Deanship of Graduate Studies Al-Quds University



## Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

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## Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

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## **Thesis Approval**

## Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

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### Dedication

To the Palestinian people, who deserve to dwell on Palestine's land, and the souls of our brave martyrs.

To the individual who first taught me the value of education. The person who

helped me and inspired me to have confidence in myself;

### My father

To the courageous and kind woman who sacrificed everything to make me

into the person I am today;

## My mother

To the great individual who supported and loved me throughout;

### My husband

To the real treasure in my life, Osama, Amal and Yaseen;

### My sons and daughter

To those who have inspired me

### My teachers

I dedicate this thesis to all of them

## 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: VA-

Faten A. Al-Aziz Abo Amra

Date: 22/08/2023

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With sincere respect

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### Abstract

**Introduction:** Recently, greater attention has been given to information technology, telecommunications, and their use in health care. This study aims to evaluate telemedicine services at UNRWA health centers in the Gaza Strip in order to identify opportunities to enhance the quality of these services, which optimally might contribute to better health outcomes.

**Methods:** A mixed-methods approach was used, in which data were triangulated. In total, 400 randomly selected (systematic sampling approach) clients-attendants of health centersand 197 care providers participated in the quantitative part of the study. In addition, three focus group discussions with clients, three focus group discussions with care providers, and three key informant interviews were conducted with purposively selected participants. Quantitative data from clients was collected through an interviewed questionnaire, and an online survey has been administered with service providers. The preliminary findings derived from the quantitative part have been used to inform the qualitative data collection. The Statistical Package for Social Sciences software was used for the quantitative data entry and analysis, while the Open Coding Thematic technique was used to analyze the qualitative data.

**Findings:** Results showed that the majority of clients who responded were females (76.3%), 85.2% of respondents had heard of telemedicine before, and 71.8% of participants have used telemedicine. Almost all participants who used telemedicine reported satisfaction with their interactions with service providers. The phone lines always being busy and the excessive waiting times were the major challenges facing clients when using telemedicine services, as reported by them. The majority of clients (95%) used telemedicine services to get medical treatment. Findings revealed that 35.9% of respondents agreed to a high extent and 37.7% agreed to some extent that telemedicine services save their money, and 96.1% agreed that telemedicine has improved access to health services. The vast majority of clients surveyed (95%) reported that the use of telemedicine has shortened their waiting time. Moreover, the majority of respondents (87.5%) believed that telemedicine had a positive effect on their health status and the health of their families.

Findings from the service provider survey indicate that care providers were split almost evenly between males and females (50.8% and 49.2%, respectively), and of them, 59.4% had received on-the-job training on telemedicine. Most care providers who filled out the online survey (83.2%) offered telemedicine at least once. Three quarters of service providers reported that telemedicine is effective. However, only 27% of respondents indicated that they trusted the diagnosis that is being made remotely. Service providers reported that telemedicine consultations were made mainly to get medical advice (66.6%) and to inquire about the availability of services (50.3%). Pediatric diseases such as colds, gastroenteritis, and feeding difficulties (89.3%) and general diseases such as rash, musculoskeletal problems, and motor-neuron diseases (77.2%) were the most frequently reported medical conditions that were treated via telemedicine; all are according to the service providers' responses. The results of the qualitative interviews were congruent with the quantitative findings and provided further illumination and in-depth insights. With regard to statistical significance, males and educated participants were more likely to know about telemedicine services, and people who knew about telemedicine used it more often. Health care providers who received training on telemedicine are more likely to use this type of service.

**Conclusions:** The study underscores the important positive contributions of telemedicine services that can be scaled up to be part of routine services in emergencies and regular times alike. There is a need to further develop protocols and service guidelines in order to better standardize telemedicine services and to intensify training followed by supervision and rigorous follow-up.

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## List of Abbreviations

AMA	American Medical Association
CAGR	Compound Annual Growth Rate
CDC	Centers for Disease Control and Prevention
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Coronavirus Disease of 2019
CTD	Connective Tissue Disorder
CVA	Cerebrovascular Accident
DM	Diabetes Mellitus
ECG	Electrocardiogram
EMRO	Eastern Mediterranean Region Office
FGD	Focus Group Discussion
GBV	Gender-based violence
GDP	Gross Domestic Product
GG	Gaza Governorates
GHP	Gaza Health Program
HC	Health Center
HD	Health Department
HTN	Hypertension
ibid	The same previous citation
ICT	Information and Communication Technology
ICU	Intensive Care Unit
KII	Key Informant Interview
LMIC	Low- and Middle-income Countries
MoH	Ministry of Health
NCD	Non-Communicable Diseases
NGO	Non-Governmental Organizations
NIS	New Israeli Shekel
PCBS	Palestinian Central Bureau of Statistics
PHC	Primary Health Care
PHIC	Palestinian Health Information Centre
RRB	UNRWA's Research Review Board
SMS	Short Message Service
SOP	Standard Operating Procedures
SPH	School of Public Health
UNRWA	United Nations Relief and Works Agency for the Refugees of
	Palestine in the Near East
URTI	Upper Respiratory Tract Infection
USA	United States of America
WHO	World Health Organization

## Chapter One Introduction

#### 1.1 Background

Telemedicine is the provision of medical services where a substantial barrier to access is distance. It uses Information and Communication Technology (ICT) for the exchange of reliable data for the detection, treatment, and prevention of illnesses and injuries (Kruse et al., 2018). Telemedicine is the practice of using ICT to obtain necessary health care while maintaining social distance. ICT is significantly contributing to the advancement of both private and public health care (Mittal & Battineni, 2022). Through telemedicine, ICT systems are currently employed to provide healthcare over long distances. The goal of implementing ICT is to provide decentralized health care services (ibid).

Before the end of 2019, the Coronavirus Disease of 2019 (COVID-19) pandemic began. This infectious disease is brought on by the SARS-CoV-2 virus, which was first identified in Wuhan, China, and has since rapidly spread throughout the world. There are official names for both the sickness caused by COVID-19 (formerly known as the '2019 novel coronavirus') and the virus that causes it (World Health Organization-WHO, 2021). On January 30, 2020, the COVID-19 outbreak was deemed a public health emergency of worldwide concern by the WHO. The WHO General Director declared COVID-19 a pandemic on March 11. In a way or another, COVID-19 affected healthcare systems all over the world (ibid). Most health care systems developed a response strategy to deal with the pandemic's effects and keep giving patients the essential medical treatment they need. Due to the extreme consequences of COVID-19, the United Nations Relief and Works Agency for the Refugees of Palestine in the Near East (UNRWA) had challenges continuing to provide healthcare to Palestinian refugees (UNRWA, 2021a). UNRWA adopted preventive measures in health centers in order to continue offering medical services in response (ibid). On April 8, 2020, telemedicine services were made available at all UNRWA health facilities in Gaza as part of the response plan (UNRWA, 2020). By offering patients medical advice and pertinent information online, basic medical services for Palestinian refugees were still offered by UNRWA. In addition to instant outpatient care, antenatal care for ladies with high-risk pregnancies, family planning services (with the exception of the insertion of intrauterine devices), postpartum care, and child health services, especially vaccination, have all resumed at UNRWA health centers. Clients who needed care for other non-critical services were recommended to use telemedicine in order to decrease in-person visits to health centers (ibid). Telemedicine guarantees that medical care will continue to be provided while protecting clients and healthcare providers from COVID-19 (Centers for Disease Control and Prevention-CDC, 2020).

#### 1.2 Research problem

Since telemedicine is a relatively new service, there is growing concern about how well it functions as a model of service delivery at UNRWA health clinics in Gaza. The evaluation of these services is essential to gaining a better understanding of how to promote the practice of telemedicine. There are gaps in information around telemedicine services and to what extent these services achieve their objectives. The study attempts to address open questions about how telemedicine services accomplish their goals, what functions well and what doesn't function appropriately, and how to improve these services. The study attempts to provide critical insights into how telemedicine services can be promoted to ultimately accomplish their stated objectives.

#### 1.3 Justification

Crisis situations and emergencies can arise at any time. At whatever time, they have the power to destroy entire communities, causing great pain and fatalities. The use of telemedicine in healthcare is widely considered to have enormous potential for overcoming the emergencies that restrict individuals from accessing health services (Bashshur et al., 2020). The amount of evidence supporting the effectiveness of telemedicine is currently increasing (Gajarawala & Pelkowski, 2021). However, it deserves further analysis to determine what factors impede the uptake of these services and what is needed to speed up their implementation. This evaluation will provide evidence to healthcare providers and policymakers in the Gaza Strip about what works and what does not work, which will be used to inform future decisions. Being a major service provider, conducting this study at UNRWA has added value, and the lessons learned from Gaza can also be transferred to other contexts. The study opens up new opportunities for other providers to develop telemedicine services both throughout and subsequently the COVID-19 epidemic. The study is helpful to policymakers because it offers in-depth information about an innovative service in a special setting, which could aid in the future improvement of such services. Practitioners can use the findings to improve their practice. Being the first of its kind, the study will provide a baseline for future studies and enrich the global literature, especially the literature related to conflict-affected contexts like Gaza.

#### 1.4 Aim

To evaluate telemedicine services at UNRWA health centers, Gaza, looking ultimately to provide policymakers with recommendations that might promote the appropriate use of telemedicine and its positive consequences on people's health and wellbeing.

#### 1.5 Objectives

- 1. Ascertain the extent to which the telemedicine services achieve their intended goals.
- 2. Appraise inputs, processes, and outcomes related to telemedicine services.
- 3. Explore the strengths and weaknesses in the provision of telemedicine services.
- 4. Assess health care providers' and beneficiaries' perceptions about telemedicine services.
- 5. Recognize differences in health care providers and beneficiaries' perspectives about telemedicine services with regard to characteristics variables.
- 6. Provide a set of recommendations that can affect the future development of telemedicine.

#### 1.6 Context of study

#### 1.6.1 Geographical and demographical context

The Gaza Strip is a small Palestinian territory located in the southern-western region of Palestine, along the eastern shore of the Mediterranean Sea. North Gaza, Gaza City, Deir Al-Balah (Middle-area), Khan Younis, and Rafah are its five governorates (Palestinian Central Bureau of Statistics-PCBS, 2022). The 365-square-kilometre Gaza Strip had a high population density of 5,936 people per square kilometer (ibid). There are 2.17 million inhabitants living there, and of those, 41% are children under the age of 14, whereas 3% of the population is 65 or older (ibid). A total of 77.2% of the population lives in urban areas, 14.5% in rural areas, and 8.3% in refugee camps (ibid). According to PCBS (2022), the unemployment rate in Gaza for the entire economically active population aged 15 and over is 46.9%.

#### 1.6.2 Political-economic context

Life in Gaza has become increasingly difficult after 16 years of a land, air, and sea siege. The situation has worsened as a result of ongoing hostilities, increased tension and violence, instability in politics, and the COVID-19 epidemic. Together, these elements have disrupted people's lives and communities, making the struggles Gazans already experience even more severe (UNRWA, 2022a).

A civilization with a high level of education and talent has become impoverished and dedeveloped as a result of the collapse of the economy and its ability to generate jobs. According to the World Bank (2021), the average unemployment rate is above 46.9% for people over the age of 15, making it one of the highest rates in the world. With 80% of the population reliant on humanitarian aid, Gaza is on life support (UNRWA, 2023). Three out of four residents of Gaza currently depend on emergency food aid, yet even with this help, the rate of food insecurity is increasing (ibid). With incredibly high rates of unemployment and poverty, the already precarious humanitarian situation is in danger of getting worse (ibid).

In the Gaza Strip, 53% of people live in poverty, while 33.8% are considered to be living in deep poverty (PCBS, 2022). Israel's continuous limitations on the movement of individuals and goods have a considerable negative impact on the majority of Gazans' daily lives, and as a result, Gaza has deteriorated (UNRWA, 2023). The fundamental economic presentation of a country is gauged by its Gross Domestic Product (GDP). The average global GDP in 2021 was 12,183 \$ United States of America (USA) per capita. On the other side, Palestine's GDP per capita increased to 3,664 \$ (USA). Palestine, which has been ranked 122, is one of the smaller economies. In 2021, Palestine's Human Development Index was 0.715, ranking 106th out of 191 countries and territories and placing it in the high human development category (United Nations, 2022).

#### **1.6.3** Health status

In the Gaza Strip, the average life expectancy at birth was 73.7 years, 72.5 years for men, and 75.0 years for women (PCBS, 2022). Under-5 mortality was 14.2 per 1000, with 16.3 per 1000 males and 12.0 per 1000 females (ibid). Infant mortality for Palestinians was reported to be 12.1 per 1000 live births, compared to 12.7 per 1000 live births in Gaza. Age and gender may affect various patterns of disease or poor health. The examination of health inequities is, however, constrained by gaps in the data disaggregation for various Palestinian demographics, particularly by geographic location.

According to the Palestinian Health Information Centre (PHIC), in 2021, cardiovascular and vascular disorders were the main cause of death in Gaza, representing 29.3% of all fatalities. Statistics from the Palestinian Ministry of Health (MoH) show that neonatal deaths and congenital abnormalities accounted for more than 3.6% of fatalities in Gaza, COVID-19 mortality for 24.0%, and transport accidents, assaults, and falls combined for 6.1%. A lot of violence is experienced by Palestinians who live under a long-term occupation.

#### 1.6.4 Health care system

The government health sector (MoH and Military Medical Services), UNRWA, Non-Governmental Organizations (NGOs), and the private sector are the four main sectors that provide the delivery of health services in Palestine (PCBS, 2022). Through 22 UNRWA clinics in Gaza, UNRWA provides primary care for 83.4% of Gaza's registered refugees. The MoH is the principal healthcare provider in the governorates, offering primary, secondary, and tertiary health care to the entire population, particularly those with medical insurance. By referring patients to neighboring nations, other private health care facilities, and NGO health care facilities, it can afford to buy advanced medical treatment. Primary Health Care (PHC), secondary care, and specialized services, including those related to disabilities, are all offered by the NGO sector. The three levels of treatment are also offered by the private, for-profit healthcare sector through a variety of procedures. Accessibility and coverage of healthcare services are generally adequate for all actors (PCBS, 2022). In comparison to referrals in 2020, the overall number of referrals outside the MoH grew by 23.8% in 2021. Oncology management once again received the most recommendations (27% of all referrals in 2021), placing it at the top overall. Additionally, it represented the largest portion of money spent on hiring services from outside the MoH (MoH, 2021). There were 1.5 million registered refugees with UNRWA in Gaza (UNRWA, 2022a). Through 22 health centers, UNRWA provides primary healthcare while also purchasing secondary and tertiary healthcare services for the vast majority (1,295,528) of served Palestine refugees in the Gaza Strip. Since it began operations in 1950, UNRWA has made considerable advancements in the health of Palestinian refugees (ibid). UNRWA actively coordinates with host countries and other stakeholders to address the health needs of Palestinian refugees. The organization has adjusted and enhanced its services throughout time as Palestinian refugees' medical needs have changed. According to current estimates, nearly 83.4% of the Gazan refugees still strongly rely on UNRWA's services, according to the most recent data. This shows that the majority of people continue to face significant economic difficulties, particularly those who live in conflict zones with high unemployment and rising poverty rates. About one-third of the nation's registered refugees reside in the 58 recognized Palestine refugee camps (ibid).

#### **1.7** Operational definitions

- Telemedicine: Delivery of health care services, where patients and providers are separated by distance. Telehealth uses ICT for the exchange of information for the diagnosis and treatment of diseases and injuries, research, and evaluation, and for the continuing education of health professionals.
- Toll-free line (hot line): telephone lines with distinct digit codes that can be called for free without placing any costs on the caller (Arango, 2020).

## **Chapter Two** Literature Review and Conceptual Framework

#### 2.1 Literature Review

Unfortunately, research into telemedicine has so far been both general and non- specific. Reflecting this immaturity, the literature reviewed in this research was limited, and most of the available literature referred only to pilot projects and to short-term outcomes.

### 2.1.1 Definitions of telemedicine

Although the phrases 'telemedicine' and 'telehealth' have distinct definitions, they are sometimes used interchangeably and have a lot in common. The WHO guideline's definition of telemedicine is adopted in this recommendation: the practice of providing healthcare services remotely through communication between healthcare providers looking for clinical advice and support from colleagues in the field (provider-to-provider telemedicine) or between remote clients looking for healthcare services and health care providers (client-to-provider telemedicine) (WHO, 2022). According to Becevic et al. (2020), telemedicine has been defined as the delivery of medical services through ICT that enable examination, diagnosis, consultation, treatment, education, care coordination, and patient self-management while the patient is at the initial location and the healthcare provider is at a different location. Manocchia (2020) defined telemedicine as the delivery of health care via two-way electronic audiovisual technology.

### 2.1.2 Origins and history

Over a century's worth of technological and medical breakthroughs have led to telemedicine's current capabilities. Telemedicine is now feasible thanks to a series of technological developments over the past 200 years and their use in medical care (Jagarapu & Savani, 2021). Technology has advanced from the telegraph to smartphones, and connections have advanced from Morse code to the internet and cellular networks. Telemedicine's evolution, linkages, and technological breakthroughs are all closely intertwined. The telegraph, also known as 'the Victorian Internet,' was the first technology used for providing remote medical care. Awaiting medical teams received telegraph signals on ill soldiers during the American Civil War in the 1860s. The idea of conveying clinical

and diagnostic data was explored at the beginning of the 20th century (2002) (ibid). Technology development, connection, and the development of telemedicine are all directly related (ibid).

#### 2.1.3 Telemedicine in the COVID-19 period

The COVID-19 epidemic began to spread globally in late 2019. The emergency situation called for urgent interventions to prevent the spread of infection and control the numbers of infected cases, as well as to develop new solutions and interventions that help the health system continue to provide its services during this pandemic (Filip et al., 2022). One of the most important solutions in the case of the COVID-19 pandemic was telehealth and telemedicine; these two terms are commonly used interchangeably. Tele-health, on the other hand, refers to healthcare services that include all professions as well as public health education. Telemedicine refers to doctors' health services, specifically the monitoring of activities and clinical diagnosis with technology (WHO, 2022).

One of the first programs to respond to the pandemic was UNRWA's Gaza Health Program (GHP), which sought to reduce the frequency of non-urgent visits, the number of patient footprints inside the health centers, and ultimately the spread of COVID-19. The concept of telemedicine was developed to address these problems (UNRWA, 2020a).

#### 2.1.4 Countries experiences

Telemedicine is not a brand-new idea. Before the epidemic, Member States around the Western Pacific Region were utilizing telemedicine applications. Member states at various levels of the digital health transition are all more involved in telemedicine deployment during COVID-19. Incorporating insights from early adopters (WHO, 2022).

In 2005, the WHO established a Global Monitor for eHealth, or the use of ICT for health, which includes telemedicine. The WHO has long advocated the use of telemedicine. WHO has supported the use of eHealth tools to support the Sustainable Development Goals on Universal Health Coverage in addition to other goals. Examples of telemedicine interventions in low- and middle-income countries (LMICs) include tele cardiology, tele radiology, tele mental health, tele Intensive Care Unit (ICU), and tele dermatology (Parkes et al., 2022). According to Parkes et al.'s (2022) systemic evaluation, a tele-pediatric intervention in Iraq prompted remote healthcare practitioners to review difficult cases and

update treatment methods in order to adhere to international standards. In Syria, procedures were performed in the areas of the intensive care unit, cardiology, radiology, nephrology, and mental health (ibid). Social media was used for follow-up conversations with rural patients and local doctors during a tele dermatology intervention in Yemen (ibid). Remote doctors were also contacted for advice. Regional rehabilitation centers in Gaza were connected via videoconferencing through a tele-rehabilitation intervention so they could support one another (ibid).

Many programs, including store-and-forward electrocardiogram (ECG) recordings and medical education, have been implemented in industrialized countries for ten to fifteen years. The global tele home and telemedicine market is anticipated to grow, with a Compound Annual Growth Rate (CAGR) of 17.7% (Sikka, 2021). Similar initiatives have received much less attention in developing nations. Telemedicine applications could be utilized in developing countries to deliver basic healthcare services and shorten travel times between remote areas and specialized facilities. The efficiency and cost-effectiveness of telemedicine in relation to conventional medical care still need to be evaluated. Telemedicine applications in undeveloped countries need to be studied, planned, and evaluated in line with specific criteria (ibid).

#### 2.1.5 Benefits of telemedicine

In terms of accessibility, the Abdul Wahab and Zedan (2021) study found that more than half of the participants agreed that telemedicine services allowed for communication with medical professionals and improved access to healthcare. With the use of telemedicine, a sizeable fraction of patients in these rural areas might be successfully handled with some assistance and direction from experts and superspecialists in the cities and towns, as just 7.2% of patients had problems comprehending or acting on advice provided through telemedicine (Kumar et al., 2020).

In terms of time savings, Salman et al.'s (2020) study discovered that telemedicine increases the number of lives saved by enhancing medical service response times and reducing waiting periods for all patients. Mobile consultations took +4 minutes longer than face-to-face consultations in a non-randomized, quasi-experimental, exploratory study conducted in the primary care sector of the United Kingdom (Hammersley, 2019). Abdul Wahab and Zedan's study (2021) found that 36.6% of participants considered telemedicine

to be a viable method of receiving medical care, 43% claimed they needed assistance using telemedicine services, and about 48.1% of survey participants indicated they felt comfortable speaking with their doctors via telemedicine. However, all medical specialists and 67.9% of healthcare practitioners would prefer to give telemedicine services, according to a 2019 study on the use of telemedicine by French internal medicine specialists, which revealed that 54.0% of respondents intended to practice telemedicine and 72.8% wanted to learn there (Firn et al., 2021).

Effectiveness teleconsultations over the phone or videoconference are an efficient substitute for in-person consultations for many patients receiving primary care and mental health services, according to De Albornoz et al.'s (2021) systemic review on the effectiveness of telemedicine in primary care published in 2021. Teleconsultations offer the potential to increase access to healthcare while delivering time- and money-saving therapies remotely.

#### 2.1.6 Challenges facing telemedicine implementation

A crucial tactic for sustaining and enhancing the health services that the COVID-19 pandemic has interrupted is telemedicine. A detailed understanding of the disparities between supply and demand for healthcare services, the digital infrastructure, the transition to new care pathways, and the investment case are necessary for the creation and deployment of a telemedicine system that is both sustainable and affordable. Despite telemedicine's rising popularity and political and social acceptance throughout the pandemic, its complexity necessitates considerable thought and planning when putting one in place (WHO, 2022). The adoption of telemedicine solutions in LMIC or conflict-affected (Mediterranean Region Office (EMRO) contexts is hampered by a lack of resources (financial, material, and human resources), insufficient connectivity, unreliable electrical supply, Poor evidence, and a lack of effect evaluations, particularly in conflict-affected areas (Parkes et al., 2022).

Implementing telemedicine in developing nations is challenging due to the system's costly nature, opposition to change, and telemedicine's slow clinical adoption; a shortage of the ICT infrastructure needed for telemedicine, especially in remote regions (such as access to the internet and capacity for high-speed telecommunications); and a lack of guidelines, especially with regard to data safety, reliability, and privacy. The aforementioned issues

might be resolved by expanding telemedicine to incorporate the technology as a routine component of healthcare services (Hsing, 2020). The absence of face-to-face patient interaction 57.3% and computer problems 55%, according to a 2019 study on the use of telemedicine by French internal medicine practitioners, are the biggest barriers to the profession (Firn et al., 2021). According to research by Alghamdi et al. (2020), 36.0% of healthcare professionals want to be better trained. Other issues included damaged phones and external impediments brought on by poverty, linguistic barriers, and gender issues (Odendaal et al., 2020). According to Khemapech et al.'s (2019) e-health foundations, these systems are crucial and ought to be the first to be put into use. Rural inhabitants face greater access challenges than urban residents do, and the largest obstacle to employing telemedicine for the elderly is their lack of digital literacy.

#### 2.1.7 **Provider's perceptions**

In order to determine how satisfied physicians were with telemedicine during the COVID-19 epidemic, Malouff et al. (2021) undertook research. They found that doctors typically viewed the use of telemedicine favorably and said the quality of the care they received was comparable to face-to-face care. In addition to receiving telemedicine training, doctors must also learn how to use it professionally, safely, and according to the best available scientific data (Jumreornvong et al., 2020). The outcome of Garber and Gustin's (2022) study revealed a significant relationship between telemedicine adoption and the type of telehealth education received. In line with Nakagawa and Yellowlees' (2020) research, which demonstrated that younger generations of doctors will be better equipped to tolerate burnout as technology plays a growing role in healthcare, older generations have had trouble incorporating technology into their healthcare workflows.

#### 2.1.8 Beneficiary's perceptions

Regardless of whether satisfaction is measured in attitudinal or behavioral terms, there is significant and recurrent evidence regarding overall satisfaction with telemedicine among healthcare providers and recipients. This evidence corresponds with typical outcomes from the majority of research concerning satisfaction with health care. Shiff et al.'s study (2021) found that patients who had telephone appointments instead of in-person ones were generally more satisfied with telephone appointments. Women are more likely to use telemedicine, according to Jacqueline and Maria (2022). The Northeast and West used telemedicine more frequently than the Midwest and South, and utilization increased with income, level of education, urbanization, individuals with chronic conditions, and

geographic location (Jacqueline & Maria, 2022). According to Abdul Wahab and Zedan (2021), 43% of respondents need assistance using telemedicine services. About 48.1% of participants said they felt comfortable interacting with their doctors via telemedicine, and 36.6% said they thought it was a suitable approach to receiving medical care. Salman et al.'s (2020) study found that by improving medical service response times and decreasing waiting times for all patients, telemedicine increases the number of lives saved.

#### 2.1.9 Core Components

Any kind of electronic contact between healthcare providers and clients from a distance is referred to as telemedicine (Alenoghena et al., 2023). This study considered phone-type communication. Evaluation of telemedicine services has three dimensions: input (parameters that are required for telemedicine to function well), process (represents the intersection of input components), and output (telemedicine service outcomes) with other influential factors.

