصحية. كذلك ، يجب تعزيز السياسات الصحية القانونية من خلال تحديث قوانين الصحة العامة. بالإضافة إلى ذلك ، يتم تشجيع التعاون بين القطاعات المختلفة للتعامل مع العديد من سيناريوهات الطوارئ.