#### 2.1.9.1 Inputs

During the COVID-19 pandemic, telemedicine use is expanding quickly and on a broad scale and is quickly becoming an effective tactic to meet PHC demand (Silva et al., 2021). This study evaluated the existence of parameters that are required for telemedicine to function well. Inputs consist of:

#### - Policies and protocols

The COVID-19 pandemic emergency telemedicine protocol implementation has the potential to significantly enhance infection control (Lin et al., 2020). The aim of universal health coverage must be coordinated with telemedicine (WHO, 2022). This calls for proper policy, legislative, and regulatory actions that will assure the sustainability, quality, and accessibility of telemedicine services. Additionally, it tends to aid in maintaining continuity and coordination of care (ibid). To guarantee effective design and implementation, public and private sector cooperation is necessary. The approach should integrate knowledge and viewpoints from both health and non-health fields, particularly from the information and social sciences (ibid). WHO (2022) provided a step-by-step implementation strategy for telemedicine that includes defining the scope of services, identifying and involving stakeholders, and doing a multidimensional feasibility analysis. Also, create a structure of laws, policies, and institutions; create rules, standards, and norms (ibid). To direct the creation of norms and standards compatible with the service

being implemented, technical committees composed of healthcare and digital health professionals should be established. They can assist in preventing misunderstandings about implementation-related problems (such as patient eligibility and process integration). The process of provider training, patient education, and making decisions based on evidence will be streamlined by standards for prioritized teleservice procedures (such as scheduling, pre-visit preparation, provider/patient setting, physical examination, and consent for data collection) and requirements for in-person visits (such as certain information that could not be collected via a telemedicine platform for diagnosis). Additionally, they make monitoring and evaluation easier (WHO, 2021).

#### - Physical location of in-clinic services

The promotion of the physician-patient interface without distraction or the risk of insufficient communication, which is the most frequent primary cause of medical error, requires the creation of an environment that may have an impact on the quality of health care delivery (WHO, 2021). Khemapech's (2019) e-Health Foundations, which view a system for recording and storing information about telemedicine services as essential and should be the first to be implemented.

#### Adequate human resources

Compared to a strategy to institutionalize telemedicine, a telemedicine implementation strategy needs less funding for ongoing system integration (WHO, 2021). In the next few years, UNRWA intends to keep employing telemedicine to ease clinic congestion and support longer patient-doctor sessions. For example, telemedicine services are still operating in Gaza and potentially in other fields depending on the feasibility and availability of resources. In similar circumstances, UNRWA will continue to use telemedicine as a method of service delivery (UNRWA, 2022a). More effort is required to educate skilled telemedicine healthcare providers. The use of client-to-provider telemedicine should also be encouraged, as should the inclusion of new services, including the first e-prescription and drug delivery (WHO, 2021). Medical practitioners in Libya demonstrated strong computer proficiency for telemedicine (36.3%) and high awareness (56%). Government programs that provide adequate and supportive healthcare services must be launched, together with the training and assistance of healthcare providers (Elhadi et al., 2021). Imlach et al. (2020) identified a number of obstacles to telehealth adoption,

including resistance or opposition from healthcare systems and healthcare personnel (who are frequently more cautious than patients are).

#### - Tools and resources

Open-source tools allow the public to examine security and privacy issues more easily, which may allay concerns and encourage population uptake (WHO, 2021). Imlach et al. (2020) identified specific obstacles, including a lack of care provider training regarding the use of suitable technology, a lack of supporting leadership and policies, a lack of finance, and issues with network and internet reliability, device reliability, integration, privacy, and hacking. This was in line with Hertling et al. (2021), who found that the three main barriers to the use of telemedicine among physicians were administration (61.4%), low payment (52.5%), and the need to purchase technical equipment (65.3%).

#### Supportive resources and education

The results of Garber and Gustin's (2022) study showed a strong correlation between the sort of telehealth education received and the adoption of telemedicine. According to a survey conducted by Abdul Wahab and Zedan (2021), 43% of respondents required help using telemedicine services.

#### - Information Systems

Every piece of data should be reviewed and overseen to look for errors and abuse. To protect identifies, contact information, and health data, de-identification and safeguards should be used whenever possible (WHO, 2021). This result is consistent with Khemapech's (2019) e-health foundations, which consider such systems to be crucial and the initial ones to be put into place. Innovating in digital health care, UNRWA has persisted. UNRWA was able to pioneer telemedicine thanks to its e-health system, which maintains the medical records of over two million patients (UNRWA, 2022a).

#### 2.1.9.2 Processes of service delivery

The service delivery domain, which represents the meeting point of the input components (providers, guidelines, and supplies) and the output side, includes the following specific sub-domains:

#### - Accessibility

In terms of accessibility, the Abdul Wahab and Zedan (2021) study found that more than half of the participants agreed that telemedicine services allowed for communication with medical professionals and improved access to healthcare. With the use of telemedicine, a sizeable fraction of patients in these rural areas might be successfully handled with some assistance and direction from experts and superspecialists in the cities and towns (Kumar et al., 2020). De Albornoz et al.'s (2021) systemic review on the effectiveness of telemedicine in primary care demonstrated that teleconsultations offer the potential to increase access to healthcare while delivering time- and money-saving therapies remotely.

#### - Waiting and contact time

In terms of time savings, Salman et al.'s (2020), study discovered that telemedicine increases the number of lives saved by enhancing medical service response times and reducing waiting periods for all patients. In the primary care sector of the United Kingdom, a non-randomized, quasi-experimental, exploratory study compared face-to-face consultation with mobile consultation and found that the latter took +4 minutes longer than the former (Hammersley, 2019). That is in line with Salman et al.'s (2020) study results, which demonstrated that telemedicine had superior results in reducing the waiting time for all patients. In addition to that, De Albornoz et al.'s (2021) systemic review on the effectiveness of telemedicine in primary care was published in 2021. Teleconsultations offer the potential to increase access to healthcare while delivering time- and money-saving therapies remotely.

#### - Approach to care and documentation

According to Abdul Wahab and Zedan (2021), 48.1% of participants indicated they felt comfortable speaking with their doctors via telemedicine, and 36.6% of participants considered it an appropriate way to get medical care. In accordance with data protection and privacy laws, regulations, and frameworks, as well as security guidelines, data gathered by telemedicine applications should be secure, private, and confidential, according to WHO (2021). Concerns about patient privacy and data confidentiality pervade all telemedicine practices. To provide telemedicine practice with a safety net, modifications and preparations must be established (WHO, 2021).

Beneficiaries' provider's interface: As aforementioned by WHO, Abdul Wahab and Zedan (2021), and most literature, clients felt comfortable communicating with their doctors via telemedicine. In addition to that, too-short service times can be avoided, which will increase care provider satisfaction (Ma et al., 2022).

#### 2.1.9.3 Outputs and outcomes

The inputs and techniques used in telemedicine affect the results. Subdomains of the telemedicine service outcomes include:

#### - Positive client perceptions and satisfaction with the service

In order to provide patients with competent medical services without the requirement for typical face-to-face interactions with patients, a number of communication technologies have been proposed and put into practice. Due to this, obtaining professional consultations no longer requires extensive travel or high expense of diagnosis (Alenoghena et al., 2023). Even if it has not been fully adopted in all Saudi Arabian healthcare facilities yet, telemedicine is quickly gaining recognition as a breakthrough in healthcare service delivery that could significantly enhance the standard of care, particularly in outpatient clinics. According to recent studies, telemedicine patients are becoming more satisfied with their care (Abdulwahab & Zedan, 2021). Elhakeem et al. (2022) found that patients had generally positive experiences with telemedicine and that 90% of them indicated a willingness to take part in more teleconsultations. In comparison to in-person appointments, patients were generally satisfied with telephone consultations, with 9.3% of patients believing that the telephone format did not fully address their needs in a consultation (Shiff et al., 2021). In-person and telemedicine client satisfaction varied depending on how well practice personnel were said to 'spend enough time with you' and 'listen to what you had to say' (Imlach et al., 2020).

#### - Positive health outcome

The idea behind telemedicine and related services is now well-established; it offers chronic health management, prescription compliance, remote services, care-for-all in serious and critical instances, etc. (Haleem et al., 2021). We should think about what will be gained and what might be lost as we get ready for a future with widespread telemedicine. The

advantages of telemedicine following its worldwide renaissance are more apparent than ever: quick and easy access to care that goes beyond geographic barriers, a lesser burden on the medical infrastructure (such as traffic, deterioration of facilities, perhaps fewer staff needs), and slight exposure to infectious diseases for all participants. There are still worries, though, that something might be lost if everyone starts using telemedicine as a regular procedure (Shaver, 2022). Additionally, telemedicine helps clients get well, keeps them informed about their health in a novel way, and helps patients and doctors manage serious health issues like diabetes and asthma (Haleem et al., 2021). With the help of telemedicine technology, doctors can follow their patients at home after they are released from the hospital or are recovering from an injury. It will encourage good self-care. In order to provide better care to people, telemedicine is now used in medical specialties like dermatology, mental health, medicine, and cardiology. It is frequently believed to be a technique to greatly reduce the cost of treating medical conditions that benefit from ongoing patient monitoring, such as asthma, diabetes, and sleep apnea (Haleem et al., 2021).

#### 2.1.10 Influential factors

#### 2.1.10.1 Governance

It is important to set up a telemedicine governance framework with distinct lines of accountability, a rigid project management framework, and thorough documentation procedures (WHO, 2021).

#### 2.1.10.2 Monitoring, evaluations, and follow-up

To evaluate the effectiveness of telemedicine in daily practice, whether it is used alone or integrated with in-person care, and to confirm time and money savings at the population level, research preparation and the development of practical evidence are necessary (WHO, 2021). There is just a small and inconsistent body of research on the advantages of telemedicine. Regarding its usefulness in enhancing patient outcome and wellbeing, behavior change (such as treatment adherence), disease prevention, cost-effectiveness, or patient satisfaction, no firm conclusions can be established (ibid). To determine if the implementation has succeeded in achieving its objectives, outcome monitoring and evaluation of telemedicine services are required. In order to quantify the availability, accessibility, quality, utilization, cost, user satisfaction, and tangible and intangible impact

on providers and health organizations, a thorough evaluation framework should be designed to gather input, process, output, and outcome data (ibid). As effective governance comes from sharing and growth, lessons learned from planning and implementation should be promptly shared among Member States (ibid).

#### 2.1.10.3 Beneficiaries' characteristics

The adoption of digital technologies has the potential to widen the digital gap, leaving those without access to or proficiency with them behind even though they may stand to gain the most. Regarding telemedicine adoption and outcomes for mobile, migratory, rural, and vulnerable groups, as well as those with impairments, special consideration should be given (WHO, 2021).

According to Jacqueline & Maria (2022), women (42.0%) used telemedicine more frequently than men (31.7%). Compared to the Midwest (33.3%) and South (34.3%), telemedicine was used more frequently in the Northeast (40.0%) and West (42.4%). As urbanization increased, certain regions saw a decline in the population's use of telemedicine (Jacqueline & Maria, 2022). The Jacqueline & Maria (2022) study found that the percentage of people who use telemedicine rises with age, from 29.4% for those between the ages of 18 and 29 to 43.3% for those 65 and older. And from 33.1% of those with low family incomes to 40.7% of those with higher family incomes, more people are now using telemedicine.

#### 2.1.10.4 Beneficiaries and health-related variables

Elderly people and Medicare beneficiaries who lived in counties with high vulnerability had a much lower likelihood of using telemedicine services for surgical episodes of care. Due to the concurrently lower rates of internet connectivity in these locations, the use of telemedicine was lower in areas of significant social vulnerability (Shaikh et al., 2023). Contrarily, those with higher medical comorbidities and black patients tended to use telemedicine more frequently (ibid). According to Shaikh et al. (2023), places with a high level of social vulnerability are more at risk from a lack of access to telemedicine. Lama et al. (2021) capture disparities in telehealth availability and related technological requirements during the COVID-19 pandemic among Medicare-enrolled cancer survivors. In contract to Patel et al. (2021) study findings, during the COVID-19 pandemic, growth in

telemedicine use varied substantially across patient demographics, clinical specialties, and medical conditions. Patel et al.'s (2021) observed higher telemedicine use among those living in lower-income and higher minority resident counties. Telemedicine use also varied dramatically across different specialties. In contrast to disciplines like ophthalmology, which had little telemedicine use and lost the majority of its clinical volume early in the pandemic, specialties like psychiatry, endocrinology, and neurology had the biggest uptake of telemedicine and the smallest reduction in total visits.

#### 2.1.10.5 Care provider-related issues

To make sure that the implementation will be sustainable and benefit the health system in the long run, financial and human resources need to be assessed. The first stage in guiding investment choices for infrastructure and workforce arrangements is a precise projection of demand. To reduce the risk associated with the implementation of telemedicine, investments in organizational changes (such as the adaptation of care workflow, workforce training on digital skills and adapted care practices, oversight and evaluation, etc.) must be estimated (WHO, 2021). In addition to receiving telemedicine training, doctors must also learn how to use it professionally, safely, and according to the best available scientific evidence (Jumreornvong et al., 2020). Nakagawa and Yellowlees' (2020) research, shows that as technology plays a larger role in healthcare, younger generations of doctors will be better able to withstand burnout. When it comes to integrating technology into their healthcare workflows, older generations have had difficulty.

#### 2.1.10.6 Telemedicine services provision

The level of education, training, and experience of healthcare providers may affect how well telemedicine is provided. This is in line with Garber and Gustin's (2022) conclusion that the sort of telehealth education received had a substantial impact on the adoption of telemedicine. According to the Jumreornvong et al. (2020) study, COVID-19 has also revealed prospects for technological advancement in medicine and medical education. As we develop a better understanding of the areas of medicine that telehealth best complements, it is critical to educate upcoming health care providers on how to use these technologies and provide these forms of treatment. Through telemedicine courses, future healthcare practitioners should be equipped to handle the ethical, legal, and regulatory implications of telemedicine. This education is essential in light of the immediate need for

care during the COVID-19 epidemic. In addition to receiving telemedicine training, doctors must also learn how to use it professionally, safely, and according to the best available scientific evidence (ibid).

#### 2.2 Conceptual Framework

According to Riley et al. (2019), a conceptual framework illustrates or narrates the major elements, the study areas, and the supposed links between them. The Donabedian model (1988) is used as the conceptual framework for this study by the researcher, as seen in Figure 2.1, in order to deliver the desired service in an appropriate, high-quality manner. The chosen model is composed of a central core of inputs, processes, and outputs that form a pathway that runs side by side and interlocks. Other influencing factors are present in addition to the fundamental elements of inputs, processes, and outputs, as seen in the Figure below.



Figure 2.1: Conceptual framework for telemedicine services evaluation

#### 2.2.1 Core Components

#### 2.2.1.1 Inputs

Include the prerequisites for telemedicine to work effectively. Focusing on the actual availability of inputs at the operational level in this field, the researcher took into account whether the systems in place are functioning. The following are examples of inputs:

**Policies and protocols:** Policies and protocols are described as comprehensive and understandable technical instructions for the provision of services. Since policies and practices are crucial for delivering high-quality treatment, this study examined them. The research took into account a number of concerns, such as protocols and comprehensive technical instructions for service implementation.

**Physical location of in-clinic services:** Because the researcher took this into account in this evaluation, it is possible that the physical location has an impact on the standard of treatment provided. It comprises the standard of the space that is available and permits maintaining and protecting the beneficiaries' privacy during counselling and the quiet place needed to ensure both care providers and beneficiaries hear each other clearly, as well as the accessibility of technological tools and information systems to gather and store beneficiaries' data.

**Equipment and resources:** The availability of sufficient phone lines and headphones is necessary for service provision. Many factors in the technology itself, such as maturity, voice clarity, sustainability, generalizability, and acceptance, have an impact on the services.

**Supportive resources and education:** Include additional promotional materials (posters, brochures, etc.) and the availability of enough qualified professionals to help staff members deliver the service. The availability to recipients of a significant quantity of informative brochures and easily accessible wallpapers that were adequately written in Arabic.

**Information Systems:** The researcher evaluates the availability of computer and network systems, sometimes referred to as information systems, which provide the informational basis for vital activities and infrastructure. Health information makes it possible to use data

over time for performance management. The researcher examined the availability of hardware for information systems, such as computers and internet connectivity, which are intended to create reliable, complete, and timely information.

#### 2.2.1.2 Processes of service delivery

The service delivery domain, which represents the meeting point of the input components (providers, guidelines, and supplies) and the output side, includes the following specific sub-domains:

Accessibility: The capacity to get healthcare services, such as prescription medication, diagnostic procedures, and health-related information, and to access a facility where these can be provided. Some of the topics that the researcher evaluated included the impact of telemedicine on enhancing accessibility and requesting necessary medical care, access to health-related information, and the availability of telemedicine services, including treatment prescriptions and medical advice. The researcher did an investigation into why patients returned to the clinic without an appointment or did not obtain the services.

**Waiting and contact time:** The official clinic indications from UNRWA include the time spent waiting before answering the phone as the waiting time. The study carefully investigated this collective indication, which includes waiting for a response and waiting for an appointment. The effectiveness of the appointment system, whether the appointments provided were appropriate for the patients, how much personnel respect the appointments they set, and patients' perceptions of interaction time are all evaluated by the researcher.

**Approach to care**: The concept of person-centered care is central to this component. The researcher looked at issues such as satisfying the requirements and expectations of clients, the suitability of service providers' privacy policies, respecting clients by involving them in the services provided to them, and the skillfulness of service providers, which included a number of factors like coordination and care continuity, information and management continuity, comprehensiveness, and safety in addition to the application of best practices.

**Records and documentation**: Data protection was evaluated to determine if protective procedures were consistently being followed. The accessibility of the information system that stores client data and preserves its privacy was investigated.
**Beneficiaries and service providers' interaction:** This concept relates to the interaction between the service providers and the beneficiaries. The researcher examined issues surrounding beneficiary-provider communication, starting with a friendly greeting and introduction to clients, respect for beneficiaries, including respect for their dignity, and confidentiality, minimizing session interruptions, providing adequate and clear explanations and consultations regarding one's health condition, and providing them with the necessary health consultation. Lastly, the researcher evaluated the beneficiaries' general satisfaction with the services they received through telemedicine.

#### 2.2.1.3 Outputs and outcomes

The inputs and techniques used in telemedicine affect the results. Subdomains of the telemedicine service outcomes include:

**Client perceptions and satisfaction with the service**: The researcher investigated a number of issues related to satisfaction with the telemedicine services, including clients' willingness to recommend the services to other people, their views about the service, and their general perceptions and satisfaction. Client satisfaction is an important outcome dimension that reflects the quality of care.

**Satisfaction of the service providers and their perceptions around telemedicine**: The researcher assessed the perceptions of service providers about telemedicine as perceptions are important outputs and outcomes for assessing the quality of services-perceived quality.

**Positive health outcome**: The requirement to reduce face-to-face consultations without compromising the quality and accessibility of essential healthcare services was one of the issues the researcher looked into. Despite COVID-19, scaling up these services successfully and gradually still presents challenges. This was evaluated in terms of perceived results.

#### 2.2.2 Influential factors

#### 2.2.2.1 Governance

This element consists of effective guidance, education, and the standardization of best practices.

#### 2.2.2.2 Monitoring, evaluations, and follow-up

This subdomain covers the ongoing observation and ultimate assessment of the delivered healthcare services. This involves tracking the monthly use of telemedicine services. Understanding the system context is essential to describing the factors that influence service performance since monitoring and assessment facilitate the delivery of efficient services. In order to implement these services, it is essential to incorporate telemedicine services into current organizational structures and offer institutional support.

#### 2.2.2.3 Beneficiaries' characteristics

Socioeconomic factors are one of them. These are the social and economic facts and experiences that influence a person's personality, attitudes, and way of life. This subdomain contains residency from UNRWA clinics, which may have an impact on the usage of telemedicine, as well as occupation, income, poverty, and wealth as indicators of socioeconomic status.

#### 2.2.2.4 Beneficiaries and health-related variables

Beneficiaries' acceptance of telemedicine is related to many health-related variables, such as their medical condition and previous experience with face-to-face services. Beneficiaries' family's health status may also affect the use of telemedicine services.

#### 2.2.2.5 Care provider-related issues

Care providers characteristics, such as age, gender, use of technology, and experience may affect the outcome. Also, training, comfort in communication with beneficiaries, improved workflow and contact time, and their resistance to change affected their perceptions and satisfactions.

#### 2.2.2.6 Telemedicine services provision

The researcher investigated the presence of skilled care providers. Appointments, e-health patient monitoring, patient consultation, and therapy are just a few of the many service types that fall under the umbrella of telemedicine.

# Chapter Three Methodology

In this chapter, the methodologies used to implement this study are discussed. It offers details about the study's demographics, setting, and sampling procedures in addition to the methodology's design. Additionally, covered are the qualitative component, eligibility requirements, data collection methodologies, input and analysis methods, scientific rigor, a pilot study, and ethical considerations.

# 3.1 Study design

A triangulated evaluation methodology has been used, utilizing several data collection techniques and distinct verification means, to reflect reality from various perspectives. The quantitative portion has been carried out through beneficiary interviewed questionnaires and an online questionnaire for the staff. The study also has a qualitative component that was carried out with policymakers via Key Informant Interviews (KIIs) and clients and care providers in Focus Group Discussions (FGD). Thus, it followed an explanatory mixed methods design.

# 3.2 Study population

The study includes several populations.

# - Quantitative part of the study

The target population for the quantitative is composed of two components as follows: beneficiaries, refugees served by UNRWA telemedicine services, and non-users of telemedicine services. The total number of registered refugees at UNRWA clinics is nearly 1.5 million, and the served population is 1.2 million. The second target population is doctors working at UNRWA HCs in Gaza-about 214 doctors (UNRWA, 2022a).

# - Qualitative part of study

The target population is policymakers, telemedicine Services providers, and beneficiaries (telemedicine users).

# 3.3 Study settings

The study was done on a sample of UNRWA HCs in Gaza; their total number is 22 clinics.

# 3.4 Eligibility Criteria

## - Inclusion criteria

Services providers who are working at UNRWA Gaza Field as medical officers regardless of the type of contract and whether they are telemedicine providers or not.

Beneficiaries older than 18 who are receiving any types of services (maternal, NCD, and outpatient) from a UNRWA clinic and present to UNRWA clinics.

# 3.5 Sampling

The quantitative part of the study

# - Beneficiaries

Using the following parameters, the researcher calculated the sample size using the Epi-Info sample size statistical calculator:

- A maximum acceptable percentage point (within a 5% confidence interval)
- The level of confidence is 95%.
- The dependent variable's estimated percentage level is 50%.

Approximately 1.5 million refugees have been officially registered in the UNRWA Gaza field.

The beneficiaries have been suggested as the sample size (384) (Annex 3). In order to accommodate non-respondents, the sample size was expanded to 420.

Out of the 22 clinics (one in each governorate), five PHC clinics were chosen using a stratified random sampling technique. These clinics were used to choose the recipients. The researcher then chose a convenient sample of clinic-going clients. In order to ensure a diverse sample, the study also took into account all groups, including both sexes, beneficiaries with chronic diseases, women receiving different forms of maternal services, carers receiving kid services, and individuals older than 18 in different age categories.

## - Service providers

According to UNRWA records, Gaza field physicians number nearly 214 (UNRWA, 2022a). The researcher included all of them in the study, thus it will be a census study, and an online survey has been designed and made available online through a link that has been disseminated to participants via Short Message Service (SMS), social media, or e-mails.

# - The qualitative part

A non-probability purposive sample for KII has been chosen for the qualitative part. Three UNRWA health care policymakers and managers were included in the KII sample to represent public concerns and perspectives and to assess the impact and sustainability.

About beneficiaries, a voluntarily purposive sample of 18 participants was chosen among telemedicine clients, having varying experiences with the services and outcomes of the programme. These were then divided into 3 different FGDs, each with 6 participants, two of which were female recipients and one male recipients. The researcher concentrated on the presence of specific medical conditions, such as chronic morbidity, and took care to select beneficiaries in a way that ensured they represented different age groups, genders, and locations of residence.

Regarding care providers, a purposive sample of 18 care providers from each governorate was chosen and called on a voluntary basis. These were then split up into three separate FGDs, each with six participants.

# 3.6 Study tools and instruments

# - Quantitative part

The first tool was an 84-question interview questionnaire given to the beneficiaries as part of the quantitative (questionnaire-based survey) component of the study (the English and Arabic versions are shown in (Annex 4). It was created using self-constructed questions. There are two sections to the questionnaire: The first is a 28-question survey that is open to both telemedicine recipients and non-recipients.

• Demographic information, including age, gender, location of residence, education, and other characteristics.

- Socio-economic data, including income, receipt of aid, satisfaction of basic needs, etc.
- The responders' and their families' status of health
- Justifications for non-recipients not using telemedicine
- Telemedicine's potential future applications

The second is a 56-question survey for telemedicine recipients that contains the following main domains:

- Health service provision (4 questions)
- Ease of use and learnability (5 questions)
- Obstacles to telehealth services (2 questions)
- Interaction between the recipient and provider (12 questions)
- Types of services beneficiaries received, accessibility of the services, time factors, perceived health impact, etc. (33 questions)

Conclusions were drawn from a thorough review of the questionnaire, which involved interviewing the FGD participants from multiple perspectives.

The second quantitative instrument, a 56-question online survey for healthcare providers, is utilized to gather quantitative data (Annex 5 displays the English and Arabic versions), and it has been self-constructed. The survey asks about

- Demographic data such as age, gender, place of residence, education, etc.
- Protocols and training
- Obstacles facing care providers
- Providing telemedicine, the type of services provided, the reasons for not providing them, the presence of supervisory support for telemedicine health providers, etc.
- Communication between care providers and clients
- Physical facilities like the place are comfortable, there are enough devices to use them, an information system is available, etc.
- Effectiveness of telemedicine.

# - Qualitative part

Based on the preliminary results of the quantitative data, a semi-structured list with eleven open-ended questions has been created (Annex 6). During FGD, clients were asked about their perceptions of telemedicine services and what they mean to them personally. How do they initially perceive telemedicine? What kind of experience did they have that had an impact on their health or the health of their family? What do they require and expect from the best medical care? What more steps should be taken to promote these services? The researcher asked such questions to clients in each FGD in order to triangulate the preliminary conclusions reached from the questionnaire analysis by probing to find several explanations from the FGD participants.

During the FGD with service providers, a second semi-structured agenda with ten questions was implemented (Annex 7). The goal of FGD is to learn about the perspectives of service providers on the care they provide and to talk about program dynamics and processes in relation to all aspects of the services, starting with targeting, the healthcare process, technical instructions, guidelines, follow-up, and potentially improvement directions.

Based on the preliminary results of the quantitative data, an interview schedule with eight open-ended questions that is semi-structured has been developed for policymakers (Annex 8) to evaluate the objectives of telemedicine, its performance, the difficulties that the services face, special programs to increase the benefits of telemedicine, and the future of telemedicine.

#### 3.7 Study Period

In the second part of 2021, this study was first suggested. The study proposal has been submitted for presentation in front of the committee designated by the School of Public Health (SPH) in 2022. The UNRWA Research Review Board's (RRB) administrative authorization was acquired. The research proposal was created by outlining the complete procedure and providing details and draught designs for the equipment and procedures that would be used for data collection and analysis. The researcher created the necessary tools after getting permission, using self-generated questions as a starting point. Prior to completing the instrument, the researcher engaged a group of 12 experts at questionnaires validation stage; of these, ten provided feedback (Annex 1). The three-month included tool improvement in response to reviewers' and the academic supervisor's suggestions. In order to confirm linguistic appropriateness, the researcher applied translation in June 2022 and sought advice from a second peer. In order to do this, the researcher evaluated the questions with three additional non-native English speakers. The goal was to make sure Arabic-Arabic communication was appropriate and simple. The tool was prepared to begin

data collection in September 2022. Prior to collecting data, the researcher conducted a pilot study in September 2022. The actual data collection period lasted from October until December 2022. At the same time, a survey of care providers was published online. Prior to the final stage of data collection and validation, which took place in March and April 2023, the initial analysis of quantitative data had been conducted since November 2022. Results compilation and reporting began before 2023, concurrent with the gathering of qualitative data. Following the extraction of data, the researcher produced descriptive tables, conducted an inferential statistical analysis, and then discussed the results by relating them to relevant academic literature and inputs gathered during the FGDs. The research supervisor has added to and amended the thesis draught several times. In June 2023, the last draught for defense was distributed (Annex 2 shows the timetable).

#### 3.8 Administrative and ethical issues

Maximum caution has been taken in this study to guarantee that the participants' rights are fully protected. A formal letter of consent to perform the research from the Helsinki Committee-Gaza Governorates (GGs) (Annex 9) and the Modified International Code of Ethics Principles (1975), also known as the Declaration of Helsinki and adopted by the World Medical Assembly, were both used by the researcher. The UNRWA Health Director was asked for administrative permission in GG (Annex 10).

An accompanying statement outlining the goals, plan, confidentiality, and funding of the research is required in compliance with the Principles of the Helsinki Ethical Declaration and to ensure that participants' rights are maintained. Everyone who took part in the study was aware that it was their choice to do so. After receiving enough information, the participant gave their agreement to participate.

The people who took part in the interviews gave their verbal approval, and it was also officially approved to record and tabulate the interviews. Additionally, privacy and security were maintained to uphold adherence to the ethical code principles in order to increase the trustworthiness of responses. The researcher's regard for individuals and the truth allowed him to maintain and uphold other ethical rights.

#### 3.9 Pilot Study

#### - Quantitative part

A two-stage piloting procedure was used for the quantitative portion, as will be covered below. In stage one, 20 clients and 10 care providers were interviewed in order to complete the questionnaires. The purpose of this step is to investigate whether the study instruments are appropriate, whether the scales and ratings are clear, how long it takes to complete the questionnaire, and what response rate may be anticipated. This step led to the elimination of one question and the rewording or explanation of a few others, which were included in several additional inquiries. Surveys that were completed were not included. After taking into account the first-stage feedback and having the tool changed accordingly, 50 clients and 20 care providers who were eligible respondents from the selected sample were questioned at the second stage. This phase attempted to confirm that the tool's psychometrics were appropriate and to validate the data gathered. Surveys that were completed were not included.

#### - Qualitative part

Five people participated in one FGD; therefore, questions had to be changed and put in a new order. In order to test the instrument's suitability and give the researcher time to prepare for data collection. This allowed for further strengthening the validity and reliability of the study. In light of this, questions will be further altered, enhanced, and rearranged.

The results of the pilot study were disregarded for both the quantitative and qualitative components.

#### 3.10 Method of data collection

#### - Quantitative part

In the quantitative part, an interview questionnaire for beneficiaries has been deployed by the researcher with the assistance of two trained colleagues (physicians) at the chosen primary health care facilities after the researcher's two-stage piloting. For service providers, a survey was conducted online. The interview lasted 25 to 35 minutes, on average 30 minutes. Researchers guarantee confidentiality and have upheld privacy. The researcher has bypassed the questionnaire in circumstances where no responses are provided (non-respondents or partial answers) and chosen a different respondent using the same strategy as piking targets.

#### - Qualitative part

After doing an initial analysis of the questionnaire responses, the last phase of data gathering, and validation has been completed. The researcher conducted Three FGDs with recipients. Two had female recipients, while one had male ones. A total of three FGDs with service providers were held at three different clinics. The use of persistent engagement and probing approaches has been used to ensure that viewpoints are fairly represented. Each FGD had six carefully chosen participants and lasted, on average, 90 minutes. The groups were urged to take part in interactive discussions and offer their ideas. The researcher briefed the participants on the study's goals during the FGDs, and to the greatest extent feasible, the researcher made sure that everyone's opinions were heard, and that gestures and tones were taken into consideration. The researcher took brief notes throughout the FGDs and recorded them to allow for additional information gathering.

The KII is the second tool, and the researcher used it on three policymakers after getting approval and a scheduled appointment. The researcher asked questions on a variety of quality-related topics, including the services offered through telemedicine. 60 to 90 minutes were allotted for each interview. After receiving special authorization, interviews were taped, and quick notes were taken to guarantee that all necessary data was collected.

#### 3.11 Scientific rigor and trustworthiness

#### 3.11.1 Reliability

#### - Quantitative part

The subsequent actions were taken to guarantee instrument reliability:

- Conducting interviews with a sizable sample.
- Standardization of implementation through standardized client interviewing procedures and questioning techniques This ensures unified questionnaire completion and lowers filling errors.

- The questionnaires have been checked at the conclusion of each data collection day, making it easier to detect errors, fix them, and prevent future ones.
- Next, the data entry was completed on the same day as data collection, allowing for potential interventions to verify the accuracy of the data or to re-enter the questionnaire's missing questions as needed.
- To verify proper entry methods and reduce entry errors, 5% of the data was tested upon re-entry.

#### - Qualitative part

To ensure the trustworthiness of the qualitative portion of this study, the following actions were taken:

To guarantee the usefulness and ease of the tool and to offer a sample, the supervisor first examined the semi-structured schedule. Engagement has increased as the researcher asks probing questions and thoroughly completes all interview parameters. Additionally, minutes were recorded, and digitally recording the interviews has made it easier to find information and double-check the accuracy of the transcripts.

#### 3.11.2 Validity

#### - Quantitative part

Before finalizing the tool, the researcher solicited opinions from a panel of 10 experts to gauge its applicability. The supervisor's suggestions were regularly used to improve the questionnaire. Additionally, pilot research was carried out to assess how clients responded to the questionnaire and how they understood it before the actual data collection. The survey was expertly structured to guarantee face validity. This contains a visually appealing layout, a logical flow of the questions, specific instructions, skipping options. As a result of the questionnaire being altered to be more understandable, its validity has increased.

#### - Qualitative part

To verify the applicability and ease of the tools, the semi-structured schedule of the FGDs and KIIs was checked by supervisors and peers. The researcher followed several

techniques to ensure trustworthiness including prolonged engagement, saturation and peer checks. Additionally, minutes were recorded, and digitally recording the interviews has made it easier to find information and double-check the accuracy of the transcripts.

#### 3.12 Data entry and analysis

#### - Quantitative part

The researcher continuously reviewed the questionnaires while gathering data. The researcher carefully reviewed the completed questionnaire before entering the data and making the necessary adjustments. Questions and variables were coded and inserted into the newly created database using a data entry model that had been designed. The Statistical Package for Social Sciences (SPSS) program, version 26, was used by the researcher for data entry and analysis. Additionally, 5% of the data submitted underwent a re-entry test. Then, data cleaning was carried out by looking for ridiculous values and checking the frequency of all variables. For each question, general frequency tables were created to identify any missing data. Negatively framed questions were converted, and means were calculated as part of data re-coding. Measures of central tendency have been carried out, including frequency tables that provide sample characteristics, descriptive frequencies, mean, median, mode, and standard deviation (SD). In order to determine whether the difference was statistically significant, the researcher also used inferential analysis. To check if the results are statistically significant, the chi-square test has been performed to assess the variations among categorical variables. When the P value is equal to or less than 0.05, the statistical difference is considered significant.

#### - Qualitative part

In FGDs and KIIs, open-ended questions are the source of qualitative findings. Additionally, non-promoted intimations, group dynamics, and non-verbal indicators were recorded and taken into consideration. The FGD transcripts have been analyzed using the open-coding thematic analysis technique developed by Strauss and Cobin (1990) (breaking down, examining, comparing, conceptualizing, and categorizing data) (Clark et al., 2021). Then, to produce rich materials for conversation and representation, related ideas were categorized, and comparisons and integrations between the quantitative and qualitative data were made.

## 3.13 Limitations of the study

- Lack of previous research studies on the topic in the Gazan context
- limited the capacity of the researcher to discuss findings in light of the literature.
- Lack of baseline studies in this field
- Modesty of the experience in Gaza and the region as this is a newly developed program
- Possible researcher bias as she is working at UNRWA. Measures considered to minimize bias included random selection of clinics, using standardized and validated (by experts) tools, anonymization of beneficiaries, and two trained colleagues participated in filling the questionnaires with clients. With regard to the provider survey, it has been filled electronically without names and responses treated confidentiality. It is worth nothing that the researcher herself in not engaged in providing telemedicine services and not occupying a managerial role at UNRWA.

# Chapter Four Results and Discussion

The participants' quantitative and qualitative responses were used in an integrative way to reflect the study's findings. The descriptive part gives a general summary of the demographic, economic, and health-related characteristics of recipients and non-recipients, as well as their perceptions and knowledge of telemedicine services. Then the perspectives of the recipients regarding the availability, challenges, anticipated health effects of telemedicine services, etc. Additionally, included were the demographics of the healthcare practitioners and their perceptions of the protocols, training, communication with clients, physical facilities, accessibility of telemedicine, efficacy of the practice, etc. The quantitative findings from this part are combined with qualitative information from KII, healthcare providers, and client FGDs. More analytical findings are revealed in the inferential section as the reader continues to move through it to identify significant variances and relationships.

# 4.1 Descriptive findings

#### 4.1.1 Clients' survey

# 4.1.1.1 Telemedicine users and non-users

# 4.1.1.1.1 Characteristics of participants

The population surveyed consisted of 400 clients from the different governorates in Gaza. Table 4.1 shows that the majority of respondents were females (76.3%). This is in line with the UNRWA annual report, which shows that recurrent visits by males and females totaled 1,325,106 and 1,878,160, respectively (UNRWA, 2022a). Participants were 35 years old on average, and the vast majority were living in nuclear families (86%), which is consistent with PCBS's report. The average number of family members among the participants was 6, very close to the figure reported by PCBS (2022) 5.6.

Variables	No.	%
Gender		
Male	95	23.7
Female	305	76.3
Total	400	100.0
Age		
Less than 30 years	146	38.6
From 30 to 40 years	132	34.9
Above 40 years old	100	26.5
Total	378	100.0
Mean age = 35.29 MD= 32.00, Std = 12.059		
Name of the primary health care centers th	at serves the participant	
Maghazi	85	21.3
Maan	85	21.3
Jabalia	83	20.7
Rimal	81	20.2
Rafah	66	16.5
Total	400	100.0
Type of family		
Nuclear family	341	86.3
Extent family	54	13.7
Total	395	100.0
Number of persons in the same house	·	
4 member and less	98	26.1
From 5 to 7	172	45.9
Above 7	105	28.0
Total	375	100.0
Mean number of persons in the same house =	6.52 MD= 6.00, Std = 3.662	
Educational attainment		
Primary and less	14	3.5
Preparatory	49	12.3
Secondary	151	37.8
University	185	46.4
Total	399	100.0

# Table 4.1: Description of participants (telemedicine recipients and non-recipients) by demographic characteristics

# 4.1.1.1.2 Economic characteristics

With regard to employment, 54.2% of the respondents were unemployed at the time of data collection. That was not too far from the rates reported by PCBS (2022), which stand at 45.1% unemployment in the Gaza Strip. The results showed that the mean monthly income was 1006.65 New Israeli Shekel (NIS) (median 700).

Variables	No.	%			
Current working status					
Working	180	45.8			
Not working	213	54.2			
Total	393	100.0			
Receiving social assistance					
Yes	217	55.2			
No	176	44.8			
Total	393	100.0			
Source of assistance (Yes answer, only in the previous of	question $N = 217$ )				
UNRWA	169	77.2			
Ministry of Social Development (MOSD)	58	26.5			
Other	4	1.8			
Total income					
1000 NIS and less	204	68.5			
From 1001 to 2000	69	23.2			
More than 2000	25	8.4			
Total	298	100.0			
Mean of total income= 1006.65 MD= 700.00, SD = 898.304					
Living under or above the Palestinian poverty line 184	5 NIS				
Under poverty line	256	85.9			
Above poverty line	42	14.1			
Total	298	100.0			
Total of expenditure					
1000 NIS and less	177	61.9			
From 1001 to 2000	83	29.0			
More than 2000	26	9.1			
Total	286	100.0			
Mean of total expenditure = 1269.36 MD= 1000.00, SD =	1394.14				
Differences between income and expenditures					
Income is more than expenditures (surplus)	40	15.0			
Equal	93	34.8			
Income is less than expenditures (deficit)	134	50.2			
Total	267	100.0			
Mean difference between income and expenditures = -273	MD= -50.00, SD =	1108.50			
The income is sufficient to meet the needs					
Yes, to high extent	11	2.8			
Yes, to some extent	102	25.8			
No	282	71.4			
Total	395	100.0			

Table 4.2: Description of participants responses related to economic variables

As shown in Table 4.2, only 14.1% of the families in this study had an average monthly income above the national poverty level. These results are incompatible with the findings of PCBS (2022), which state that 53% of individuals in the Gaza Strip live below deep poverty or the poverty line. Findings show that 55.2% of the participants were receiving any sort of social assistance from different organizations. Among those receiving social assistance, UNRWA was the main assistance provider. As shown in the Figure below

(4.1), the availability of mobile devices is almost universal; 96.0% reported having a mobile, with a mean of two mobile devices available in the household. The later results are inconsistent with the findings of the PCBS (2022), indicating that 68.7% of households in the Gaza Strip had one mobile phone and 57.3% had a smartphone.



Figure 4.1: Distribution of the study participants related to the availability of electronic tool

#### 4.1.1.1.3 Chronic diseases affected participants and their families'

Figure 4.2 shows that the most common chronic disease affecting the study population or a member of their family.





When asked if they or any of their family members complained from chronic diseases, 54.5% reported hypertension (HTN), followed by Diabetes Mellitus (DM) (48.3%), respiratory conditions (20.8%) and heart diseases (14%). These are the most prominent chronic diseases in the Gaza context (Abu Hamad et al, 2022; UNRWA, 2022a). Telemedicine was employed to treat these two NCDs only during COVID-19 (UNRWA, 2022b). Today, telemedicine can be used to treat a variety of other chronic diseases (asthma, Chronic Obstructive Pulmonary Disease (COPD), Connective tissue disorder

(CTD), Cerebrovascular Accident (CVA), etc.) that collectively affect about 80.3% of respondents or their families, as a mother from Al-Maghazi HC described during FGD. 'The toll-free line makes it simple to contact the clinic; in fact, I frequently use it to inquire about my husband's glaucoma drops, which are occasionally unavailable; when they are, I acquire them from the pharmacy directly. Clinic days were wasted prior to the introduction of telemedicine, and I had a conflict with my mother-in-law because I had arrived late and left my kids with her. My daily routine and that of my kids would be hectic if the free line ceased'.

#### 4.1.1.1.4 Participants' knowledge and perspectives about telemedicine

Findings show that 85.2% of respondents had heard of telemedicine, and there are a number of ways to learn about this service. The majority of respondents were aware of the service through UNRWA HCs (staff, 47.8%; SMS, 28.2%; posters in HCs, 27.9%), indicating that UNRWA had successfully communicated this service and had reached the majority of people in the HCs catchment areas. In the qualitative work, all participants in the FGD had heard of telemedicine. The majority of respondents were aware of the service through UNRWA HCs. One of the male respondents from the south area of Gaza (Maan HC), a participant in a FGD, explained, *'When I arrived at the clinic, there were numerous posters throughout the facility promoting the existence of the service. In addition, I notice other people using it'.* Another one stated, 'It was widely utilized during COVID-19. Social media and SMS messages from UNRWA sent to my phone have informed me of the presence of telemedicine' (FGD, male, Maan HC, south Gaza).

Findings also revealed that participants used telemedicine (since its launching) on average 6.05 times, which indicates that they had positive experiences with these services. According to the Elhakeem et al. (2022) study, patients have generally had good experiences with telemedicine, and 90% expressed a willingness to participate in future teleconsultations.

Variables	No.	%
Knowing or hearing about telemedicine		
Yes	341	85.2
No	59	14.8
Total	400	100.0
Sources of information (n = 341)		
Health care provider	163	47.8
SMS from the HC	96	28.2
Posters in the HC	95	27.9
Relatives	79	23.2
Social media	67	19.6
Friends	38	11.1
Media (radio, TV))	21	6.2
Other (university)	3	0.8
Ever using telemedicine services among those who heard about	it telemedicine (341)	
Yes	287	84.2
No	54	15.8
Total	341	100.0
If yes, number of times of using telemedicine services		
Less than 3 times	42	34.4
From 3 to 5 times	40	32.8
From 6 to 10	24	19.7
Above 10 times	16	13.1
Total	122	100.0
Mean = 6.05 MD= 4.00, Std = 6.821		
Causes of not using the telemedicine services (N= 54 who hear it)	d about telemedicine	and haven't used
Face-to-face consultation is the preferred method of medical	43	71.7
services	-	
Living near the clinic so prefer to go in person	34	56.7
To get a service (to receive medications or undergo lab tests	29	48.3
or both)		
Not being sure about protecting my privacy on the phone	13	21.7
Not convinced about its benefits	9	15.0
Fear of trying new things	9	15.0
The phone is not available	6	10.0
Refusal by a spouse/family member	3	5.0
Other (No need)	1	1.7
Respondents who didn't use telemedicine, who know othe	ers who used telem	edicine (N= 54
who heard about telemedicine and not used it)		
Yes	40	74.1
No	14	25.9
Total	54	100.0
Impressions of participants who know others who used to heard about telemedicine and not used it but know other	elemedicine service s who used these se	s (N= 40 who ervices)
Highly satisfied	20	50.0
Somewhat satisfied	17	42.5
Unsetiefied	1/	42.3
	3	/.3
Total	40	100.0
After explaining to non-recipients (didn't hear and or did what the telemedicine service is, the non-recipients who	an't use telemedicii vill use it	ne services 113)
Yes, to high extent	32	28.3
Yes, to some extent	66	58.4
No	15	13.3
Total	113	100.0

# Table 4.3a: Distribution of participants according to their knowledge and use of telemedicine services

Variables	No.	%		
Population groups for whom telemedicine services are most appropriate as reported by				
respondents				
All people during emergencies (such as the COIVD-19 epidemic and war)	252	63.0		
Seniors 65 years and over	241	60.3		
People with disabilities	215	53.8		
People with chronic diseases	190	47.5		
Adult female 20-64	136	34.0		
Adult male 20-64	135	33.8		
A boy under 10 years old	88	22.0		
A girl under 10 years old	83	20.8		
Teenage girls 10-19 years	86	21.5		
Teenage boys 10-19 years old	77	19.3		
Appropriateness of the telemedicine to the local culture				
Yes, to high extent	159	40.2		
Yes, to some extent	208	52.5		
No	29	7.3		
Total	396	100.0		
Recommending telemedicine services to others		·		
Yes, to high extent	191	48.0		
Yes, to some extent	174	43.7		
No	33	8.3		
Total	398	100.0		

 Table 4.3b: Distribution of participants according to their knowledge and use of telemedicine services

After learning the purpose and uses of telemedicine, 28.3% and 58.4% of non-recipients decide to use it to a high extent and to some extent, respectively. The fact that 63.3% of respondents indicated that telemedicine services were crucial to them in times of emergency (such as the COVID-19 pandemic and conflict) is noteworthy, which is consistent with a systematic review of studies that had applied telemedicine during the COVID-19 pandemic and had assessed its effects on the delivery of care (Bezerra et al., 2022). Findings from the qualitative interviews resonate with the quantitative findings, as a female participant from El-Sheick Radwan HC explained during FGD: *'Excellent idea for a crisis like COVID-19 and war*'.

Additionally, Table 4.3 demonstrates that the majority of participants (60.3%) think that telemedicine services are suitable for elderly patients. The evidence shows that the percentage of adults who used telemedicine in the United States increased with age, from 29.4% among adults aged 18–29 to 43.3% among adults aged 65 and over (Jacqueline & Maria, 2022). On the contrary, some reported concerns around telemedicine services, as according to the verbatim of an elderly man from Maan HC in south Gaza, FGD, a known case of chronic illness, who said, '*Frankly, it is not needed for the elderly with chronic* 

diseases (DM, HTN) because NCD services are not provided through the hotline'. Another NCD client cited the following example: 'I call the free line to change the date of my appointment, and the care provider—who responded—offered an apology that is not from his privileges to help me and directed me to call the clerk number, which is paid, and no one answers me' (FGD, old man, South Gaza). Another one stated, 'My mother and father-in-law need assistance to use their phones' (FGD, female, Al-Maghazi HC).

Participants' responses ranged from high to some extent on the appropriateness of the telemedicine to the local culture (40.2%, 52.5%, respectively). A female from Al-Maghazi Clinic, FGD, confirmed this when asked about the cultural acceptance of telemedicine, responding, 'We are in 2023.' Another woman added, 'There are those who are certain about the advantages of telemedicine; they do not readily accept change. Some of them are well-known in our camp, such as residents of Al-Maghazi's eastern region' (FGD, female, Al-Maghazi HC).

#### 4.1.1.2 Experiences of beneficiaries who used telemedicine

### 4.1.1.2.1 Using telemedicine services

As a result of recall bias, the majority of study participants (76.7%) could not recall the precise date of their most recent use of telemedicine. However, as shown by UNRWA's annual report (2022a), the number of telemedicine consultations increased by 160% in 2021, with 844,518 consultations provided. This number, however, was reduced to 336,029 (signifying 60.2% reduction) in 2022, pointing towards a resumption of the complete package of services provided in-person and an improvement in beneficiaries physical access to UNRWA health services. A policy maker during KII explained:

'After telemedicine implementation, we work to change people's mentalities about telemedicine, so measures are taken to increase society's awareness of telemedicine by using social media, SMS, and community focus groups to solve challenges and encourage people to use telemedicine. Telemedicine reached about 30% on average of outpatient services during COVID-19, which has now decreased to less than 10% on average'. Which is explained by clients as a male participant in the FGD from south Gaza, Maan H.C., remarked, 'I don't know if the free line still exists; I think it was just for the COVID-19 period'.

Variables	No.	%		
Last time of using telemedicine services				
Participants recalled	66	35.3		
Participants didn't recall	221	76.7		
Total	287	100.0		
Last use among participants who recalled (N=66)	·			
7 days and less	26	39.4		
8 days to 30 days	22	33.3		
Above 30 days	18	27.3		
Total	66	100.0		
Mean = 34.61 MD= 30.00, Std = 42.299, not remember 76.	7%			
Medical reasons for using telemedicine services				
For medical advice	139	84.4		
To dispense over-the-counter treatments	108	37.6		
An appointment with a family doctor	72	25.1		
Childcare services	67	23.3		
Treatment of acute disease	64	22.3		
To get medication for chronic condition re-prescribing	52	18.1		
Confirmation of the laboratory result	52	18.1		
Follow up for chronic diseases	50	17.4		
Maternal health services	49	17.1		
Request for lab tests	38	13.2		
Psychosocial support	29	10.1		
Other (Covid – 19)	4	1.4		
Meeting recipients' expectations	·			
Yes, to high extent	110	38.8		
Yes, to some extent	164	58.0		
No	9	3.2		
Total	283	100.0		

Table 4.4: Distribution of beneficiaries' responses related to using telemedicine services

The majority of clients (84.4%) utilized the telemedicine services for seeking medical advice, followed by dispensing over-the-counter treatments (37.6%), getting an appointment with the family doctor (25.1%), and receiving childcare services (23.3%). Other reasons for using telemedicine are less frequently mentioned (see Table 4.4). Respondents agreed that their expectations were met, ranging from high to some extent, with rates of 38.8% and 58.0%, respectively. This is consistent with qualitative interviews, which demonstrate the benefits of telemedicine, as the coming quote shows.

'I use it to treat my child and take medical advice, and today I missed my child's cards and couldn't find out when he needed his vaccinations, so I called the free line, and the doctor helped me find out when my child's vaccination appointment was. Sincerely, the toll-free

number meets my needs and helps me to save time, money, and effort. Not only that, but in cases of mild Upper Respiratory Tract Infection (URTI), it also protects my kids from catching infections from the clinic. They do not need to visit the clinic and interact with COVID-19 or meningitis patients. I bring them the necessary care while keeping them safe at home' (FGD, male, Maan H.C.).

Additionally, a participant mentioned that UNRWA has undergone adjustments and made distinctions; he was a young man who served on a temporary contract at UNRWA from Khan-Younis during clients FGD. He explained, 'I am thrilled with the free line service and think it is a good service overall. This distinguishes the agency from many other health organizations and is regarded as a change in the way services are offered'.

#### 4.1.1.2.2 Beneficiaries' providers' interaction

Table 4.5 demonstrates that 49.5% of the participants reported that healthcare providers had introduced themselves to them. The American Medical Association's (AMA) patient rights bill states that health personnel must introduce themselves to patients; hence, it is unacceptable for them to disregard the fundamental courtesy of consultation (AMA, 2022). The study's findings showed that 38.4% of patients did not know whether the healthcare providers serving them (via telemedicine) were the same or not. Regardless of the type of consultation, 36.3% of respondents were aware that the care provider was not the same on every call, and almost half (43.8%) were unaware of whether they had previously interacted with the care providers or not. The qualitative interviews show that participants agree that the service providers did not identify themselves; instead, they told beneficiaries the name of the clinic. As male participant in FGD from south Gaza (Maan, HC) who had NCD and had used telemedicine to take his chronic disease medication during the COVID-19 period expressed surprise, 'I didn't know if he was a doctor or not, but he welcomes me'. Another participant stated, 'Care providers don't introduce themselves, but she welcomed me, and gave me plenty of time to ask questions and talk about my needs' (FGD, female, El-Sheich Radawn HC, Gaza).

Variables	No.	%
Care providers introduce themselves to the clients		
Yes, most of the time	141	49.5
Yes, sometimes	94	33.0
No	50	17.5
Total	285	100.0
Care providers welcomed clients		
Yes, most of the time	182	63.6
Yes, sometimes	86	30.1
No	18	6.3
Total	286	100.0
Telemedicine services are provided by the same physicia	an every time	
Agree	71	25.3
Disagree	102	36.3
Don't know	108	38.4
Total	281	100.0
Clients met the telemedicine services providers face-to-f	ace before	
Agree	86	30.6
Disagree	72	25.6
Don't know	123	43.8
Total	281	100.0
Not seeing the service provider face to face previously	affects the provis	ion of the service
negatively	<b>.</b>	
Yes, to high an extent	35	12.3
Yes, to some an extent	106	37.3
No	143	50.4
Total	284	100.0
Care providers listen carefully to clients		
Yes, most of the time	202	71.4
Yes, sometimes	73	25.8
No	8	2.8
Total	283	100.0
Care providers answer clients' questions clearly		
Yes, most of the time	205	72.4
Yes, sometimes	73	25.8
No	5	1.8
Total	283	100.0
Asking clients about their perception about the quality of	of telemedicine ser	vices before
Yes, most of the time	29	10.1
Yes, sometimes	50	17.5
No	207	72.4
Total	286	100.0
Satisfaction about the interaction of the service provider	rs with clients	
Highly satisfied	111	38.8
To somewhat satisfied	159	55.6
Unsatisfied	16	5.6
Total	286	100.0

# Table 4.5: Distribution of responses around interactions with care providers

# 4.1.1.2.3 Challenges faced clients when receiving telemedicine services

Table 4.6: Distribution of responses around obstacles faced when receiving	telemedicine
services	

Facing barriers while using the telemedicine servicesYes14650.9No14149.1Total287100.0Barriers faced while using the telemedicine service (n=146)10773.3The waiting time is too long to answer the call10571.9Difficulty in describing signs which would be easier to be seen on examination (like skin rash)5034.5Being assigned to a specific doctor, not of client choice and may be client don't know4631.7Unable to explain the complaint4631.7Embarrassed to talk about issues faced3624.7Voice not clear3322.6Flow of service is cumbersome3221.9Appointments are not convenient3121.2Don't know the toll-free line number3121.2Gender of provider is not appropriate2819.2Another family member attends the call2618.1
Yes14650.9No14149.1Total287100.0Barriers faced while using the telemedicine service (n=146)10773.3Lines are busy all the time10773.3The waiting time is too long to answer the call10571.9Difficulty in describing signs which would be easier to be seen on examination (like skin rash)5034.5Being assigned to a specific doctor, not of client choice and may be client don't know4631.7Unable to explain the complaint4631.7Embarrassed to talk about issues faced4530.8Interruptions are frequent3624.7Voice not clear3221.9Appointments are not convenient3221.9The phone is not available3121.2Don't know the toll-free line number3121.2Gender of provider is not appropriate2819.2Another family member attends the call2618.1Experiencing interruptions during the call2618.1
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Another family member attends the call2618.1Experiencing interruptions during the call2618.1
Experiencing interruptions during the call
Experiencing interruptions during the cun
Yes, most of the time 14 4.9
Yes, sometimes 87 30.3
No 186 64.8
Total 283 100.0
If yes, the causes of interruption $(n = 101)$
Due to a problem with the phone 40 39.6
Because of an internet problem 36 35.6
The service provider is interrupting clients because of the 22 21.8
time
The service provider is interrupting clients because you did 22 21.8
not provide your necessary data (for example: the number of
the ID).
The service provider is talking to another person 20 19.8
Other (busy lines) 4 4.0
Clients can choose between care providers (like male or female doctors) providing
telemedicine services
Yes 102 36.6
No 84 30.1
Idon't know         02         22.2
Total         25         55.5           Total         270         100 0

Findings in Table 4.6 show that responses are roughly evenly distributed between those who encountered problems and those who did not (50.9%, 49.1%, respectively). The bulk of the 141 recipients who experienced issues (73.3% and 71.9%, respectively) complained about the phone lines always being busy and the long waiting times. During FGDs, everyone in all regions agreed that one of the drawbacks of the free line is how busy the lines are whenever we discussed the shortcomings or difficulties that clients had during the FGDs. In a FGD with a middle-aged woman from Gaza (El-Sheich Radawn HC), she expressed her anger, saying, 'You can call once, twice, or 10 times without getting a response. Occasionally, especially at the start of using a service, the working hours end and you are unable to use it'. A study conducted in France in 2019 on the use of telemedicine by French internal medicine doctors, found that the main obstacles to telemedicine practice were the absence of face-to-face patient contact 57.3% and computer malfunctions 55% (Firn et al., 2021).

A phone or internet technical problem, as well as a telecommunications failure due to the time factor, accounted for the majority of the care providers' interruptions of clients during consultations (75.2% and 21.8%, respectively). Contrary to the quantitative findings, one of the focus group participants from Gaza (El-Sheich Radawn HC) claimed that,' *A few of the healthcare providers interrupted me and didn't give me enough time to complete my consultation.'* Interestingly, during the focus group, a woman participant from middle area of Gaza (Al-Maghazi HC) defended health care providers by saying: '*He had the right to interrupt, in order to give other callers a chance. Some individuals got involved in a discussion that was completely unnecessary for the doctor's diagnoses* '. Another one reflected a concern around confidentiality, saying, '*I feel ashamed discussing my private concerns over a toll-free line*' (FGD, female, Al-Maghazi HC, middle of Gaza).

#### **4.1.1.2.4** Types of telemedicine services the client received

As shown in Figure 4.3, the types of services used by clients in telemedicine can be categorized into three main categories: treatment, which is the most common type used through telemedicine (95%), appointments (81.2%), and medical advices (76%).



Figure 4.3: Percentage of the category of services a client obtained via telemedicine

Policymakers during KIIs pointed that telemedicine services are provided to controlled chronic diseases, to provide routine medications other than HTN and diabetes, over-thecounter drugs, and treatments for minor illnesses. They agreed that it offers treatment services for mild and chronic conditions but did not provide other services, for example, psychological consultation, and claimed that to ensure privacy, the telemedicine provider directed clients to a psychosocial counselor. As one of the policymakers said, 'We only provide medical advice that is relevant to the ailment, but health education and psychological counseling are provided in-person rather than through telemedicine. Only the outpatient clinic is served by appointments, which are given to patients at times when the workload is light'.

Regarding the adequacy of the current services, during FGD, a female client from Gaza (El-Sheick Radawn HC) said: 'We don't want to introduce any more services because the ones we have now are adequate. Current face-to-face services are needed for other services. Simple awareness, chronic medications other than DM and HTN, and over-the-counter medicine'. Another woman's needs for telemedicine services were addressed when she said, 'As a patient with asthma, I use telemedicine for dispensing my inhalers' (FGD, female, El-Sheick Radawn HC, Gaza). Regarding the service that should be offered via telemedicine, someone described his view,' Excellent service for treating minor diseases, however, occasionally there may be a misdiagnosis, and I support abstaining from providing antibiotics via telemedicine to prevent antibiotic misuse' (Client FGD,

pharmacist, male, Maan HC, south Gaza). According to one-woman, face-to-face services support and complement telemedicine services. 'When I call the clinic to request treatment for my daughter, the doctor informs me that she requires an investigation. He then schedules an appointment for me with the lab, and I go straight to the lab to conduct the investigation, and then have the physicians examine my daughter and administer the treatment. You receive guidance and an appointment as an outpatient from telemedicine care providers if you require further assistance' (FGD, female, Al-Maghazi HC, middle Gaza).

#### 4.1.1.2.5 Client perspectives about treatment and appointment service

# Table 4.7a: Distribution of the study participants according to treatment service and appointment service

Variables	No.	%			
Services received in telemedicine					
Treatment	273	95.0			
Appointment	233	81.2			
The health provider discussed the health condition with the clients	5				
Yes, all the time	142	52.2			
Yes, sometimes	106	39.0			
No	24	8.8			
Total	272	100.0			
The prescribed medication is available at the pharmacy					
Yes, all the time	173	63.6			
Yes, sometimes	89	32.7			
No	10	3.7			
Total	272	100.0			
Telemedicine's maximum effectiveness without a corresponding in-person consultation					
Yes, all the time	105	38.5			
Yes, sometimes	137	50.2			
No	31	11.4			
Total	273	100.0			
In general, telemedicine acts only as a complement to in-person se	rvices				
Yes, all the time	78	28.7			
Yes, sometimes	162	59.5			
No	32	11.8			
Total	272	100.0			
You were requested to do outside laboratory tests or purchase medications by telemedicine					
providers.					
Yes, all the time	12	4.5			
Yes, sometimes	27	10.0			
No	230	85.5			
Total	269	100.0			

Visiting the clinic for the same reason	(health	n need)	is as u	ising the	telem	edicine	e servio	ce										
Yes					Ģ	<del>)</del> 2	3	5.2										
No					1	69	6	64.8										
Total					2	61	1	00.0										
If the answer is yes, how many times																		
Once	Once				]	14	2	6.9										
Twice					1	17	3	2.7										
Three					1	14	2	6.9										
Above three						7	1	3.5										
Total					4	52	1	00.0										
Mean = 3.19 MD= 2.00, Std = 4.73																		
Also, if yes, reasons to seek medical action $(N - 92)$	lvice ag	gain foi	the sa	ame reas	son as	using t	elemeo	licine										
For another opinion					4	40	4	3.5										
The provider did not prescribe antibi	otic				3	32	3	4.8										
Not improved after telemedicine trea	tment				32 34		4.8											
Not confident about the diagnosis ma	ade by t	telemed	licine		19		2	20.7										
The method of communication with the service provider is not satisfactory				9		9.8												
Satisfaction with treatment service							•											
Highly satisfied					1	37	5	0.2										
To somewhat satisfied					1	30	4	7.6										
Not satisfied					6		2.2											
Total					2	73	1	00.0										
Appointment service-related Variables	Yes	Yes, all Yes,		Yes, all the time		Yes, all the time		Yes, all the time		Yes, all the time		Yes, all the time		Yes, sometimes		No		al 233
	No.	%	No.	%	No.	%	No.	%										
Easy to make an appointment using telemedicine	79	33.9	127	54.5	27	11.6	233	100.0										
People are waiting too long for their appointments	46	19.8	122	52.6	64	27.6	232	100.0										
Providers respect appointments given by telemedicine	119	51.5	105	45.5	7	3.0	231	100.0										
The caregiver discussed the best time for the appointment	88	38.1	104	45.0	39	16.9	231	100.0										

 Table 4.7b: Distribution of the study participants according to treatment service and appointment service

Table 4.7 shows that 95% of consultations were for medical treatment, which is comparable to the findings of UNRWA's telemedicine yearly reports for the Gaza field (UNRWA, 2022b). Treatment was the purpose of 78.7% of consultations (ibid). Clients visited the clinic for the same reason as reported by 35.2% of the participants, doing so three times on average. Participants gave different reasons for visiting clinics, including seeking a second opinion (43.5%), not being prescribed an antibiotic (34.8%), and noticing no improvement in their medical condition after using medication prescribed via telemedicine (34.8%). Clients who participated in FGDs concurred that they did not go to the clinic for the same reason. Two of them went to the clinic after their sickness had

progressed from a mild one to one that required evaluation, as they both stated. According to one mother from Al-Maghazi HC during the FGD, '*Typically, the therapy is enough, and I don't need to see the clinic again for the same reason, but since the condition can progress from cold-like symptoms to fever and other symptoms that need to be checked, the doctor may urge me to visit the clinic for a checkup*'. Moreover, a grandmother said, '*My son lives far away, but they use the free number to treat their kids, and I live close to the clinic. I administer his medication. Since they no longer have to worry about paying for transportation and wasting their day at the clinic, the treatment service has been helpful to them*' (FGD, old female, Al-Maghazi HC).

With regard to appointment service, as Table 4.7 shows, participants were divided into two nearly equal groups based on how firmly or somewhat, they agreed with the statements of how simple it is to set appointments via telemedicine, acceptable appointment times were discussed with them, and how the service provider respects appointments. The majority of participants believe that the scheduled appointments are close by. Interestingly, the qualitative findings show that, aside from a few persons who need face-to-face consultation for their medical complains and make an appointment with their family doctor or service provider outside of peak hours, clients, care providers, and decision-makers all agreed that telemedicine does not provide the service of scheduling appointments. As in the client's FGD results, the fact that it saves time, effort, and money spent on transportation was universally acknowledged as a benefit. The fact that telemedicine does not schedule appointments, though, is one of its shortcomings. Policymakers interviewed through KIIs, commented around appointment services saying: 'The doctor does not schedule appointments for services provided inside the clinic, such as care for people with NCDs, vaccinations, and care for women, as these are handled by instructing patients to call the clinic on a clerk paid number. Appointments are made at less busy periods for those who require an evaluation in outpatient instances'.



Figure 4.4: Satisfaction of clients about appointment service

Figure 4.4 shows that overall, beneficiaries' high satisfaction was 46.3%, and only 6.5% were not satisfied with appointments by telephone, which was consistent with Shiff et al.'s (2021) study showing patients were generally satisfied with telephone appointments as an alternative to in-person appointments, with 9.3% of the patients feeling that the telephone format did not adequately address their needs in an appointment.

### 4.1.1.2.6 Client perspective about medical advice service

Table 4.8: Distribution	of the study partici	inants' responses ar	ound receiving r	nedical advices
Lable 4.0. Distribution	or the study parties	ipants responses ar	ound receiving n	incurcar auvices

Variables	No.	%				
Services received in telemedicine	Services received in telemedicine					
Medical advice	218	76.0				
If medical advice was received, the topics of advice $(n = 218)$						
Appropriate use of medication	101	46.3				
Healthy diets	59	27.1				
Fluid intake	53	24.3				
Blood pressure monitoring	50	22.9				
Home treatment of minor symptoms	47	21.6				
Referral advice	47	21.6				
Danger signs of disease	42	19.3				
Advice about lab investigation	32	14.7				
Chronic disease control	31	14.2				
Psychological advice	29	13.3				
Personal hygiene	18	8.3				
Smoking cessation	17	7.8				
Other (COVID – 19, dealing with disease, avoiding	4	1.8				
crowded areas)						
Understanding the healthcare provider's advice						
Yes, to high an extent	116	53.2				
Yes, to some extent	93	42.7				
No	9	4.1				
Total	218	100.0				
The information adequacy		•				
Yes, to high an extent	96	44.2				
Yes, to some extent	110	50.7				
No	11	5.1				
Total	217	100.0				
Clients can seek more information		•				
Yes, to high extent	88	40.4				
Yes, to some extent	106	48.6				
No	24	11.0				
Total	218	100.0				
Satisfaction with medical advice		•				
Highly satisfied	92	42.4				
To somewhat satisfied	116	53.5				
Unsatisfied	9	4.1				
Total	217	100.0				

Table 4.8 shows that about three-quarters of respondents (76%) received medical advice, a key service provided by telemedicine. The UNRWA telemedicine annual report (2022b), on the other hand, showed that 8.6% of calls were for medical advice. The classification of service types is the cause of this disparity. In our study, participants chose medical advice when they ever received it, whether it was part of the consultation and treatment category or not. However, UNRWA asserts that they only identify a call as advice if the client solely asks for it and does not receive any other services. Only 4.1% of patients had trouble understanding medical advice, which is in line with the findings of the Kumar et al. (2020) study, which discovered that only 7.2% of patients had trouble understanding or acting upon telemedicine-based advice. About half (46.3%) of patients received advice about medications.

'For medical advice, I made a call to the clinic. My clinic had long wait times, and they were extremely busy. When I called a different clinic, they helped me and provided the necessary medical advice' (FGD, female, Al-Maghazi HC).

# 4.1.1.2.7 Client perspective about accessibility

Variables	No.	%					
The distance to reach the HC							
Far	54	18.8					
Acceptable	164	57.1					
Nearby	69	24.0					
Total	287	100.0					
The costs to reach the HC	·	•					
Affordable	252	88.7					
Unaffordable	32	11.3					
Total	284	100.0					
Telemedicine saves the cost of transportation	·	·					
Yes, to high extent	102	35.9					
Yes, to some extent	107	37.7					
No	75	26.4					
Total	284	100.0					
The telemedicine program enhance access to health services							
Yes, to high extent	95	33.3					
Yes, to some extent	179	62.8					
No	11	3.9					
Total	285	100.0					

Table 4.9: Distribution of study participants' responses by accessibility related variables

Table 4.9 reveals that 35.9% of respondents agreed to a high extent and 37.7% agreed to some extent that telemedicine services could save them money. These results were consistent with those of the study by Abdul Wahab and Zedan (2021), in which 45.1% of respondents agreed that using telemedicine services could reduce the cost of visiting clinics. The findings of this study indicated that 96.1% of respondents agreed that telemedicine improved access to high extent and to some extent to health services, that in line with Haggerty et al.'s (2022) cohort study concluded that telemedicine could be a tool to improve patient access to primary care in rural populations, and that the findings suggested that telemedicine may facilitate access to care for difficult-to-reach patients, such as those in rural areas. Along with those who have strict work schedules, travel a great distance to the clinic, have complicated health issues, and come from less affluent or higher poverty areas. Additionally, the Abdul Wahab and Zedan (2021) study revealed that more than half of the respondents concurred that telemedicine services enabled communication with healthcare practitioners and increased access to healthcare. Access to healthcare services, particularly for those who reside in distant areas and during pandemics, was another important finding from our qualitative interviews and FGDs. All participants in the qualitative work agreed that the services are effective, save time and effort, and save transportation. In FGD, one man from Maan HC said:

'Telemedicine saves transportation as I can call to ask about the availability of medicine. As I used a toll-free line post-hospital discharge, I called a doctor, and he told me it was available. Not just that, he prescribed it to me, and I could receive it directly from the pharmacy instead of coming to the clinic, wasting my money in transportation and time just to ask about my hospital discharge medication'.

'I can call the clinic while I'm at work to speak with the doctor about the treatment. Mainly because I have a recognized chronic disease. Then instruct my son to bring medication from the pharmacy' (Client FGD, female, EL-Sheick Radwan HC).

#### 4.1.1.2.8 Client perspectives about time related variables

Variables	No.	%
Waiting time for a call response		
Short	46	16.0
Acceptable	155	54.0
Long	86	30.0
Total	287	100.0
The contact time		
Short	55	19.2
Acceptable	210	73.2
Long	22	7.7
Total	287	100.0
Waiting time in clinic after introducing tele	emedicine	
Decreased	171	60.6
Increased	18	6.4
Didn't change	93	33.0
Total	282	100.0
Telemedicine saving time of clients		
Yes, to high extent	143	50.4
Yes, to some extent	128	45.1
No	13	4.6
Total	284	100.0

 Table 4.10: Distribution of study participants' responses by time related variables

Table 4.10 shows that 54% of respondents believe the response time for a call is reasonable. Moreover, it was discovered that waiting time in clinics following the usage of telemedicine decreased as reported by 60.6%, which may be due to telemedicine's success in reducing clinic congestion. However, there are many other issues that need to be considered including the time of the staff who provide telemedicine services. That is consistent with UNRWA's annual report (2022a). UNRWA plans to continue using telemedicine to reduce overcrowding in HCs and enable longer patient-doctor consultations in future years. In accordance with Salman et al.'s 2020 study, telemedicine increases the number of lives saved by enhancing the response times for medical services and reducing waiting times for all patients. Which is in line with the qualitative findings, as the majority of clients, care providers, and policymakers agreed that it is a useful approach to saving time. As one healthcare provider from middle Gaza (Al-Magazi HC) during FGD said, 'If telemedicine were to stop, clinics would start to be crowded again'. The introduction of telemedicine consultations in 2020 has contributed to a reduction in workload (UNRWA, 2022a). Another participant from south Gaza (Maan HC), in a FGD, said, 'Instead of wasting time at the clerk's counter, doctor's office, then pharmacy, now I can go directly to the pharmacy, and if I need examination, the doctor gives me an appointment, and I go directly to the doctor for evaluation and send treatment, as necessary, to the pharmacy'. This has been confirmed by other participants from different areas in Gaza, as a female participant in a FGD stated, '*Previously, before telemedicine, the day at which I visited the clinic was lost. Telemedicine reduces workload, gives the doctors more time to take care of the patient, and saves my time*' (FGD, female, Al-Magazi HC, middle Gaza).

# 4.1.1.2.9 Client perspectives according to perceived health effects

 Table 4.11: Distribution of the study participants according to perceived health effects of telemedicine

Variables	No.	%					
Positive effect of telemedicine on clients and their family's health							
Yes, to high extent	94	32.8					
Yes, to some extent	157	54.7					
No	36	12.5					
Total	286	100.0					
If yes, manifestations of positive effect (n = 251)							
Decrease waiting time	171	68.1					
Treated current problem	100	39.8					
Cost saving	87	34.7					
Benefits especially in crisis	85	33.9					
Health education	69	27.5					
Improvement and control of chronic diseases	34	13.5					
Psychosocial support	32	12.7					
Telemedicine is a good addition to medical services							
Yes, to high extent	149	52.3					
Yes, to some extent	128	44.9					
No	8	2.8					
Total	285	100.0					
The preferred type of health services							
Telemedicine services	107	37.3					
Face-to-face services	180	62.7					
Total	287	100.0					
Given reasons for preferring telemedicine over face-to-face se	ervices (N= 107)						
Save time	87	81.3					
More comfortable	75	70.1					
Easy to reach	51	47.7					
I can do it while at work	47	43.9					
Save cost	42	39.3					
Effective	34	31.8					
Qualified care providers	29	27.1					
Given reasons for preferring face-to-face services ( $N = 180$ )	100	71.1					
Examination face to face more comfortable	128	/1.1					
Dealing with a known family doctor is more comfortable	112	62.2					
Telemedicine care providers do not prescribe antibiotics	48	26.7					
Not confident about the accuracy of diagnosis done via	41	22.8					
telemedicine services							
Not confident with new services	7	3.9					
Bad communication by telemedicine health care providers	7	3.9					
Other (Lab visit)	1	0.6					

Table 4.11 shows that the vast majority of respondents (87.5%) thought that telemedicine program had a positive effect on the health of recipients and their families. Treatment of present health issues (reported by 39.8%), access to healthcare during emergencies (reported by 33.9%), and health education (reported by 27.5%) all contribute to this perception. Of those who got care, 52.3% and 44.9%, high and some extent, respectively, thought it was a useful addition to medical care. According to 37.3% of respondents, telemedicine was the preferred method of getting medical care, which is in line with a study by Abdul Wahab and Zedan (2021), as 36.6% of respondents thought telemedicine was a suitable way to receive medical care. As a part of our qualitative work, one middle-aged female client in middle Gaza (Al-Magazi HC) during FGD said: 'I prefer that the two services continue because they each support and complement one another, but if I have to choose between them, Face to Face will win out because it offers all services'.

#### 4.1.1.2.10 Responses of participants around telemedicine system usability

Variables	Yes, to high an extent		Yes, to some extent		No		Total	
	No.	%	No.	%	No.	%	No.	%
Easy to use the system	140	49.0	128	44.7	18	6.3	286	100.0
Interaction with the system is interesting	87	30.3	156	54.4	44	15.3	287	100.0
I can hear the doctor clearly using the telemedicine system	135	47.2	131	45.8	20	7.0	286	100.0
Recover from any mistake during using the system is easy	116	40.8	132	46.5	36	12.7	284	100.0
The system gave an instruction message that told clients how to use it	119	41.9	137	48.2	28	9.9	284	100.0
Mean = 76.77, MD = 73.33, Std = 16.72								

Table 4.12: Distribution of participants responses around telemedicine usability

The five questions related to ease of use were combined to give a total score reflecting the overall perceptions about system usability, and the total score was encouraging (76.7%). The majority of recipients, as indicated in Table 4.12, explained that the system was simple to use, engaging, and simple to recover from any errors with clear instruction messages, making it simple to use by all family members. According to a survey by Abdul Wahab and Zedan (2021), 43% of respondents said they needed help using telemedicine services. 48.1% said they felt at ease using telemedicine to communicate with their medical professionals. A 50-year-old Gazan woman who participated in the FGD remarked, '*It is easy to use, provides instructions, and has a clear voice from the care providers*'(Client FGD, female, EL-Sheick Radwan HC).
# 4.1.2 Health Care Providers survey

# 4.1.2.1 Demographic characteristics of care providers

# Table 4.13: Description of telemedicine health care provider's demographic characteristics

Variables	No.	%
Age		
Less than 30 years	81	41.3
From 30 to 35 years	57	29.1
Above 35 years old	58	29.6
Total	196	100.0
Mean = 32.90 MD= 31.5, Std = 6.639		
Gender		
Male	100	50.8
Female	97	49.2
Total	197	100.0
Contract Type		
Permanent contract	131	66.5
Temporary contract	66	33.5
Total	197	100.0
Education level		
Bachelor	141	71.6
Post graduate education	56	28.4
Total	197	100.0
Work experience at UNRWA clinic in years		
5 and less	112	58.6
From 6 to 10	41	21.5
Above 10	38	19.9
Total	191	100.0
Mean = 5.34 MD= 3.00, Std = 5.25	·	
Current place of work		
Rafah	41	20.8
Khan Younis	43	21.8
Deir Al Balah (Middle- area)	53	27
Gaza	41	20.8
North of Gaza	19	9.6
Total	197	100.0
Places of previous work		
МОН	135	68.5
International organization	24	12.2
NGOs	23	11.7
Private	15	7.6
Total	197	100.0
Place of graduation (bachelor's degree of medicine)		
Palestine	113	57.4
Arab countries	71	36.0
Foreign countries	13	6.6
Total	197	100.0

The health provider survey included 197 respondents, equally split between males and females (see Table 4.13). Both temporary employment contracts (33.5%) and permanent contracts (66.5%) were considered in this study. With regard to education, more than half (57.4%) of participants graduated from Palestinian universities, and 28.4% had postgraduate education and worked at UNRWA on average for 5 years. This reflects the recruitment of a large proportion of relatively young physicians. This makes investment in their training is a long-term investment, as they will serve many years before reaching the age of retirement. Most of the participants in the service provider survey worked at MoH before joining UNRWA (68.5%).

#### 4.1.2.2 Protocols and training

Table 4.14 shows that 59.4% of respondents had received training on telemedicine. The majority of them (92.3%) were engaged in on-the-job training programs at UNRWA. That is consistent with the qualitative findings in FGD; care providers agreed that they only had on-the-job training. In FGD, Middle Gaza, according to one of the care providers (with a temporary contract type), the telemedicine on-the-job training was described as follows: 'After we received the assignment, we were given several days of training to work inside the clinic, and training to work on telemedicine was part of it. The work was done on the free line under instructions from a colleague who worked on it before you, and you maintained contact with him or the manager, consulting him about what you did not know'.

'I received only on-the-job training. Because I no longer work on it, I do not want to train anymore. The doctors who work on it are merely those with short-term contracts who lack sufficient time for training. Our inpatient expertise helps us deal with toll-free lines, but after two hours of orientation, these recently graduated doctors' work as telemedicine care providers. Because the tendency nowadays is for permanent doctors to have more tasks with patients (NCD, maternity, maternal, etc.). New doctors need thorough training that lasts a sufficient amount of time. After training, their abilities should be reevaluated because the same knowledge can be understood in several ways' (FGD, Gaza, doctor with permanent contract).

In the United States. By incorporating telemedicine into graduate medical education curricula, trainee education on value-based care can be improved, and access to specialized care can be expanded (Lee & Nambudiri, 2019).

Variables	No.	%				
Receiving training on telemedicine						
Yes	117	59.4				
No	80	40.6				
Total	197	100.0				
Type of training (n 117)						
On-the-job training	108	92.3				
Formal training	9	7.7				
Total	117	100.0				
Place of training						
UNRWA	107	92.2				
International organization+ NGO's	5	4.3				
МОН	4	3.4				
Total	116	100.0				
Time of training						
2020 and before	51	55.4				
2021	17	18.5				
2022	24	26.1				
Total	105	46.7				
Themes discussed during the training (n = 117)						
Medications that could be prescribed remotely	98	83.8				
Remote management of acute illness	73	62.4				
Appointment system	73	62.4				
Risk scoring of calls and dealing according to risk	66	56.4				
Remote modeling of NCDs	60	51.3				
Steps followed when help or support needed	59	50.4				
Referral system	50	42.7				
Psychological support	34	29.1				
Other (using the e-health system to fill the data and	1	0.9				
the contact time indicator)						
Availability of written protocols or technical instruction	ons related to teleme	dicine				
Yes	95	49.0				
No	99	51.0				
Total	194	100.0				
Accessibility of protocols to service providers as a w	ritten document (n	95) for those who				
answered that they have protocol						
Yes	80	87.9				
No	11	12.1				
Total	91	100.0				
Adequacy of protocols to guide health providers (n 95	) for those who answ	vered having				
protocols	1	1				
Yes, to high an extent	44	46.3				
Yes, to some extent	43	45.3				
No	8	8.4				
Total 95 100.0						
Protocols application/use (n 95) for those who answere	ed having protocol					
Yes, to high an extent	55	57.9				
Yes, to some extent	40	42.1				
No	0	0.0				
Total	95	100.0				

 Table 4.14: Distribution of the study participants according to protocols and training

And when policymakers were asked about training, there was agreement that the first doctors who worked on telemedicine would first receive training remotely by the Canadian Palestinian Foundation, and thereafter the training would take place inside the clinics. As one of the policymakers said:

'The first doctors who worked on the free line received training remotely with the Canadian Palestine Foundation at the beginning, and afterwards the training took place on-site at the clinics. Our goal is to train clinicians in Standard Operating Procedures (SOP), communication, and case-missing prevention by 2023. And establishing criteria that demonstrate doctors' competency'.

Table 4.14 shows that around half of the participants (55.4%) received training in 2020 or before, which highlights a lack of ongoing training in telemedicine. Qualitative interviews with policymakers highlight some concerns about the training, as the coming quote from a KII with a policymaker shows.

'Due to the difficulty of having face-to-face training, there was little virtual training during the COVID-19 period. Training was provided remotely by the Canadian Palestinian Foundation, with only on-the-job instruction after that. There doesn't seem to be a well-defined training plan or standards for judging a doctor's proficiency, in my opinion'.

Table 4.14 also shows that training topics included medications that could be prescribed remotely (83.8%), remote management of acute illness (62.4%), and risk categorization of calls in telemedicine (56.4%).'We receive instructions from the head of the HC or your colleague who is experienced in telemedicine based on fresh emails and prior knowledge, such as not to give antibiotics or respond to questions about the clinic's services, etc.' (FGD, middle Gaza, doctor with temporary contract). One of the care providers with a temporary contract working in telemedicine from south Gaza in FGD indicated that, 'I feel that I need more training on dealing with people remotely, as well as the art of communication and persuasion without clashing with patients'. While two of them think that training is unnecessary, the care provider from Gaza stated, 'Experience and skill are sufficient for providing the current services without training'. Care providers added that they need a fixed doctor there to improve the service; they also need a third person who observes the service and communicates with them about it, which is consistent with the Alghamdi (2022) study, which found that 36.0% of participants would like to receive more training.

Regarding the presence of a protocol, respondents were split evenly, with 49.0% agreeing that it exists. The implementation of the telemedicine protocol in the emergency department during the COVID-19 pandemic has high potential to improve infection control (Lin et al., 2020). A noticeable gap emerged in the responses to this question, not just in the quantitative part but also in the qualitative one, with many of the respondents in the care providers FGD stating that there was no protocol in place—not even written outlines-and that all of the information they had received was verbal from their more experienced colleagues, or directions received via updated emails from the clinic manager. Even though the other half recognizes the existence of a protocol or standard operating procedures, around half of service providers who reported having these guidelines, (46.3%) believe that these are not sufficient to guide health providers on practice. During FGD, one of the healthcare providers with a permanent contract from Gaza noted, 'A readily available, user-friendly, and supported email protocol is known as SOP. Yet it only includes fundamental guidelines. Which, supported by findings in Table 4.14, Protocols are generally applicable, according to 57.9% of survey participants, and freely available as written materials, according to 87.9% of survey participants. About 46.3% of respondents agreed that protocol is suitable in all circumstances. Yet, in FGD, one of the healthcare providers with a temporary contract from the middle of Gaza stated, 'There is no protocol and not even a written plan; all the instructions I received were from my colleagues or new emails from the clinic management.' The policymakers' views on the accessibility of the protocol. The SOP was acknowledged, but there were differing views on whether it should be treated as a protocol. One of them saw it as a protocol, while the other two perceived it as a collection of fundamental guidelines that had been developed over time. The Health Department (HD), at UNRWA headquarter in Amman, is responsible for policy and strategy development; it approved the SOP, as one of the policymakers explained.

'Although there isn't a protocol, there is a SOP and some limited Canadian experience. That is minimal, in my perspective, because it just adds more information about how to provide the service, who to target, and who should and should not get in touch. These outlines are adaptable and moveable, and they were made easily and conveniently available. Yet we need a procedure, and it must be based on a scientific approach'. Also, one policymaker added in KII that 'a regulation must be put in place to guarantee the provision of telemedicine services in a safe manner, according to clear national Palestinian regulations, for example, from the MoH.'

The researcher at FGD asked clinicians what they would change about protocols if they had the chance.

' Telemedicine care providers are instructed to close the file and ask the patient to visit the clerk and his or her primary care physician if they believe the patient requires an examination. Due to client time wastage, telemedicine is not advantageous in this case' (FGD, permanent care provider, Gaza). He contrasts with other providers, saying, 'The appointment system with telemedicine care providers is still not at peak hour, but I, as a care provider, will not make appointments and add to my workload as long as each clinic has its own privacy and there is no unified protocol for all clinics in this issue. Another argument is why not answer a question I can answer, like a simple question, like Is the clinic open today or not?' (FGD, permanent care provider, Gaza). Another one added, 'I need clear instructions to all clients that routine medication needs to be evaluated and documented in their files, along with the diagnosis and needed quantity for the needed time. I also need clear instructions about repeated calls and how we can handle them, the quantity of medication that I can prescribe for over-the-counter medication, and for how much time we require the recordings of the calls' (FGD, care provider with temporary This opinion was also supported by the comments of other contract, south Gaza). participants; one of them stated, 'I need specific guidelines about case classification and what I can and cannot handle. Newborns, young children, and pregnant women, for instance. The use of a clear protocol and call recording will secure me and my clients' (FGD, care provider with temporary contract, middle Gaza).

It is worth reminding the reader that telemedicine is a newly introduced service, established during the pandemic, which represented a crisis for most countries in the world; therefore, it is not strange to notice some caveats on training and the development of clinical protocols.

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# 4.1.2.3 Providing telemedicine services

Variables	No.	%
Providing telemedicine services		
Yes	164	83.2
No	33	16.8
Total	197	100.0
The type of services provided through telemedicine (n = 164)		
General outpatient	157	95.7
Repeated visit to collect over-counter medications	84	51.2
Chronic diseases	80	48.8
Maternal health	/5	45.7
Unite nearth	13	44.5
Other	<u> </u>	4.2
The duration of providing telemedicine service $(n - 164)$	1	4.5
One month $(II = 104)$	32	10.8
From 2 to 6 months	36	22.2
From 7 to 23 months	22	13.6
24 and more	72	44.4
Total	162	100.0
Mean = 16.62, Median 12.00, Std = 14.221	-	
Period of telemedicine provision (n = 164)		
During the COVID-19 epidemic period	130	79.3
During escalation and wars	118	72.0
Post-epidemic period	59	36.0
The reasons for not providing telemedicine (n = 33)		
Didn't receive training	18	54.5
Not requested to do so by seniors	17	51.5
Preferring to physically serve clients	14	42.4
Complicated task	7	21.3
Telemedicine is not effective	6	18.2
Shortage of family team doctors	4	12.1
If given the choice, would you provide telemedicine services	?	T
Yes	125	67.9
No	59	32.1
Total	184	100.0
Having appropriate experiences needed for virtual clinical 1	nanagement	
Yes, to high an extent	65	33.5
Yes, to some extent	114	58.8
No	15	7.7
Total	194	100.0
Presence of supervisory support to telemedicine health prov	iders	
Yes, to high an extent	80	41.7
Yes to some extent	80	41 7
No	32	16.6
Total	107	10.0
Total Descense of monitoring and follow up for the use of telemed	172	100.0
resence of monitoring and follow-up for the use of telemed	icilie services:	21.0
Yes, to high extent	61	31.0
Yes, to some extent	109	55.3
No	27	13.7
Total	197	
Who provided monitoring and follow up (n = 170)		
Head of the HC	145	85.3
By engineering technology in UNRWA	88	51.8
E health system team	66	38.8
	1	30.0
Other (the department of health)	1	0.6

According to Table 4.15, the majority of respondents offered telemedicine (83.2%), which was a high rate when compared to the findings of Alghamdi (2020) in Saudi Arabia, as only 47% of health care providers had really used telemedicine applications. According to the study's findings, outpatient services were the most frequently provided services (95.7%), and over-the-counter medications accounted for 51.2% of repeat calls to seek the services and 48.8% for chronic diseases. These findings are in line with the telemedicine UNRWA annual report (2022b), which lists a total of 27,396 outpatient calls and 62 NCD calls.

According to the qualitative data, as with all health care providers at FGD, some have lately been engaged in telemedicine (doctors with temporary contracts) or are in the process of implementing the services (doctors with permanent contracts). All participants agreed that while the current service meets the demands of their clients, it could be made better. 'Although the current service is good, it could be improved and expanded. There are now many restrictions, making it complicated. Because the current care providers do not have enough experience, it requires health care providers with high quality, experience, and fewer restrictions' (FGD, doctor with permanent contract, Gaza). A care provider from South Gaza added, 'Since telemedicine is a no-cost service that is regarded as the lifeline for the elderly, people with disabilities, and those with Gender-based violence (GBV), we should work more on it to maintain contact with this vulnerable group'. Also, the majority of patients use telemedicine for outpatient services to describe over-the-counter medications. The researcher found that 44.4% of the participants had two years or more of experience. The majority of responders (79.3%) provided telemedicine during the COVID-19 period. However, those in the healthcare sector who do not use telemedicine do so because their managers did not ask them to (54.5%), they prefer to practice as in-person physicians (42.4%), or they lack the necessary training (42.4%). However, 67.9% said they would prefer to provide telemedicine if they had the choice. In accordance with a 2019 survey on the use of telemedicine by French internal medicine physicians, which revealed that 54% of respondents wanted to practice telemedicine and 72.8% wanted to train there, healthcare providers 67.9% would like to offer it (Firn et al., 2021).

In accordance with Table 4.15, 58.8% of healthcare providers anticipated that they would have some level of expertise to offer telemedicine. Health care professionals in Libya revealed high awareness (56%) and high computer competence scores for telemedicine

(36.3%). There is a need to train and support health care workers and initiate government programs that provide adequate and supportive health care services (Elhadi et al., 2021). This is in line with the qualitative data showing that everyone believed they had the abilities and expertise to perform telemedicine, given the services that were available. ' *Yes, I was apprehensive when I first started using telemedicine, but now that I've gained confidence and the necessary skills, they can train me for their new vision of telemedicine when they need to bring back permanent doctors' (FGD, Gaza, permanent care providers). During FGD, one of the care providers from middle Gaza explained, '<i>The free line doesn't require any specialized knowledge, but we must first complete further in-person training before we can provide services remotely. So that you can first meet clients in person and learn how to interact with them before meeting them virtually. This is important since our contracts begin after graduation, and we aren't equipped to handle in-person services'.* 



#### 4.1.2.4 Obstacles face care providers:

Figure 4.5: Challenges faced care providers in the application of telemedicine

When asked about challenges they faced when using telemedicine services, 76.1%, 58.9%, and 45.7% of participants agreed that confusion about the clients' identities (misuse), a lack of client awareness about telemedicine use, and technical faults, were mentioned as the major challenges facing care providers. These findings are somewhat consistent with what was reported by Firn et al. (2021), who found that computer issues and the lack of face-to-face patient connection posed the two major barriers to the use of telemedicine (55%, 57.5%, respectively). Other problems included damaged phones and outside barriers

related to gender, language, and poverty (Odendaal et al., 2020). According to the qualitative findings, as care providers from middle Gaza said, 'Although telemedicine services are non-dispensable, there is human misuse, and people need to be made more aware of the advantages of telemedicine and how they can use it to their advantage. For instance, a patient contacts me multiple times asking for analgesia for a toothache, and I suggest he schedule a dental visit, he keeps calling for the same issue and accumulates more than over-the-counter medications in his family files. I can remember his phone number and everyone in the family's names, as he made many calls'. Another one stated,

'The response rate may be impacted by treating multiple family members on the same call' (FGD, south Gaza, care provider). Among the other obstacles reported by care providers are the logistic-related issues, as a male care provider described, 'Busy lines, vulnerable groups, poverty so device not available to beneficiaries, low awareness, and restrictions on it' (FGD, Gaza, care provider).

#### 4.1.2.5 Communication between care providers and clients

With regard to the interactions between clients and their health care providers, 65.8% of providers said they introduced themselves before consultations most of the time, 78.9% said they welcomed clients most of time, about 66.0% said they were satisfied with their interaction, and 25.1% were very satisfied. This is different from what beneficiaries have reported, reflecting a gap in communications. Surprisingly, it contrasts with the qualitative results, as the majority of respondents reported not introducing themselves to the users and instead giving the clinic's name. Away from introducing themselves, service providers provided a warm greeting before asking what the client's complaint was. One of the care providers from Gaza during FGD with a permanent contract defended this by saying, 'I cannot introduce myself to the user and present the name of the clinic because of the culture of our society. Therefore, the client will begin by asking you about your family, relatives, the cousin of our neighbor who knows you, and so on, and he will talk to you about matters unrelated to the complaint, but we welcome them. After that, we will move on to the reason for contacting: to provide an opportunity for other contacts.' One participant mentioned 'I was asked, Are you a doctor or a pharmacist?' (FGD, middle Gaza, care providers).

Variables	No.	%
Introducing yourself to the recipient		
Yes, most of the time	125	65.8
Yes, sometimes	48	25.3
No	17	8.9
Total	190	100.0
Welcoming the recipient		
Yes, most of the time	150	78.9
Yes, sometimes	34	17.9
No	17	3.2
Total	190	100.0
Impressions about the interaction between providers	and recipients throu	gh telemedicine
Very satisfied		25.1
Satisfied	126	66.0
Unceticfied	120	8.0
Tetal	1/	0.9
10tal	191	100.0
The duration of contact time with the recipient during		e (1.0
Suitable	126	64.0
Not enough	60	30.5
More than required	11	5.6
Total	197	100.0
If not, enough what are the barriers to achieving the r	equired contact time	e (n = 60)
To give a chance to other callers	48	80.0
Limited human resources	37	61.7
Working hours are limited	35	58.3
To achieve a better response rate	21	35.0
Low friend communication shills	10	18.3
Insufficient communication skills	10	10.7
Waste time with e-Health	8	15.5
If the duration of content is more than required what	+ are the herriers to (	J.U Debioving the
In the duration of content is more than required, what required contact time $(n - 11)$	are the partiers to a	acmeving the
Panaficiarias who do not have a alear description of	0	72.7
their complaint	0	12.1
A long time to deal with the beneficiaries and ask	6	54.5
them for personal data	0	54.5
Work with computer and phone at the same time	3	27.3
A technical error such as lack of clarity of the	3	27.3
connection or interruption of the Internet		
Other	3	27.3
What can be done to achieve the required contact time	e (n =197)	
Increased awareness of beneficiaries about the use	157	79.7
of telemedicine		
Increase the number of free lines in the clinic	112	56.9
Care providers training in time management	101	51.3
Improve communication skills to care providers	89	45.2
Other (increase the number of medical officers)	2	1.0

 Table 4.16: Distribution of the study participants according to service providers' interaction with recipients

According to the study's findings, 64.0% of participants thought that the contact time with clients during the call was appropriate. However, 30.5% felt that it was insufficient; the most common reason (80.0%) was that service providers wanted to give others a chance to call, that was consistent with FGD as female care providers from middle Gaza with temporary contract explained, 'There is no set time limit for how long I should stay on the call. The length of time varies depending on the requirement, but it frequently takes no longer than two minutes to allow other calls to be received'. The average duration of telemedicine services in China may be primarily 20–30 minutes, according to a study on the usage and perceptions of telemedicine among health care professionals conducted in China. This study found that 10 minutes might considerably lower the overall satisfaction of medical professionals with telemedicine. Too-short service times can be avoided, which will increase care provider satisfaction (Ma et al., 2022). Table 4.16 shows that 79.7% of respondents said that raising client understanding of how to use telemedicine properly might enhance time management, and 5.6% recognized that the contact time might be excessive when clients do not report their health problems (72.7%) clearly. A nonrandomized, quasi-experimental, exploratory study in the primary care sector of the United Kingdom compared mobile consultation with face-to-face consultation, finding that the latter took +4 minutes longer than the former (Hammersley, 2019). The qualitative findings showed that the majority of respondents thought the time was adequate, depending on the circumstances and the demands of the clients. However, three of them believe it to be too brief, particularly for answering inquiries. Additionally, the doctor to speed up call response may abbreviate it, but when more than one file is requested for a person from the same family in a single call, it lengthens the call considerably. Most of service providers think that time is appropriate, as one stated, ' Depending on the circumstances and requirements, the time is adequate' (FGD, South Gaza, care provider).

# 4.1.2.6 Physical facilities

Table 4.17: Distribution of the study participants according to physical facilities related
variables

Variables	No.	%
The place is comfortable to provide telemedicine service	vices	·
Yes, to high extent	77	40.6
Yes, to some extent	85	44.7
No	28	14.7
Total	190	100.0
The available space allows the privacy of the bene	ficiaries to be preser	ved and protected
during the consultation	_	-
Yes, to high extent	104	54.2
Yes, to some extent	74	38.5
No	14	7.3
Total	192	100.0
There are enough devices to use for easy application	of telemedicine (e.g.,	headset)
Yes, to high extent	76	39.5
Yes, to some extent	89	46.4
No	27	14.1
Total	192	100.0
More facilities are needed		
Yes, to high extent	66	34.9
Yes, to some extent	82	43.4
No	41	21.7
Total	189	100.0
Availability of promoter materials (posters, brochur	es, etc.)	
Yes, to high extent	38	19.9
Yes, to some extent	85	44.5
No	68	35.6
Total	191	100.0
An information system is available to collect and stor	re the information of	the beneficiaries
Yes, to high extent	76	39.6
Yes, to some extent	85	44.3
No	31	16.1
Total	192	100.0
Knowing about people who need the service and can	't get it	
Yes	81	41.1
No	116	58.9
Total	197	100.0
If yes, why?		
Don't know how to use the service	61	75.3
People who do not know about the service	57	70.4
People with disabilities	40	49.4
Gender-based violence	17	21.0
Teenagers	14	17.3
Other (elderly persons, unavailability of phone)	3	3.7

The majority of participants in the health provider survey (85.3%) and (92.7%) reported that the environment was comfortable, and it maintained privacy, respectively. Additionally, equipment that is needed for telemedicine was available (to a high and to some extent), as reported respectively, by 39.5% and 46.4% of respondents. Having said that still, 78.3% of respondents felt that additional devices were necessary to implement telemedicine services. The findings of this study suggest that information systems are available for telemedicine services; 83.9% of participants agreed that there is a system for recording and storing information about telemedicine services. This finding is in line with Khemapech's (2019) e-Health foundations, which view such systems as essential and should be the first to be implemented. Health care providers 41.1% are aware of patients who need telemedicine services but don't access them because they are either unaware of the services or are not certain about how to use them (70.4% and 75.3%, respectively). The evidence flags some barriers for using telemedicine services, such as the elderly's lack of digital literacy is the biggest barrier to using telemedicine (ibid). Interviews with policymakers, confirm that the agency has supplied the clinics with computers, headphones, the program, and its integration with an e-health program. Regarding the physical space and location, the agency's clinics are built according to appropriate standards. One of policymakers explained,

'Of course, the UNRWA foundation provided computers, headphones, the program, and its integration with an e-health program. The service requires funding and resources. There is no cost to the patient. Recently established clinics are appropriate locations for offering the service'.

Another policymaker outlined the need for funding to maintain the services saying. 'Oh, allocate funds for the continuation of the service, human resources, documentation, training, equipment, ongoing supervision, the location, and its integration with electronic health records'.

# 4.1.2.7 Effectiveness of telemedicine

Variables	No.	%
Telemedicine is effective		,,
Yes. to high extent	147	75.0
Yes, to some extent	45	23.0
No	4	2.0
Total	196	100.0
Telemedicine is effective without accompanying it with face-to-face of	onsultation	
Yes, to high extent	22	11.4
Yes, to some extent	100	51.5
No	72	37.1
Total	194	100.0
Telemedicine can be an effective addition to face-to-face treatment	I.	•
Yes, to high extent	65	33.8
Yes, to some extent	104	54.2
No	23	12.0
Total	192	100.0
The most common telemedicine consultation		•
For medical advice	131	66.5
Inquiries about the availability of services in the clinic	99	50.3
Inquiries about appointments	87	44.2
Treatment of acute disease	84	42.6
For medicines used without a prescription	83	42.1
Assurance about the laboratory result	80	40.6
Follow- up of outpatients	55	27.9
Re-prescribing chronic medication	45	22.8
Follow up on non-communicable diseases	34	17.3
An appointment with the family doctor	30	15.2
Requesting lab tests	23	11.7
Psychological support	19	9.6
The most common diseases treated through telemedicine		-
Pediatric diseases such as (colds, gastroenteritis, and baby feeding)	176	89.3
General diseases (rash, musculoskeletal problem, neuron-disease)	152	77.2
Maternal illnesses (pregnancy-related illnesses, family planning	40	20.3
complaints, pre-conception care consultation)	• •	10.0
Non-communicable disease	38	19.3
Mental illness	20	10.2
Other (dangerous signs, respiratory infection)	2	1.0
Confidence about remote diagnosis	~ 1	07.1
Yes, to high extent	51	27.1
Yes, to some extent	124	66.0
NO Tatal	13	0.9
10tal The metion for using televeralising	100	100.0
Ensuring continuity of core domits prices	152	77 7
Control reported visit	133	(0.5
	155	08.J 57.0
Improve workflow	114	57.9
Deduce weiting time	100	51.2
Improve ennointment system	101	50.9
Easy access to comices	87	30.8
LINDWA support to the heneficieries	62	22.0
To improve the future of medicine	42	32.0
To improve the future of medicine	43	21.0
Ves to high extent	68	35.2
Ves to some extent	102	53.2
No	22	11 /
Total	193	100.0
		±00.0

 Table 4.18: Perceptions of care providers about effectiveness of telemedicine

As shown in Table 4.18, participants reported that telemedicine is effective; 75.0% reported that it is effective to a high extent. Still, 11.4% of respondents reported that they could rely on telemedicine (to a high extent) without accoupling it with in-person care; 51.5% of respondents thought it was effective to some extent without accompanying it with in-person consultation. In line with that, only 27% of respondents indicated that they trusted the diagnosis made remotely, which is in line with qualitative findings as a female care provider with a temporary contract from middle Gaza described, 'When I first heard of telemedicine, I was interested in how doctors could make diagnoses without physically completing an examination. When I worked at UNRWA, where I gave telemedicine care, I discovered that UNRWA used it effectively, that it is a useful service that helps people, and that it conserves resources and time for patients and providers '. The perception of primary care doctors in Qatar towards the use of telemedicine during the COVID-19 pandemic was that a little more than half (48%) of the doctors had previously utilized telemedicine, primarily in the form of telephone consultations. Only half (52%) of doctors believed that telemedicine increased job performance and efficacy, despite nearly three-quarters (74%) of doctors agreeing that it was a simple way to interact during the pandemic. 90% of doctors agreed that using telemedicine during the pandemic was safe. The majority also said that telemedicine was a useful tool for reviewing chronic diseases (63%) and for other consultations, like reviewing the results of blood tests and prescribing medications (71%). Language problems and a lack of adequate training were the two biggest obstacles to the use of telemedicine. Approximately 79% of respondents thought so (Khan et al., 2022).

According to a systemic review done about satisfaction with telemedicine, the results showed that the lack of direct communication between consumers and providers of services had a substantial impact on health care providers' lack of trust and confidentiality. One study also argued that telemedicine services could only be a supplement to health care services and not a substitute for patient-physician face-to-face consultations (Kaur et al., 2022). Telemedicine consultations were made mainly to get medical advice (66.5%) and to inquire about the availability of services (50.3%), as reported by participants of the service. Pediatric diseases such as colds, gastroenteritis, and baby feeding (89.3%) and general diseases such as rash, musculoskeletal problem, and neuron-diseases (77.2%) were the most frequently reported medical conditions that were treated via telemedicine, according to the service providers responses. Imlach et al.'s (2020) study found that the most frequent causes for contacting general practice telemedicine (multiple reasons permitted) were routine or non-urgent problems (42%), such as vaccinations and medical certificates;

repeat prescriptions (41%); urgent or persistent problems (39%), such as injury, infection, and pain; or chronic health conditions (25%).

According to Table 4.18, when respondents were asked about their motives for using telemedicine services, 77.7% reported that it contributed to ensuring continuity of care despite crises, 68.5% reported it controlled repeated visits, 57.9% reported it improved workflow, and 53.8% reported it improved attendance for over-the-counter medications. According to Haleem et al.'s (2021) study, care providers are motivated to use telemedicine because it often eliminates the burden of patient check-in and concentrates on higher-value tasks. With online visit capability, clinicians may care for their patients while still potentially assisting other affected practices. This also reduced distance limitations by exchanging information about a diagnosis, care, and disease prevention between the doctor and the patient through electronic means. In accordance with De Albornoz et al.'s (2021) systemic review on the effectiveness of telemedicine in primary care, published in 2021, teleconsultations via telephone or videoconference are an effective alternative to face-to-face consultations for many patients attending primary care and mental health services. Teleconsultations have the potential to deliver time-efficient and lower-cost interventions at a distance while improving access to healthcare (ibid).

Qualitative findings show that service providers concurred that telemedicine is a cost-free, practical line that saves transportation, the user, and doctor time. Make the clinic less congested and reduce the clinic's crowdedness. Defiantly, one of the care providers from middle Gaza with temporary contract said, '*Let's turn off the toll-free line for one week and see how crowded the clinic will be'*.

'The mother called me because her son had taken the entire bottle of medication. Without wasting her time at the clerk and doctor stations in the clinic, I urgently recommended she go to the hospital' (FGD, middle Gaza, care provider).

'UNRWA has been working to manage the issue of a high workload and reduce clinic waiting times for a very long time. The following issues are now solved by telemedicine: saving time, reducing workload, improving contact time, improving accessibility, being free to call the doctor directly, being available, and being easy to reach throughout the clinic's operating hours' (FGD, Gaza, care provider).

## 4.2 Inferential analysis

## 4.2.1 Inferential analysis of the findings of surveyed client's questionnaire

To determine whether there are statistically significant differences in telemedicine related variables among groups of respondents, an inferential analysis was performed.

#### 4.2.1.1 Association between knowledge about telemedicine and clients' characteristics

Table 4.19 demonstrates that males (91.6%) were more likely than females (83.3%) to know about telemedicine, and the gender variations in this regard were statistically significant (P value = 0.029). This finding is inconsistent with what has been concluded in the Jacqueline & Maria (2021) study, as women (42.0%) were more likely to use telemedicine than men (31.7%); however, these variations remain within the attendants to the clinics, a practice that is not commonly performed by men.

Variables	Knowing about telemedicine						X2	Sig.
	Y	es	N	lo	Т	otal		Ű
	No.	%	No.	%	No.	%		
Gender								
Male	87	91.6	8	8.4	95	100.0	3.969	0.029
Female	254	83.3	51	16.7	305	100.0		
Total	341	85.3	59	14.8	400	100.0		
Clinic name								
Jabalia	70	84.3	13	15.7	83	100.0	8.044	0.090
Al Rimal	62	76.5	19	23.5	81	100.0		
Al Maghazi	77	90.6	8	9.4	85	100.0		
Maan	76	89.4	9	10.6	85	100.0		
Central Rafah	56	84.8	10	15.2	66	100.0		
Total	341	85.3	59	14.8	400	100.0		
Type of family								
Nuclear	292	85.6	49	14.4	341	100.0	0.007	0.534
Extent	46	85.2	8	14.8	54	100.0		
Total	338	85.6	57	14.4	395	100.0		
Education						•	•	•
Primary	12	85.7	2	14.3	14	100.0	8.925	0.030
Preparatory	39	79.6	10	20.4	49	100.0		
Secondary	121	80.1	30	19.9	151	100.0		
University	168	90.8	17	9.2	185	100.0		
Total	340	85.2	59	14.8	399	100.0		
Working status								
No	183	85.9	30	14.1	213	100.0	0.314	0.337
Yes	151	83.9	29	16.1	180	100.0		
Total	334	85.0	59	15.0	393	100.0		
Sufficient Income						•	•	•
To high extent	9	81.8	2	18.2	11	100.0	0.592	0.744
To some extent	85	83.3	17	16.7	102	100.0		
No	243	86.2	39	13.8	282	100.0		
Total	337	85.3	58	14.7	395	100.0		
Suffering from any chroni	ic disease	or one o	f vour fa	milv		•	•	•
Yes	155	87.1	23	12.9	178	100.0	0.853	0.218
No	186	83.8	36	16.2	222	100.0		
Total	341	82.3	59	14.8	400	100.0	1	
Age							1	1
Less than 30	123	84.2	23	15.8	146	100.0	0.190	0.909
From 30 to 40	111	84.1	21	15.9	132	100.0		
More than 40	86	86.0	14	14.0	100	100.0	1	
Total	320	84.7	58	15.3	378	100.0	1	

Table 4.19: Association between knowledge about telemedicine and clients' characteristics

According to the participants' educational level, university had the highest score in the knowing of telemedicine (90.8%), and preparatory had the lowest score in the overall knowing of telemedicine (79.6%). These differences were statistically significant (P value = 0.030). This finding is consistent with what has been concluded in Jacqueline & Maria (2022) study. No statistically significant differences were noticed in relation to age, serving clinic, having chronic disease and other variables (see Table 4.19).

## 4.2.1.2 Receiving telemedicine service in reference to clients' characteristics

Variables	Receiving Telemedicine Services						<b>X</b> <sup>2</sup>	Sig.
	Y	es	N	No		Total		-
	No.	%	No.	%	No.	%		
Gender								
Male	72	75.8	23	24.2	95	100.0	1.003	0.362
Female	215	70.5	90	29.5	305	100.0		
Total	287	71.8	113	28.2	400	100.0		
Age								
Less than 30	109	75.7	37	25.3	146	100.0	2.693	0.260
From 30 to 40	94	71.2	38	28.8	132	100.0		
More than 40	65	65.0	35	35.0	100	100.0		
Total	268	70.9	110	29.1	378	100.0		
Primary health care name								
Jabalia	60	72.3	23	27.7	83	100.0	1.769	0.778
Al Rimal	57	70.4	24	29.6	81	100.0		
Al Maghazi	63	74.1	22	25.9	85	100.0		
Maan	57	67.1	28	32.9	85	100.0		
Rafah	50	75.8	16	24.2	66	100.0		
Total	287	71.8	113	28.2	400	100.0		
Type of Family								
Nuclear	245	71.8	96	28.2	341	100.0	0.003	0.549
Extent	39	72.2	15	27.8	54	100.0		
Total	284	71.9	111	28.1	395	100.0		
Education								
Primary	8	57.1	6	42.9	14	100.0	2.735	0.434
Preparatory	33	67.3	16	32.7	49	100.0		
Secondary	107	70.9	44	29.1	151	100.0		
University	138	74.6	47	25.4	185	100.0		
Total	286	71.7	113	28.3	399	100.0		
Working status								
No	159	74.6	54	25.4	213	100.0	1.919	0.102
Yes	123	68.3	57	31.7	180	100.0		
Total	282	71.8	111	28.2	393	100.0		
Sufficient income								
To high extent	6	54.5	5	45.5	11	100.0	5.403	0.067
To some extent	66	64.7	36	35.3	102	100.0		
No	211	74.8	71	25.2	282	100.0		
Total	283	71.6	112	28.4	395	100.0		
Suffering from any chroni	c disease	or one o	f your fa	mily				
Yes	134	75.3	4	24.7	178	100.0	1.973	0.098
No	153	68.9	69	31.1	222	100.0		
Total	287	71.8	113	28.2	400	100.0		

Table 4.20: Association between receiving telemedicine service and clients' characteristics and their knowledge about telemedicine services.

In terms of who receives telemedicine, Table 4.20 demonstrates that males (75.8%) are more likely than females (70.5%) to receive telemedicine, but there were no statistically significant differences between males and females (P value = 0.362) in using telemedicine services. This is inconsistent with what was reported by Jacqueline & Maria's (2022) study, as women (42.0%) were more likely to use telemedicine than men (31.7%); however, these variations remain within the attendants to the clinics, a practice that is not commonly performed by men. In terms of participants' ages, those under 30 reported the highest overall telemedicine use (75.7%), while those over 40 had the lowest utilization (65%). These variations, however, did not reach a statistically significant level (P value = 0.067). According to Jacqueline & Maria (2022) study, the percentage of adults who used telemedicine increased with age, rising from 29.4% among adults aged 18 to 29 to 43.3% among those aged 65 and older. Although those who had chronic conditions were higher than those without chronic conditions (75.3% and 68.9%, respectively), variations in using telemedicine were not statistical significance (P value = 0.096).

Rafah governorate elicited the highest level of participants who received telemedicine (75.8%), and Khan Younis governorate elicited the lowest level of participants who received telemedicine (67.1%); however, receiving telemedicine or not across governorates did not show statistically significant differences (P value = 0.778). According to Jacqueline & Maria (2022) study, telemedicine was more commonly used by people in the Northeast (40.0%) and West (42.4%) than by those in the Midwest (33.3%) and South (34.3%). The proportion of adults who used telemedicine varied by region and fell as urbanization increased. No statistically differences were noticed in relation to type of family (see table 4.20).

Participants with university degrees had higher scores in the overall use of telemedicine (74.6%), and participants with primary education had the lowest score (57.1%). Although these variations look wide, they fell short of statistical significance (P value = 0.434), which agrees with Jacqueline & Maria (2022). Regarding the participants' income sufficiency, those with insufficient income utilized telemedicine more frequently than those with sufficient income to a high extent (74.8% and 54.5%, respectively). Nevertheless, these variations were not statistically significant (P value = 0.067). Which is in line with the Jacqueline & Maria (2022), the proportion of individuals who used telemedicine grew from 33.1% with low family income to 40.7% with higher family income.

# 4.2.2 Inferential analysis of the findings of health providers surveyed questionnaire

Variables	Provide Telemedicine Services							Sig.
	Y	es	N	lo	To	otal		
	No.	%	No.	%	No.	%		
Age								
Less than 30	65	80.2	16	19.8	81	100.0	1.344	0.511
From 30 to 35	50	87.7	7	12.3	57	100.0		
More than 35	48	82.8	10	17.2	58	100.0		
Total	163	83.2	33	16.8	196	100.0		
Gender			•	•			•	
Male	84	84.0	16	16.0	100	100.0	0.082	0.462
Female	80	82.5	17	17.5	97	100.0		
Total	164	83.2	33	16.8	197	100.0		
Contract Type						1		
Permanent	111	84.7	20	15.3	131	100.0	0.618	0.277
Temporary	53	80.3	13	19.7	66	100.0		
Total	164	83.2	33	16.8	197	100.0		
Education								
Bachelor	112	79.4	29	20.6	141	100.0	5.180	0.015
High Education	52	92.9	4	7.1	56	100.0		
Total	164	83.2	33	16.8	197	100.0		
<b>Experience In UNRWA</b>	-				-			
5 and less	92	82.1	20	17.9	112	100.0	6.809	0.003
From 6 to 10	40	97.6	1	2.4	41	100.0		
Above 10	30	78.9	8	21.1	38	100.0		
Total	162	84.8	29	15.2	191	100.0		
Current Workplace								
North governate	16	84.2	3	15.8	19	100.0	1.490	0.828
Gaza governate	33	80.5	8	19.5	41	100.0		
Deir Al-Balah governate	45	84.9	8	15.1	53	100.0		
Khan Younis governate	34	79.1	9	20.9	43	100.0		
Rafah governate	36	87.8	5	12.2	41	100.0		
Total	164	83.2	33	16.8	197	100.0		
Graduation Place								
Palestine	95	84.1	18	15.9	113	100.0	0.429	0.807
Arab Countries	59	83.1	12	16.9	71	100.0		
Foreign Countries	10	76.9	3	23.1	13	100.0		
Total	164	83.2	33	16.8	197	100.0		
Receiving training								
Yes	113	96.6	4	3.4	117	100.0	36.725	0.001
No	51	63.7	29	36.3	80	100.0		
Total	164	83.2	33	16.8	197	100.0		
If given the option, would	you pro	vide tele	medicin	e service	S			
Yes	104	83.2	21	16.8	125	100.0	0.095	0.454
No	48	81.4	11	18.6	59	100.0	1	
Total	152	82.6	32	17.4	184	100.0		

# Table 4.21: Association between providing telemedicine services and care providers characteristics

In terms of years of experience, participants with 6-10 years of experience generally provided more telemedicine services than participants with more than 10 years of experience (97.6% and 78.9%, respectively), and the differences among the groups were statistically significant (P value = 0.003). That is consistent with Nakagawa and Yellowlees' (2020) research, which shows that as technology plays a larger role in healthcare, younger generations of doctors will be better able to withstand burnout. When it comes to integrating technology into their healthcare workflows, older generations have had difficulty. Despite the findings of Firn et al.'s (2021) study showing that doctors over the age of 50 were better acquainted with the regulations and practiced official telemedicine. Care providers who obtained high levels of education offered more telemedicine services than participants who did not (92.9% and 79.4%, respectively). The statistical significance of these differences is determined (P value = 0.015).

The care provider training found that the participants who received training offered more telemedicine services than the participants who did not (96.9% and 63.7%, respectively). It is determined that these changes are statistically significant (P value = 0.001). Again, the training, experience, and education of healthcare providers can have an impact on the provision of telemedicine. This is in line with Garber and Gustin's (2022) result that the sort of telehealth education received was substantially related to the adoption of telemedicine. Additionally, COVID-19 has highlighted possibilities for technological advancement within medicine and medical education. With greater knowledge about which aspects of medicine work best with telehealth, it is important to train future providers to use these technologies and provide these modes of care. Telemedicine curricula should train future providers to deal with the ethical, legal, and regulatory implications of telemedicine. This training is especially important in light of the imminent care needs during the COVID-19 pandemic. Physicians must not only be trained to use telemedicine but also learn how to do so professionally, safely, and in an evidence-based manner (Jumreornvong et al., 2020).

# **Chapter Five**

# **Conclusions and Recommendations**

#### 5.1 Conclusions

The study built its conclusion and suggestions to be presented in this chapter on the findings and results of assessing telemedicine services at UNRWA H.C. The key findings show that telemedicine is effectively implemented, and UNRWA has successfully promoted this service and reached the majority of people in the catchment area during COVID-19. Additionally, it was acceptable culturally. There is a noticeable drop in its use after COVID-19 due to primarily two factors: the first is that many people believe it is just for emergency situations like COVID-19 and war. The second problem is the many restrictions on treatment suspensions in telemedicine. That suggested that additional work was required from UNRWA to spread the available information and advantages.

Despite the fact that care providers did not introduce themselves all the time, respondents were satisfied with their interactions with care providers since they met their expectations. Between those who had challenges and those who did not, respondents were split equally. The bulk of the recipients who experienced difficulties complained about the phone lines always being busy and the long wait periods.

Telemedicine services offer over-the-counter medications, treatments for mild diseases, and stable chronic disease care, with the exception of HTN and DM. The majority of consultations were for medical care. Clients were generally satisfied with the services they were receiving and agreed that it saved them time, effort, and money on transportation, as well as the effectiveness of accessing healthcare services. Respondents noticed the length of clinic wait times and crowding of clinics decreased, which gives doctors more time to care for patients and conserve their time. The majority of respondents believed that the telemedicine program had a beneficial impact on their health and the health of their family members by providing access to healthcare in times of need and treating current health conditions. The most crucial concept is that telemedicine services are suited for all family members because they are simple to use, engaging, and non-prone to errors. According to care providers, there was no formalized training program or set of standards, only on-the-job instruction, and no continuous telemedicine training. Since face-to-face training was challenging during COVID-19, policymakers explained that the first doctors who worked in telemedicine received training remotely from the Canadian Palestinian Foundation. By 2023, policymakers promised to provide care providers with training in SOP, communication, and case-missing prevention in order to develop standards for judging competency. According to health care providers, remote acute illness care, risk assessment of telemedicine calls, and remote medication prescription were among the training topics that needed to be covered. After receiving complete training for a considerable amount of time, doctors should undergo competency evaluations. Half of the respondents, who were evenly split, said there was no protocol in place. The other half discussed SOP, a widely used protocol that is simple to use and up-to-date. A SOP merely contains essential instructions; however, opinions on whether it should be considered a protocol vary.

Care providers need an approach that is based on science, and legislation must be put in place to ensure that telemedicine services are provided in a secure way to deliver a service, identify who is targeted, and identify who needs to be reached. To guarantee secure online medical consultations, legislation must be passed. Providers of telemedicine care contend that each clinic has its own privacy policies and that there is no standardized procedure for all clinics on some concerns. Additionally, care providers must provide clear instructions on frequent calls, routine medication requirements, and case classification. Outpatient treatment was the most often offered service, and over-the-counter drugs accounted for half of all repeated calls among responders who offered telemedicine. All participants concurred that while the current service satisfies client needs, it might be enhanced and expanded. If given the option, the majority of telemedicine providers would choose to use it, and it is anticipated that they would have the necessary level of expertise to do so.

According to care providers, telemedicine is a valuable and effective service that aids people and conserves resources and time. Confusion about clients' identities, a lack of client awareness, and technical faults are the major challenges facing care providers. In addition to obstacles, there are busy lines, vulnerable groups, poverty, low awareness, and restrictions on care providers. Qualitative findings suggest that people need to be made more aware of the advantages of telemedicine and how to use it to their advantage, and well-trained, qualified telemedicine care providers with less restriction are needed. The majority of providers were satisfied with their interaction with clients.

The study found that participants thought the contact time with clients during the call was appropriate. Also, raising client understanding of how to use telemedicine properly could enhance time management. The accessibility of appropriate locations and equipment required for telemedicine was noted by respondents, who said the environment was comfortable and protected privacy. The majority of participants agreed that a system for recording and storing information about telemedicine services is available. The agency provided computers, headphones, and integration with an e-health program. Funding is needed for the continuation of the service, human resources, documentation, training, equipment, ongoing supervision, the location, and its integration with electronic health records. Telemedicine is an effective alternative to face-to-face consultations for many patients attending primary care. Teleconsultations have the potential to deliver time-efficient and lower-cost interventions at a distance while improving access to healthcare.

The simplicity of using telemedicine varies by governorate; middle GGs are easier to utilize than GGs. Gender and educational level have an impact on knowledge of telemedicine. Males are more likely than females to be knowledgeable about telemedicine, and university degree holders score higher knowledge than preparatory education level. The results of the study's examination of the data showed that participants with various levels of experience and training had various ideas about how clients and healthcare providers communicate. Participants with 6 to 10 years' experience had a more positive opinion of the client-care provider interaction than participants with 5 or less. The results of the care provider training showed that individuals who received training evaluated the client-care provider interaction more favorably than those who did not. Different degrees of education and experience have an impact on the delivery of telemedicine; participants with 6–10 years of experience delivered more telemedicine services than those with more than 10 years. High-educated healthcare providers provided more telemedicine services than those with lower-level education. Future healthcare professionals should be prepared to deal with the ethical, legal, and regulatory consequences of telemedicine through telemedicine training.

The ethical, legal, and regulatory implications of telemedicine are significant and require careful consideration. With the COVID-19 pandemic, telemedicine has become an essential tool for providing care to patients while minimizing the risk of transmission. However, physicians must receive proper training to ensure that they use telemedicine in a professional and safe manner. This includes understanding the limitations of telemedicine and knowing when it is appropriate to refer patients for in-person care. Additionally,

physicians must be aware of the legal and regulatory requirements for practicing telemedicine in their jurisdiction. This includes maintaining patient confidentiality and complying with state licensing requirements. Finally, physicians must be mindful of the ethical implications of telemedicine, such as ensuring equitable access to care and avoiding bias in their diagnoses and treatment recommendations. By addressing these issues through comprehensive training programs, physicians can provide high-quality care through telemedicine while also upholding professional standards and protecting patient rights.

#### 5.2 Recommendations

- Globally, telemedicine is increasingly becoming an integral part of health service provision. Policymakers in Palestine need to lead active efforts to structure this service into the routine health services provided during emergencies and other regular times.
- The study underscored important positive experiences and perspectives associated with the use of telemedicine services, which can be further reinforced and promoted.
- The use of telemedicine was associated with positive perceptions around effectiveness and outcomes; it is now time to scale up telemedicine services and extend their coverage and targets.
- Telemedicine services need better regulations, including identifying scope, targets, coverage, structure, and processes, and they need to be officially framed as a part of regular services. To ensure that telemedicine use is an official and safe practice, a set of policies and regulations needs to be established and endorsed.
- More efforts are needed to increase community awareness about telemedicine services, their values, and their uses through different communication channels. It is necessary to develop a marketing strategy to enhance the uptake of the services due to the lack of awareness about telemedicine continuity following COVID-19.
- Developing updated protocols or technical instructions to standardize the delivery
  of telemedicine services is essential. Such protocols can specify the types of
  services that can be provided through telemedicine, how services are provided, and
  according to what standards.
- It is important to incorporate telemedicine into the family health team to ensure that clients receive telemedicine like other health services from the same service provider in order to ensure continuity of care.

- It is important to invest further in providing training to health care providers to enable them to better provide telemedicine services. Training can take many forms, including formal training and on-the-job training.
- Strengthening monitoring and supervision related to telemedicine services, including setting targets and developing monitoring and evaluation systems.
- Secure the needed resources to overcome barriers originating from not having enough lines or a long waiting time.

## 5.2.1 Recommendations for new areas of research

- A large-scale, national study is needed to assess the quality of telemedicine services.
- Study the cost-effectiveness of the telemedicine approach for service delivery.
- Conduct a clinical audit for cases served by telemedicine to identify the clinical appropriateness and impacts of the services provided to them.

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# Annexes

# Annex 1: Experts who evaluated the questionnaire

Prof. Bassam Abu Hamad	Al-Quds university
Prof. Yehia Abed	Al-Quds university
Dr. Khitam Abu Hamad	Al-Quds university
Dr. Ayman El-Soos	Al-Quds university
Dr. Moatsim Salah	МоН
Dr. Mosa Abed	МоН
Dr. Khalil Hammad	UNRWA
Dr. Rihab El-Qoqa	UNRWA
Dr. Nisreen El-Halabi	UNRWA
Dr. Mohammed Manaa	UNRWA
Ms. Shatha Al-Baik	UNRWA

	D	2021				2022										2023							
Activity	uration/Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April.	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April.	May	Jun
Proposal writing and approval (SPH, RBB)	10																						
Tool Developme nt	3																						
Tool validation & piloting	3																						
Data Collection	3																						
Data Entry and analysis and writing	5																						
Qualitative data collection	2																						
Data entry and analysis	3																						
Report writing	6																						

# Annex 2: Study activities timetable

# Annex 3: Beneficiaries sample calculation

using random (not cluster) sampling								
Confidence Level	Sample Size							
80%	164							
90%	271							
95%	384							
97%	471							
99%	663							
99.9%	1082							
99.99%	1513							
Population size:	1500000							
Expected frequency:	50%							
Confidence limits:	5%							
#### **Annex 4: Interviewed client's questionnaire**

#### Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

Dear participant; / Greetings, appreciation, and respect,

I am Faten Abed Al-Aziz Abo Amra., a master's student at Al-Quds University, Faculty of Graduate Studies Health Management and Patient Safety. I am conducting this research as a requirement for obtaining a Master of Health Policy and Management/ Quality and Patient safety track. This study aims to evaluate telemedicine services at UNRWA health centers, Gaza field, looking ultimately to provide policy makers with recommendations that might promote appropriate use of telemedicine with it is positive consequences on people's health and wellbeing. You have been selected to participate in this as you met the selection criteria. Participation or refusal doesn't affect the services you receive or your other entitlements. Participation in the study means you need to answer a couple of questions listed in the questionnaire, which will not take more than 30 minutes of your valuable time. Your participation in this study is absolutely optional, although I appreciate your participation; you can refuse to participate, stop interview, skip some questions, or withdraw from the study completely at any time. Your answers will be kept completely confidential, and no individual respondent will be identified in any report based on the study. There are no right or wrong answers, please answer as you feel appropriate. Please answer all questions as much as possible and do not hesitate to ask for any clarification regarding this questionnaire.

Best regards

#### Faten Abed Al-Aziz Mohammed Abo Amra

## Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

## **Interviewed Questionnaire**

The questions below talk about the quality of telemedicine services provided at the UNRWA clinics in the Gaza Strip (patient expectation and knowledge). Your answer will help us identify the quality of the services provided and the deficiencies in these services, which will contribute to the improvement of services in the future. I will read the questions and record your answers Please let me know if you didn't understand any of the questions. Section One: Personal Data

🔲 Telemedicii	□ Telemedicine recipient						Telemedicine Non-recipient						
Socio-demogra	phic a	nd econo	mic	characters	(for	all pa	rtici	ipants	5)				
1) UNRWA reg	gistratio	on card No	).		2) Date of interview $D \setminus M \setminus Y \setminus$								
3) Name				4) Age			5)	Gend	er Femal	e 🗌 I	Male		
6) Residency	1.No	rth	2.0	Gaza	3.M	iddle	1	4.Kł	nanyouni	is 5.Ra	afah		
7) Type of the f	amily		1.1	Nuclear fan	nily. (	Paren	ts	2. E	xtended	family.	(Oth	er than	
			wit	th their child	ldren) parents and their children)						ı)		
8) Number of p	eople v	who are liv	ving	in the same	dwel	ling -							
9) Education le	vel	1. Prima	ry	2. Prepara	tory	3. Se	econ	ıdary	4. Univ	versity	5. i	lliterate	
completed:													
10) What is fan	nily he	ad employ	men	t Status?			1. L	Jnemp	oloyed	2. Em	ploy	ed	
11) Does your f	family	receive so	cial	assistance?	12	) If ye	es, th	ne sou	rce is				
1. Yes (if y	es go (	Q 12)			1	1. MOSD							
2. No					2	. UNF	RWA	A					
					3	. Othe	er sp	ecify					
13) Monthly fai	mily in	come in I	LS fi	rom all sour	ces			-					
14) Monthly fai	mily ex	xpenditure	in I	LS			1						
15) Do you thir	k that	your inco	ne is	s enough to	meet		1.	Yes. t	o high	2. Ye	s		
your family nee	eds?						ext	tent	0 111811	to so	me	3. No	
										exten	lt		
16) Which of th	e follo	wing are a	avail	able in you	r hous	se (yo	u ca	n cho	ose more	e than or	ne)?		
1. Telephone	-land l	ine			4	. Inter	net						
2. Mobile (or	tablet)	, how mar	ıy										
3. Computer (	or lapt	op)		1									
Associated hea	ith co	naition (Io	or al	I participal	nts)		1 V	an (if	vaa aa ta	a 19)	2	No	
chronic disease	119 01 <u>`</u> ?	your failin	y me	embers hav	ea		1. 1	es (II	yes go to	) q 18)	Ζ.	INO	
18) If yes (you	can ch	oose more	that	one ontior	.) 								
9 Diabete	se.	1	17	Asthm	а/СОРГ	)							
10. Hyperte		18 Connective tissue diseases											
11. Thyroid	se	1	19. Epilepsy										
12. Peptic	ılcer		16.	Hepatic dis	ease	20. Mental health							
*				L		2	21. (	Others	s specify				

No.	For telemedicine recipients and telemedi	cine non-	recipie	nts									
1.	Did you know or hear about telemedicine?		<b>1.</b> Yes	s,(if yes g	0	2.if No	(go						
			q2)			q7)							
2.	How did you know/hear about telemedicine	e services?	?										
	1. A friend 4. Mess	age sent by	y the cl	inic. 7	. Me	edia like r	adio						
	2. Relative 5. Poste	rs in clinic	2	8	. Otl	ners							
	<b>3.</b> Health care providers <b>6.</b> Socia	l media											
3	Did you over use telemodicine 1 Ve	$(\mathbf{x}, \mathbf{x})$			2	No(if no							
5.	bid you even use telemedicine 1.16	s(go qo), mony tim			2.	4)	, go						
4	If no, why you didn't use telemodicine som	les		then	$\frac{+}{2}$								
4.	No It	m	can cho	Jose more	than	Ves N	0						
	1 Not convinced about its benefi	te				165 1	0						
	2 East to try new things	18											
	<b>2.</b> Fred to try new timigs	way of m	odical	Sarvicas I									
	<b>5.</b> Face to face consultation is the way of medical services I prefer												
	4. Husband/family refused												
	5. Telephone not availble												
	6. Living near clinic, easier to go	6. Living near clinic, easier to go and visit											
	7. I dont like to talk about my con	npalints o	ver pho	one									
	8. I need to get my medications and do lab tests												
	9. Others, specify												
5.	Do you know anyone from your relatives o	r friends v	who use	d the 1	.Yes	2. No (	(go q7)						
	services?			(	go								
				C	<u>(6)</u>								
6.	How they perceived the telmedicine	1. Satis	sfied,	2. Satist	fied	3.1	Not						
	services?	to high		to some		stied							
-		extend	. 1	extent		V	2						
7.	(toll free line at UNPWA) that is document	tod in	/   1.   hi	res, to	2.	r es, lo	3. No						
	nation file at ONK w A) that is document	onal to	111	gii extent	501	ne extent	INO						
	diagnose consultation and treat patients in a	a remote											
	location.	a remote											
8.	Do you think telemedicine services most a	opropriate	for wh	ich catego	ory of	people (y	ou can						
	choose more than one answer)?			-									
	1. Boy less than 10years6. A	dult fema	ıle 20-6	5									
	2. Girl less than 10years7. 1	Elderly 65	years a	and above									
	3. Female Adolescent 10-19years 8. 1	People wit	h disab	ilities									
	4. Male Adolescent 10-19years 9. 1	People wit	h chror	nic disease		<b>NUD</b> 10							
	<b>5.</b> Adult male 20-65 <b>10.</b> I	People dur	ing em	ergency(I	ike CC	JVID-19	and						
9.	To what extent do you feel that telemedicin	ne is	1. 1	les, to	2. Y	es, to	3. No						
	appropriate to our context		hig	h extent	some								
10.	Are you recommending this service to othe	ers	1. 1	les, to	2. Y	2. Yes, to							
			hio	h extent	some	e extent							
			mg	II CATOIII	30110	e extern							

# For telemedicine recipients only

	Health service provision				
No.	Targeting				
1.	When was the last time you use telemedicine services	s I do n	ot remember .		
2.	Reasons for using telemedicine services? (you can ch	oose mor than c	one)		
	1. For medical advice8. A2. Treatment to acute illness9. R3. Re describe chronic medications10. R4. Assurance about lab result11. W5. Psychosocial support12. M6. NCD mointoring13. ct7. For overcounter drug need14. O	ppointment with equesting invest outine follow up fell-baby service fother health ser hild health relate ther, specify	n family docto igation es vices ed services	r	
3.	To what extent your expectations were met	1. Yes, to	2. Yes, to	3	. No
		high extent	some extent	t	
4.	Health care providers approach was appropriate	1. Yes, to high extent	2. Yes, to some extent	t 3	. No
	Beneficiary provider interaction				
5.	Did the provider introduce him/herself before starting to take care of you?	1. Yes, most of the time	2. Yes, sometimes	3	. No
6.	Did the provider welcome you before starting taking care of you?	1. Yes, most of the time	2. Yes, sometimes		. No
7.	Telemedicine services are provided by the same	1. Agree	2. Don't	3. Doi	n't know
	doctor in the different sessions.		agree		
8.	Do you meet the telemedicine service providers face	1. Agree	2. Don't	3. Doi	n't know
	to face?		agree		
9.	You think that there were discontinuities in service	1. Yes, to	2. Yes, to	3	. No
	provision	high extent	some extent	t	
10.	Did the care provider keep listening to you?	1. Yes, most	2. Yes,	3	. No
11.	Were there any interruptions during the call?	1. Yes, most	2. Yes, som	ne 3.	No (go
		of the time	times	q1	3)
12.	If yes, what were the kinds of interruptions? (You can 1. Talking with other 2. Provider Mobile??? Unclear 3. The care provider intrupts you because of time 4. Family members interrupted the call	n choose more th Phone probler Network prob Others, specif	han one answe n vlem ŷ	er)	
13.	Does the provider answer your questions clearly?	1. Yes, all the time	e 2.Yes, sometime	es	3. No
14.	Can you choose between health providers if you	1. Yes	2. No	3. do	on't know
	complain need female or male doctors?				
15.	Have you ever been asked about the quality of telemedicine services before?	1. Yes, all the time	e 2.Yes, sometime	es	3. No
16.	Overall, how you regard the interaction of the	1. Satisfied, to	2. Satisfie	ed, to	3. Not
	service providers with you	high extend	some ext	tent	Satisfied

	Barriers to the telemedicine services												
17.	Had y	ou fa	ced any barriers during using the telemedici	ne ser	vice?	1. Yes (if	f yes go to		No				
						a 18)	C						
10	<b>X</b> 0					<b>q</b> 10)							
18.	If yes	, whic	ch one of the following (you may choose mo	ore the	an one opti	on)		<b>N Y</b>	1				
		No.	Q.				Yes	No					
		1.	Telephone not available										
		2.	Don't know free line number										
	-	3.	Waiting time is too long to respond to call						-				
	-	4.	Busy lines all the duty time						-				
	-	5.	Voice not clear	/olce not clear									
		6.	Recurrent interruptions										
	-	7.	Appointments are not convenient						-				
	-	8.	E-health complicates the process						-				
	-	9.	Gender of provider is not appropriate						-				
	-	10.	Flow of service is cumbersome	Flow of service is cumbersome									
		11.	You have to describe something which we										
	-	1.	on examination (like skin rash)	on examination (like skin rash)									
		12.	Being assigned to a specific doctor, not of	your	choice and	l maybe							
		10	you don't know										
	-	13.	Unable to explain my complaint						-				
		14.	Embarrassed to talk about issues I face										
		15.	Invasion of my privacy										
		16.	Other family member attended the call										
		17.	Others, specify										
10	Servi	ces yo	bu received during sessions										
19.	HOW	long c	loes each call last?		T	1	•						
20.	w nat	servic	more then one ensurer)	21.	abooso	Ons about th	e servi	ce you					
	call ci	loose	more than one answer)		one answ	(100 call cli ver)	Jose III		111				
	1	Δdvi	ice	1 G	ood	2 Uncertai	n 3	Rad					
	1. 2	Mod	ication	1. U	ood	2. Uncertai	n 3	Bad					
	2. 3	Ann	ointment	1. U	ood	2. Uncertai	n 3	Bad					
	J. Ploas		o item of telemedicine services you receive	1. 0	000	2. Oliceitai	II 5.	Dau					
	Advid	e <u>go n</u>	o telementine services you receive										
22	TE a da			4 . 4	:								
22.	II auv	ices v	vere received, indicate the topic you receive	auv	ice about i		Jwing ?						
	1. Sr	nokin	g cessation	8.	Suppleme	ntations							
	2. He	ealthy	diets	9.	Follow up								
	3. Fl	uid in	take	10.	Danger sig	gns of illnes	5						
	4. BI	mon	itoring	11.	Psycholog	cical advice							
	5. Pe	rsona	I hygiene	12.	Control of	chronic dis	ease						
		ineces	shout lab investigation	13.	Appropria	te use of me	dicatio	n					
	7. A	ivice	about lab investigation	14.	Other, spe	cify							
23.	Did y	ou un	derstand health provider advise?	1.	Yes, to	2. Yes, to	)	3. N	0				
				hig	h extent	some ext	ent						
24	War		iven the information very wart?			2 Vac t	Vas. to		0				
24.	were	you g	iven me mormation you want?	$\begin{bmatrix} 1. \text{ Yes, to} \\ 1. 1 \end{bmatrix} = \begin{bmatrix} 2. \text{ Yes,} \\ 1 \end{bmatrix}$			J	3. N	U				
				high extent some ex		some ext	ent						
25.	Do yo	ou thir	hk it is enough?	1. Yes, to 2. Yes, to			3. N	0					
				hig	h extent	some ext	ent						

26.	Are you able to ask about the information you wanted	1. Yes, to 2. Yes, to				3. No
	to ask about.	hi	gh extent	some	extent	
	Medication					
27.	Did health care provider consult you about your health	1.	Yes, all the	2.Yes	some	3. No
	condition	tir	ne	time		
28.	Did you find the prescribed medication in the	1.	Yes, all the	2.Yes	some	3. No
	pharmacy?	tin	ne	time		
29.	Would you make use of telemedicine without an	1.	Yes, all the	2.Yes	some	3. No
	accompanying face-to-face consultation	tin	ne	time		
30.	Do you think, telemedicine is only sensible as an	1.	Yes, all the	2.Yes	some	3. No
	addition to face-to-face services	tir	ne	time		
31.	Were you asked to pay for any outside UNRWA	1.	Yes, all the	2.Yes	some	3. No
	drugs/ lab investigation which is available in clinic	tin	ne	time		
32.	Do you need to visit clinic for the same reason of using	tele	medicine	1. Yes	2. No	(go to q
	without appointment?				35)	
33.	If yes, how many time					
34.	Also, if yes, why you seek medical advice again for the	sam	e reason of te	lemedi	cine use?	You can
	1. Telemedicine doctor didn't prescribe medication		4. Com	munica	tion relate	d issues
	2. Not confident with the diagnosis made through teleme	edic	ine 5. I can	ne to cli	nic for ph	armacy
	3. Outcomes of telemedicine management are not favori	te	why no 6. Othe	t see th	e doctor fv	
			0. Ouie	i, speer	ıy	
	Appointment					
35.	Is it easy to make an appointment with telemedicine	1	. Yes, all	2. Yes	,	3. No
		t	he time	somet	imes	
36.	Do you think that people wait too long to their	1	. Yes, all	2. Yes	,	3. No
	appointment	t	he time	somot		
27				somet	imes	
51.	Is your care provider comitted to the scheduled	1	. Yes, all	2. Yes	imes	3. No
57.	Is your care provider comitted to the scheduled appointment time they give to you during	1 t	. Yes, all he time	2. Yes	imes , imes	3. No
57.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine?	1 t	l. Yes, all he time	2. Yes	imes	3. No
37.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss	1 t	L. Yes, all he time	2. Yes somet	imes	3. No 3. No
38.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you?	1 t	1. Yes, all he time 1. Yes, all he time	2. Yes somet 2. Yes somet	imes , , , , imes	3. No 3. No
38.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility	1 t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> </ol>	2. Yes somet 2. Yes somet	imes	3. No 3. No
38.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center?	1 t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>Far</li> </ol>	2. Yes somet 2. Yes somet 2. Rea	imes , , imes s, imes	3. No 3. No 3. Close
38. 39. 40.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation	1 t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>Far</li> <li>Affordabl</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2.	imes , , imes sonable	3. No 3. No 3. Close able
38. 39. 40.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility?	1 t ; 1 t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2.	imes , , imes sonable Not afford	3. No 3. No 3. Close able
38. 39. 40.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility?	; 1 ; 1	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>Far</li> <li>Affordabl</li> <li>Ves. to</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2.	imes , imes sonable Not afford	3. No 3. No 3. Close able
38. 39. 40.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility? Do you think telemedicine save transportation cost?	; 1 ; 1 ;	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> <li>1. Yes, to</li> <li>high extent</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2. Rea e 2. Yes	imes , imes sonable Not afford	3. No 3. No 3. Close able 3. No
37. 38. 39. 40. 41.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility? Do you think telemedicine save transportation cost?	1 t t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> <li>1. Yes, to</li> <li>high extent</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2. Yes somet 2. Rea e 2. Yes	imes imes isonable Not afford fes, to e extent	3. No 3. No 3. Close able 3. No
37.         38.         39.         40.         41.         42.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? <b>Accessibility</b> How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility? Do you think telemedicine save transportation cost? To what extent does the telemedicine program enhance your access to health services?	1 t t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> <li>1. Yes, to</li> <li>high extent</li> <li>1. Yes, to</li> <li>high extent</li> </ol>	2. Yes       somet       2. Yes       somet       2. Yes       e     2. Rea       e     2. Yes       somet       2. Somet       2. Yes       somet	imes , imes sonable Not afford fes, to e extent fes, to e extent	3. No 3. No 3. Close able 3. No 3. No
37.         38.         39.         40.         41.         42.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? <b>Accessibility</b> How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility? Do you think telemedicine save transportation cost? To what extent does the telemedicine program enhance your access to health services? <b>Time</b>	1 t t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> <li>1. Yes, to</li> <li>high extent</li> <li>1. Yes, to</li> <li>high extent</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2. Rea e 2. Yes somet 2. Yes somet 2. Yes	imes , imes sonable Not afford e extent fes, to e extent	3. No 3. No 3. Close able 3. No 3. No
37.         38.         39.         40.         41.         42.         43.	Is your care provider comitted to the scheduled appointment time they give to you during telemedicine? If yes in previous question, did the care provider discuss the best time that suit you? Accessibility How do you describe the distance to reach the center? How do you perceive the affordability of transportation cost from home to and from the facility? Do you think telemedicine save transportation cost? To what extent does the telemedicine program enhance your access to health services? Time How you perceive waiting time for calling response	1 t	<ol> <li>Yes, all</li> <li>he time</li> <li>Yes, all</li> <li>he time</li> <li>1. Far</li> <li>1. Affordabl</li> <li>1. Yes, to</li> <li>high extent</li> <li>1. Yes, to</li> <li>high extent</li> <li>1. Short</li> </ol>	2. Yes somet 2. Yes somet 2. Rea e 2. Yes somet 2. Rea 2. Y som 2. Yes somet 2. Rea 2. Yes	imes , imes sonable Not afford es, to e extent e extent isonable	3. No 3. No 3. Close able 3. No 3. No 3. Long

45.	Waiting time in clinic post telemedicine use	Vaiting time in clinic post telemedicine use						The same
46.	Do you think telemedicine save times?			1. Yes, to high extent	2. Y som	es, to e extent	t	3. No
	Perceived Health impacts							
47.	Has the program generally affected you and y	our		1. Yes, to	2. Y	es, to		3. No
	family health positively?		high extent	som	e extent	t		
48.	If yes, how it has benefited you (you can choo	ose n	nore th	nan one)?				
	<ol> <li>Health education</li> <li>Treated a current problem.</li> </ol>	5. 6	Decre	easing waiting ti	me			
	3. Improve and control of chronic illness.	Dana	fit was limited t	o omor	conou (	(		
	4. Psychosocial support	7.	peri	od, war)		gency (	εx. (	.0v1D-19
		8.	Other	r, specify				
49.	Do you think telemedicine is a good addition	to		1. Yes, to	2. Ye	es, to		3. No
	medical services			high extent some extent				
50.	When having two possibilities of service prov which you prefer?	visio	1,	1. Telemedicine services (if choose2. Face to face services (if choose go a 51)90 a 5190 a 52				face f choose
51.	<ul> <li>Why you prefer telemedicine service</li> <li>5. Save time.</li> <li>6. Save cost.</li> <li>7. More comfortable</li> <li>8. Qualified care providers</li> </ul>		1. 2. 3. <b>4.</b>	Can do it whil Easy to reach. Effective Other, specify	e I am	at work	•	
52.	<ul> <li>Why you prefer face to face services</li> <li>1. Telemedicine doctor dose not prescribe ant</li> <li>2. Not confident with telemedicine doctor diagonal</li> <li>3. New services I don't trust.</li> <li>4. I feel more comfortable to be examined face</li> <li>5. I feel comfortable to deal with my ordinary doctor</li> </ul>	<ul> <li>6. Not respond to telemedicine management</li> <li>7. See my suggestions earlier.</li> <li>8. Bad communication</li> <li>9. I came to clinic for pharmacy why not see the doctor.</li> <li>10. Other specify.</li> </ul>						

No.	Question Ease of use and learnability	Yes, to high extent	Yes, to some extent	No
53	It was simple to use this system			
54	The way Linteract with this system			
34.	The way I interact with this system is pleasant			
55.	I can hear the clinician clearly using the telemedicine system			
56.	Whenever I made a mistake using the system, I could recover			
	easily and quickly			
57.	The system gave instructions message that clearly told me how to			
	use it			

## تقييم خدمات التطبيب عن بعد في مراكز الأونروا الصحية في غزة

عزيزي المشارك؛ / تحية تقدير واحترام وبعد،

أنا فاتن عبد العزيز ابو عمرة. طالبة ماجستير في جامعة القدس كلية الدراسات العليا إدارة الصحية وسلامة المريض. أجري هذا البحث كشرط للحصول على درجة الماجستير في السياسيات والإدارة الصحية/مسار الجودة وسلامة المريض. تهدف هذه الدراسة إلى تقييم خدمات التطبيب عن بعد في المراكز الصحية التابعة للأونروا، غزة، وتتطلع في نهاية المطاف إلى تزويد صانعي السياسات بالتوصيات التي قد تعزز الاستخدام المناسب للتطبيب عن بعد مع ما لها من تبعات إيجابية على صحة الناس ورفاهيتهم. لقد تم اختيارك للمشاركة في هذا الاستبيان لأنك استوفيت معايير الاختيار. لا تؤثر المشاركة أو الرفض على الخدمات التي تتلقاها أو استحقاقاتك الأخرى. تعني مشاركتك في الدراسة أنه يتعين عليك الإجابة عن بضعة أسئلة مدرجة في الاستبيان، والتي لن تستغرق أكثر من 10 دقائق من وقتك الثمين. مشاركتك في هذه الدراسة اختيارية تمامًا، على الرغم من أنني أقدر مشاركتك؛ الا أنه يمكنك رفض المشاركة، أو يتها المقابلة، أو تخطي بعض الأسئلة، على الرغم من أنني أقدر مشاركتك؛ الا أنه يمكنك رفض المشاركة، أو إيقاف المقابلة، أو تخطي بعض الأسئلة، أو الانسحاب من الدراسة تمامًا في أي وقت. ستبقى إجاباتك سرية تمامًا ولن يتم تحديد أي فرد في أي تقرير يستند إلى الدراسة. لا توجد إجابات صحيحة أو خاطئة، يرجى الإجابة على المائلة أو الانسحاب من الدراسة تمامًا في أي وقت. ستبقى إجاباتك سرية تمامًا ولن مشاركتك في هذه الدراسة اختيارية تمامًا، على الرغم من أنني أقدر مشاركتك؛ الا أنه يمكنك رفض المشاركة، أو ايقاف المقابلة، أو تخطي بعض الأسئلة أو الانسحاب من الدراسة تمامًا في أي وقت. ستبقى إجاباتك سرية تمامًا ولن مراركتك في فرد في أي تقرير يستند إلى الدراسة. لا توجد إجابات صحيحة أو خاطئة، يرجى الإجابة على النحو الذي تراه مناسبًا. الرجاء الإجابة على جميع الأسئلة قدر الإمكان ولا تتردد في طلب أي توضيح بخصوص هذا الاستبيان.

> مع أطيب التحيات فاتن عبد العزيز محمد ابو عمرة

# تقييم خدمات التطبيب عن بعد في مراكز الأونروا الصحية في غزة

## استبيان

تتحدث الأسئلة أدناه عن جودة خدمات التطبيب عن بعد المقدمة في عيادات الأونروا في قطاع غزة (توقعات المريض ومعرفته). ستساعدنا إجاباتك في تحديد جودة الخدمات المقدمة وأوجه القصور في هذه الخدمات، والتي ستسهم في تحسين الخدمات في المستقبل. سأقرأ الأسئلة وسأسجل إجاباتك. يرجى إعلامي إذا لم تفهم أيًا من الأسئلة.

## القسم الأول: البيانات الشخصية

	[	_عد	ب عن ب	قى التطبيب	غير متلذ	2					عن بعد	طبيب ع	متلقي الت
		شاركين)	ىيع الم	سادية (لجم	والاقتص	غرافية	الديمو	ماعية و	ن الاجت	خصيان	الش		
	١	/	١	خ المقابلة	2) تاريز	2				ونروا	مجيل الأر	طاقة تس	1) رقم ب
	أنثى	کر 🗆	ں ذ	5) الجنسر			ىر	4) الع				م	3) الاس
											-		
ح	5- رف	ونس	۷۔ خانی	طى 4	3. الوس	3	غزة	-2	مال	1. الش		ä	6) الإقام
أبنائهم)	باء و	ممتدة (عدا الأ	سرة ال	2. וע	لمفالهم)	اء مع أو	ة. (الآب	ة النوويا	الأسرة	.1		الأسرة	7) نو ع
							ىكن	س المد	ن في نف	يعيشور	س الذين	الأشخاء	8) عدد
أمى	.5	. الجامعة	4	ثانوية	JI .3	دادية	2. الإع	2	.1		ىليمى	وى التع	9) المسن
-								ئية	الابتدا				المكتمل:
		2. الـعاملين		C	ن العمل	باطل عر	1. ء	??	الأسرة	، رئيس	ة توظيف	هي حال	10) ما
		مصدر	عم، فال	الإجابة بذ	ا کانت	12) اِلْ		?ä	جتماعي	ساعدة ا	عائلتك م	تتلقى خ	11) هل
			اعية	مية الاجتم	ارة التن	1. وز		ں 12)	فانتقل م	بنعم، ا	ن الإجابة	إذا كانت	1. نعم (
					نروا	2. الأو							2. لا
				حدد	ن الك	3. غير							
						····· _	لمصادر	جميع ا	کل من	ي بالشي	ة الشهر:	ل الأسر	13) دخا
									یکل	ية بالش	رة الشهر	ت الأس	14) نفقا
		ti	•	~	ti		,	حتياجات	لتلبية ا	، کافٍ	أن دخلك	ل تعتقد	15 ھ
3. צ	L	. نعم إلى حد ه	2	د دبیر	، إلى د	1. نعم:				ای؟	أسرن		,
					احد)؟	ر من وا	يار أكثر	كنك اخت	لك (يمدّ	فی منز	، متوفر ا	مما يلي	16) أي
		المحمو ل)	مييو تر	نر (أو الكه	الكمبيو ن	.3	•		.,	- <u>-</u>	زضي	ليفون أر	1. خط َن
		( 3	<b>G G</b>	ی رو ت	الإنترنن	.4		از	کم جھ	وحى)،	لجهاز الا	ل ل (أو اا	2. الجوا
			ن)	المشاركير	(لجميع	صاحبة	يية الم	لة الصد	ألحا				
2. لا	(1	إلى السؤال 8	انتقل	جابة بنعم،	<u>.</u> انت الإ	م (إذا ك	1. نع	اب	ای مصد	اد أسرة	أحد أفر	انت او	17) هل
												ىزمن؟	بمرض ہ
						يار)	ِ من خ	بار أكثر	نك اختب	م (یمک	إجابة بن	کانت ا	18) إذا
ىزمن	ي الم	، الانسداد الرئو	مرض	2. الربو /	2		القلب	.5			ىكري	داء الس	.1
	÷	ج الضبام	، النسيع	2 <u>.</u> أمر اض	23	(	سرطان	.6		دم	ضغط ال	ارتفاع	.2
			-	<u>2.</u> الصرع	24	، الكلى	امراض	.7		,	قية	غدة در	.3
		2	النفسية	2 الصحة	25	کبدی	مرض	.8		ä	الهضمي	القرحة	.4
			حدد ـ.	2. أخرى،	26	•*						-	

				المتلقين	غير	تطبيب عن بعد	بعد وال	ب عن	ي التطبيب	لمتلق				رقم
(7 ८	للسؤال	انتقل ا	2. لا	ال 2)	, السؤ	عم ، (انتقل إلى	1. ن	د؟	يب عن ب	ن التطبي	معت ع	عرف أو س	هل ت	.1
			9	ن خيار)	ثر مز	مكنك اختيار أك	ن بعد (یا	ب عز	ات التطبيا	ىن خدم	ىمعت ع	عرفت / س	کيف	.2
ديو	الرا	سائل مثل	علام وا	10. الإ		من المعيادة	المرسلة	سالة ا	7. الر			صديق	.4	
		د	_ي حد	11. آخر		بادة	في العد	مىقات	8. ملط			قريب	.5	
						الاجتماعي	تواصل	ائل ال	9. وس		عاية	مقدمي الر	.6	
		11 100			1					**		الصحية		
(-	زال 4	تقل للسؤ	צ (ונ	2	تقل	ىرة (اذ	هم, کم ہ سالہ ص	<u>1</u> .د	تطبيب	دمات ال	نخدام خ	ىبق لك اسا م	ھل ہ	.3
		e/: .:	•	<u> ا ا ک</u>	• 1 41:		رال 8) التراسي	للسؤ	• .•• •	1131	1. JNH 3	بعد ؟	عن ب اذا ک	4
		حدمه): بر	ر من . نمبا	نیار ا <del>د</del> ر	ىك اح	ب عن بعد (يمد	، النطبيب	دما <u>ت</u>	<u>یسحدم ح ۱۱</u>	مادا لم	9, 7 4	الك الإجاب	ןבו ב ו	.4
		å	للعم					عصر	_)	1.	رف از د		رىم 1	
									5000	ى ئاشدام	، بقوانده نرتحد ده	<u>عير مسع</u> الخوف من	. I 2	
						قرالة أفضاما	ات الطرر	الخدما	جدیدہ طررقة ا	، سبع.	ے بجرب محماًا	الكوف مر الاستشادة	.2	_
						ب- التي التعليها	<u></u> , <u> </u>	لىدە ئىرة	ې <u>طريع</u> ه ر د افد اد الا	رب- <i>سي</i> /أه أحد	وجها <u>و</u> ااز م ح	، <u>د</u> فض من	.5 	
								بسره	<u>- الراب الا</u>	<i>۱</i> 'و '	، <u>تروب</u> د مته فد	ريس من الماتف غد		
						يبادة	هاب للع	يل الذ	لذلك أفض	العدادة	ر در من	العيش بالق	.6	
					ا. العيش بالعرب من العيادة لذلك افضل الذهاب للعيادة لا أحب التحدث عن خصو صداتي عد الماتف									
						رات المعملية	و الاختبا		رو یہ می أدويتے و	ل على	الحصو	أحتاج إلى	.8	_
									<u> </u>		د	اخری ح	.9	
(7 ८	للسؤال	(انتقل	2. لا	م	1.نع	، هذه	استخده	دقائك	بك أو أص	من أقار ب	نىخص ،	نعرف أي ش	هل ز	.5
				Ĺ	(انتقل							ية؟	الخد	
				ال 6)	للسؤ									
ä	رضي	: غير م	3	رضية	2. م	ضية الى	1. مر	بعد؟	بيب عن ا	ات التط	لی خدم	ينظرون إ	کيف	.6
				حد ما	إلى .	الي	حد عا		٤			•		
3. צ	5   .	2. نعم،		1. نعم،		لوجيا (الخط	ام التكنو	استخد	على انه ا	عن بعد	تطبيب	، تعريف ال	يمكز	.7
	ما	إلى حد		إلى حد		یض من فبل نسر ۱۰ م	ني للمر	لکترو	في ملف إ مد ريسان	لموتقة ا	نروا) ا	اني في الأو ريال	المج أ ز	
				کبیر		خدمات العيادة	بار عن	(ستفس	نتشارة، الا مان	ں، الاسد · ·	انتندي الا ال	ىائي طبي ا ر أ	اخص ان	
						<b>9</b> 1.1	د استخد	عد. حد أت	ئي مڪان ڊ درب جن د	رصى <sup>و</sup> بە التمار	الرج المر د خد	موعد او ع بدر فتان دا	احد ،	
9(3)-	بةما	من احا	ر أكثر	ای اختدا	أزمك	راهها . روانه من الزارس	رت است <u>د</u> سرب لأم	عد الو الأز	يب عن ب عن دور ه		هي حد. مات الذ	معر <u>ست</u> ما •تقد أن خد	بعد . هان ز	8
.(•	÷ (,	من ہِب	ر ،ير	ے رکیپ	(پہ	ي بي من (ييس ريالغة 20-65	سب ۾ ڊ 11 انث	ي ، ۵-	عل بعد م	سبيب د نه ات	<u>سار م</u>	نسب ان من	6	.0
				و قوق	ة فما أ	ع بـــــ 20-20 السن 65 سنة	11. ، <u>سی</u> 12 کیار	)		ىر، ىنو ات	، 10 س ن 10 س	سی میں مر بنت اقل مر	7	
				0,	اقة	ية في عام نحاص ذوبي الإع	 13. أشخ	3		1 سنة	9-10	المر اهقات	.8	
			ىزمنة	ر اض م	ِن بأه	بخاص المصابو	14. الأش	Ļ	، سنة	19-10	الذكور	المراهقين	.9	
(ب	الحرا	کورونا و	رباء الک	ئ (مثل و	لواري	ىخاص أثناء الد	15. الأث	5		(	65-20	رجل بالغ	.10	
~	3	10.20	11 1	2	١.	Il (	1	منابير		التطرير	- ان	ام مدم تش	ţı	0
<u>ہ</u>		ی حد م	لعم• ہے۔			ا . تعم، ہی ۔ کس			عن بت	للمعييب	عر ان ا	اي مدی د ۱۱	ہی۔ اثقافت	.9
۲	.3	ے حد ما	نعم، إل	.2	د	<u>۔ بر</u> 1 نعم، الی د			ä	ه الخدم	بن بهذ	۔ تصح الآخر	هل ز	.10
	-	6	/			کبير							-	

لمتلقي التطبيب عن بعد فقط

				يية	ت الصد	م الخدمان	تقدي				
					داف	الاستها			رقم		
			ٍ لا أتذكر		، بعد	لٰبيب عن	مات التو	متی کانت آخر مرة استخدمت فیها خد	.1		
			حد)	من و ا	ِ أكثر ،	نك اختيار	عد؟ (يمك	أسباب استخدام خدمات التطبيب عن ب	.2		
		ب الأسرة	ىد مع طبي	. مو ء	15			8. للحصول على المشورة الطبية			
			، تحاليل	ظلب	16			<ol> <li>علاج المرض الحاد</li> </ol>			
		ة الطفل	ات ر عایا	. خدم	17			10. إعادة وصف الأدوية المزمنة			
	11. التأكد من نتيجة المختبر										
	<b>12.</b> الدعم النفسي والاجتماعي 19. أخرى ، حدد										
								13 متابعة الأمراض المزمنة			
							فة طبية	14 لصرف علاجات متاحة دون وص			
3. ע		، إلى حد ما	2. نعم		کبیر	، إلى حد	1. نعم	إلى أي مدى تم تلبية توقعاتك	.3		
3. لا		، إلى حد ما	2. نعم		کبیر	، إلى حد	1. نعم	إلى أي مدى كانت طريقة تعامل	.4		
								مقدمين الخدمة مع اتصالك			
								مرضية؟			
				ندمة	قدم الخ	نفيد مع م	مل المسن	تواص			
3. ע		في بعض	2. نعم	(	، معظم	1. نعم	بل	هل قام مقدم الخدمة بتقديم نفسه / ها ق	.5		
			الأحياز			الوقت		البدء بتقديم الخدمة؟			
3. צ	ں	نعم في بعض الأحدان	.2	ظم	مم ، معا الہ قت	هل رحب بك مقدم الخدمة قبل البدء بتقديم 1. ذ الخدمة؟					
لأأعرف	.3	<u>، 2</u>	1. أو افق		<del>ىر</del> يب فى	نفس الطب	من قبل	مل يتم تقديم خدمات التطبيب عن بعد	.7		
		أوافق	0.0		Ų		0	کل مرة؟			
. لا أعرف	.3	2. لا أو افق	1. أوافق		શ્વ	جهاً لوج	عن بعد و	هل سبق وقابلت مقدم خدمة التطبيب ا	.8		
3. لا	حد	ر نعم، إلى . 2. نعم، إلى .	2	لی حد	. نعم، إ	ية 1	دون رؤ	هل تعتقد أن خدمة التطبيب عن بعد (ب	.9		
		ι	۵		یر `	کب	سلبا في	مقدم الخدمة أو معرفته السابقة) تؤثر م			
		٤		1				تقديم الخدمة؟			
3. צ	حيان	ي بعض الا	2. نعم ف		معظم	1. نعم ، اہ قرت		هل قام مقدم الخدمة بالاستماع إليك؟	.10		
(انتقل	۷3	عض	عم، في د	2 ن	معظم	<del>ر</del> 1 نعم،		هل كان هناك أي مقاطعة لك أثناء	.11		
(13	للسؤال	U I	، ي. يان	الأحب	`	لوقت		المكالمة؟			
		واحدة)	من إجابة	أكثر	اختيار	؟ (يمكنك	لمقاطعة	إذا كانت الإجابة نعم، فما هي أسباب ا	.12		
			الماتف	لة في	ب مشک	4.بسب		<ol> <li>مقدم الخدمة يتحدث مع شخص أخر</li> </ol>			
		أنترنت	ب شبكة الا أذي بدا	کلة فې	بب مشدً ۱	5. بس		2. مقدم الخدمة يقاطعك بسبب الوقت			
			ادحر ها	ری، ا	باب احر	.0	فيرك	<ol> <li>مقدم الخدمة يقاطعك بسبب عدم تو</li> </ol>			
	٤.,		-				<u>ن)</u>	لبياناتك اللازمة (مثلا: رقم كرت المؤ			
بان 3. ۷	ن الاحي	نعم في بعض	-2	ي کل	نعم ، فہ ہقت	.1	تك	13- هل يجيب مقدم الخدمة على اسئا وضوح؟	.13		
ر في در الم	3 \	2	_ة 1	ی ر د ا	ر بشکو ال	: اذا کانت	المردرا	ماريمكنك الاختدار بدن مقدم بالخدمة	11		
ه اعرب	.0 2		ب- ∣ .	. <u> </u>	، ستور	,,		الم (طيب ، محيد عين مسمي ،			
3. צ	بعض	2- نعم في	فی کل	عم ،	i.1	التطبيب	خدمات	<u>ب ی ر</u> 15- هل تم سؤالك من قبل عن جودة	.15		
		الأحيان		<u> </u>	وقت	• ·		عن بعد؟	_		
3. غير	ة إلى	2 مرضيا	بة الى	مرضب	· <u>1</u> '	مة معك؟	دي الخد	بشكل عام، كيف تنظر إلى تعامل مزو	.16		
مرضية		حد ما		عالي	حد						

			، بعد	تطبيب عن	دمات الذ	معوقات خا						
2-لا	18	نتقل لسؤال 3	1-نعم، ان	ے عن	التطبيب	مك لخدمة	ل واجهت عراقيل أثناء استخدا	17- ھ	.17			
								بعد؟				
			احد)	من خيار و	ر أكثر ،	كنك اختيار	ت الإجابة بنعم، أي مما يلي (يم	إذا كاند	.18			
	Y	نعم				س.		رقم				
							الهاتف غير متوفر	.1				
							لا أعرف رقم الخط المجاني	.2				
					لمة	على المكا	وقت الانتظار طويل جدًا للرد	.3				
						العمل	الخطوط مشغولة طوال وقت	.4				
				الصوت غير واضح								
							المقاطعات متكررة	.6				
							المواعيد غير مناسبة	.7				
				يمة	بعقد الخد	لکتروني ي	متطلبات فتح ملف المستفيد الإ	.8				
					ب	غير مناس	نوع مقدم الخدمة (ذكر، أنثى)	.9				
			ن الجلدي)	مثل الطفح	فحص (	زيته عند ال	عليك أن تصف شيئًا يسهل رو	.10				
				لا تعرفه	ك وقد	، من اختيار	يتم تقيدك بطبيب معين، وليس	.11				
							غير قادر على شرح شكواي	.12				
			مىال	خلال الاتم	اتي من	خصوصي	أشعر بحرج حين التحدث عن	.13				
					مة	مرين المكال	حضور أحد أفراد الأسرة الأخ	.14				
							المهاتف غير متوفر	.15				
							لا أعرف رقم الخط المجاني	.16				
							أخرى، حدد	.17				
			ىلسات	ا خلال الج	ي تلقيته	فدمات التم						
						?:	المدة التي تستغرقها كل مكالمة	ما هي	.19			
فأك	ِها؟ (يمک	مة التي تختار	ك عن الخد	انطباعك	.21	ب عن ر	الخدمات التي تلقيتها في التطبير	ما هي	.20			
		بابة واحدة)	اکتر من إج	اختيار ا		حدة)	بمكنك اختيار اكتر من إجابة وا	بعد؟ (ب				
مرضية	3. غير	ہ إلى حد	2. مرضيا	حد	ية الى .	1. مرض	نصيحة طبية	.1				
		¥1. **	ما		ti *	عالي	N					
مرضيه	3. غير	<sup>ہ</sup> إلى حد	2. مرضيا	حد	یه الی .	1. مرض	علاج	.2				
	· 0	. 11.3			ti t	عالي م ر		2				
مرصيه	ۍ عير	ہ إلى حد	2. مرصيا ۱	حد	یہ آلی ۔	۲. مر صد ⊷™	موعد	.3				
		107.51	ما ، <b>دا ا</b> ا	ic unti	ti cont a s	عالي <i>الدند</i> م						
		<u> </u>	) بعد اسی ا	ملطن کھیں سے مسلمان کھیں۔ ملان کے		<i>ېلى بب ــــــــــــــــــــــــــــــــــ</i>						
	المارية	اخترار أكثر	م الد کنانی	<del>مير</del> . برجة بشانه	میں نہ اور س	- عالن بتا	اة نورية مارية، حد الموت		22			
	من (جب)	الحبيار ،حبر . الأمر احر	، الخطورة	میک- بست 1 ملامات	یب بید ح	وح الدي ــ	للي تصبيحة عبية، حدد المرحم	יַבי, בא ב	.22			
	قلاع عن التدخين 											
	<u> </u>	ی <i>او او</i> ر اس	، <u>سرىي</u> نفسة	1. نصائح	7		لم الغذائية الصحية	9. النظ				
	ä	ر اض المز من	 ة على الأم	1 السيطر	)1. نتاول السوائل 14. التقديمية 18. الس							
	( <del>-</del>	و جه للمستشف	ے لمناسب للت	1 الوقت ا	11. مراقبه صعط الذم 12. النظافة الشخصية							
	9		حدد	2 أخرى،	12. النطاقة السخصية 13. ذم المربح بدمين الأرمية							
						-	صائح بحصوص الادوية المسلم الذي التي المن ال	ک۲. ⊔ ۸۸ :				
						يە	صائح حول الفحوصات المحبن	u.14				

.3	2. نعم، إلى حد ما	، إلى حد	1. نعم	هل فهمت نصيحة مقدم الرعاية الصحية؟	.23					
لا			کبیر							
.3	2. نعم، إلى حد ما	، إلى حد	1. نعم	هل حصلت على المعلومات الكافية التي تريدها؟	.24					
لا			کبیر							
.3	2. نعم، إلى حد ما	، إلى حد	1. نعم	هل تستطيع أن تستوضح أكثر عن المعلومات التي	.26					
لا			کبیر	تريد؟						
	-	1	علاج							
3. צ	. نعم ، بعض	ي کل 2.	1. نعم ، ف	هل قام مقدم الخدمة الصحية بمناقشتك حول	.27					
	ۣقت	الو	وقت	حالتك الصحية						
3. צ	نعم ، بعض	ي کل 2.	1. نعم ، ف	هل وجدت الدواء الموصوف في الصيدلية؟ 1						
	ۣقت	الو	وقت							
3. צ	نعم ، بعض	ي کل 2.	1. نعم ، ف	هل كانت الاستفادة كاملة من التطبيب عن بعد	.29					
	ۣقت	الو	وقت	دون استشارة مصاحبة وجهًا لوجه						
3. צ	في نعم ، بعض	ي کل 2.	1. نعم ، ف	هل تعتقد أن التطبيب عن بعد معقول فقط كإضافة	.30					
	فت	الو ما الو	وفت م ن ن	إلى الخدمات وجهًا لوجه	0.4					
3. צ	<u>ن</u> عم ، بعض	ي کل 2. ار	1. نعم ، ف	هل طلب منك الدفع مقابل أي عقاقير / فحوصات	.31					
(05		الو	وقت	مخبرية خارج الأونروا وهي منوفرة بالعيادة						
(35)	2. لا (انتقل إلى س	ن 1.	ه التطبيب عو	هل فمت بزيارة العيادة لنفس سبب استخدامك لخدما م	.32					
		لعم			22					
e	1 -11 1 1	••••	1	إدا حالب الإجابة بنعم، قدم مره	.33					
س بعد:	ب استحدام التطبيب ع	حری تنفس سبب	الطبيه مره ا	اليصا إذا كانت الإجابة بنغم، قلماذا لطلب المسورة ا (ب كذائها انتدار أكثر بين ا دارة ا ددة)	.34					
	مقدر الخدية خبرين	قة الترابية	1	(يمتلك الحليان الحلن من إلجابة والحدة)						
<u>حبب</u> - ف فأم إذ إ	معدم الحدمات عير مر ذ الدواء من الصيدارة	ف- المواصل مع ، المحمادة لأخ	4. <del>مري</del> 5 جئت	<ol> <li>آ. تم يحتف معدم الحدمة في المحتاذ الحيوي</li> <li>2. أست ماتقًا من التشخيص الذي تم إحد المم عن</li> </ol>						
,	ک (محلور تو محل (مصلیکی) را علم د أي أخد	، <i>إلى عيدا، 2</i> الطيب و احصا	<u>د بــــــــــــــــــــــــــــــــــــ</u>	<ol> <li>عن للتطريب عن تعد</li> </ol>						
	ی سے راق اسر	، حدد	ء ربی 6 أخر:	ريى مسبيب عن بــــــــــــــــــــــــــــــــــ						
		0	مواعيد							
3. لا	تعم فی بعض	كل 2. ن	<u>ب ،</u> 1. نعم، في ا	هل من السهل تحديد مو عد مع التطبيب عن بعد	.35					
	يان	الأح	وقت							
3. لا	نعم في بعض	کل 2. ن	1. نعم، في	هل تعتقد أن الناس ينتظرون وقتًا طويلاً حتى	.36					
	يان	الأح	وقت	مو عدهم						
3. لا	تعم في بعض	کل 2. ن	1. نعم، في	هل يحترم مقدمي الخدمة الموعد المحدد أثناء	.37					
	يان	الأح	وقت	التطبيب عن بُعد؟						
3. ע	تعم في بعض	کل 2. ن	1. نعم، في	هل ناقش مقدم الرعاية أفضل وقت يناسبك؟	.38					
	يان	الأح	وقت							
			بة الوصول	إمكاني						
ريبة	2. معقولة 8. ق	1. بعيدة		كيف تصف المسافة للوصول إلى المركز الصحي؟	.39					
تحملها	مقولة   2. لا يمكن	1. بأسعار م	کز	كيف ترى تكاليف المواصلات من المنزل إلى المرد	.40					
			•	الصحي؟						
3. لا	2. نعم، إلى حد ما	، إلى حد	1. نعم	هل تعتقد أن التطبيب عن بعد يوفر تكلفة	.41					
			کبیر	المواصلات؟						
3. لا	2. نعم، إلى حد ما	، إلى حد	لى أي مدى يعزز برنامج التطبيب عن بعد وصولك   1. نعم							
			کبیر	إلى الخدمات الصحية؟						

				وقت	ול					
لويل	3. ط	2. معقول	1. قصير			, الاتصال	ر الرد على	، ترى وقت انتظا	کيف	.43
لويل	3. ط	2. معقول	1. قصير				ال	، ترى مدة الاتصد	کيف	.44
فير	لم يتغ	2. زاد 3	1. قل	حد	عن ب	خدام التطبيب	بادة بعد است	، الانتظار في العب	وقت	.45
3. צ	ما	. نعم، إلى حد	إلى حد 2	1. نعم،		فر الوقت؟	عن بعد يوف	تعتقد أن التطبيب	هل ن	.46
				کبیر						
			توقعة	صحية الم	ات الد	التأثير				
3. צ	ما	. نعم، إلى حد	إلى حد 2	1. نعم،		، و على صحة	ں عام علیك	أثر البرنامج بشكا	هل أ	.47
				کبیر				تك بشكل إيجابي؟	أسرن	
			من واحد)؟	تيار أكثر	ای اخ	دت منها (يمكن	، كيف استف	فانت الإجابة بنعم	إذا ك	.48
				ف الانتظار	ں وقت	9. تقليز		لتثقيف الصحى	5	
				كاليف	فير الت	10. تو	:	ي عالج مشكلة حالبة	.6	
لمثال،	ی سبیز	الطوارئ (عل	ورة على حالات	يزة مقص	ت الم	11. کاذ	لأمر اض	ے نحسین و مکافحة ا	5.7	
			ب)	باء، الحر	ة الوب	فتر	•••	منة	المز	
				حدد	رى، .	12. أخ	جتماعي	لدعم النفسي والا	1.8	
.3	حد ما	2. نعم، إلى	لعم، إلى حد	i.1		إضافة جيدة	عن بعد ہو	تعتقد أن التطبيب	هل ز	.49
لا				کبیر				مات الطبية	للخد	
رجه	جهًا لو	2. الخدمات و	نطبيب عن بعد	خدمات الذ	<b>.</b> 1	ة، أيهما	قديم الخدمة	وجود احتمالين لن	عند	.50
(	ال 52	(الانتقال للسؤ	(51	ل للسؤال	(انتقا			ل؟	تفضا	
						عد	لمبيب عن ب	تفضل خدمة التم	لماذا	.51
	العمل	اء وجودي في	نني القيام بذلك أثن	13. يمكن				0 مفر المقرت		
			) الوصول	14. سهل				0. وتر بو <u>س</u> 10 حفظ التكلفة		
			L	15.فعال				11 أكثر راحة		
			ی، حدد	16. أخر			ة مؤ هلو ن	12 مقدمو ر عاب		
							<u>و</u> جهاً لوجه	تفضل الخدمات	لماذا	.52
لمعروف	أسرة اا	) مع طيب الا	مر بالراحة للتعاما	5. أش	بة	ضادات الحبو	وب، وب عن بعد الم	ر لا بصف التطيب	₹.1	
			د. د	<u>۔</u> لدو	ċ	ب ب التطبيب عر	ے . بخیص طبیا	۔ لست و اثقا من تث	.2	
		وقت سابق	۔ بر اقتراحاتی فی	6. انظ				بعد		
			اصل سىء	7. التو			ق بھا	دمات جديدة لا أثو	3.خ	
			ي، حدد	8. أخر		هًا لوجه	فحصى وج	لعر براحة أكبر ل	4.أش	
			_				Ŧ			

Y	نعم، إلى حد ما	نعم، إلى حد كبير	سىۋال	رقم
			سهولة الاستخدام للنظام وقابلية التعلم	
			كان من السهل استخدام هذا النظام (الخط المجاني)	.53
			الطريقة التي أتفاعل بها مع هذا النظام ممتعة	.54
			يمكنني سماع الطبيب بوضوح باستخدام نظام التطبيب عن بعد	.55
			كلما أخطأت في استخدام النظَّام، يمكنني التراجع بسهولة وبسر عة	.56
			أعطى النظام رسالة تعليمات أخبرتني بوضوح كيفية استخدامها	.57

#### Annex 5: Care providers questionnaire

#### **Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza**

Dear participant; / Greetings, appreciation, and respect,

I am Faten Abed Al-Aziz Abo Amra., a master's student at Al-Quds University, Master of Health Policy, and Management/ Quality and Patient safety track. I am conducting this research as requirement for obtaining a master's degree; this study aims to evaluate telemedicine services at UNRWA HC, Gaza field, looking ultimately to provide policy makers with recommendations that might promote appropriate use of telemedicine with it is positive consequences on people's health and wellbeing. You have been selected to participate in this as you met the selection criteria. Participation in the study means you need to answer a couple of questions listed in the questionnaire, which will not take more than 10. This participation is optional, although I appreciate your participation in this study, you can refuse to participate, stop interview or assessment, skip questions, or withdraw the questionnaire anytime you wish. Your answers will be kept completely confidential, and no individual respondent will be identified in any report based on the study. There are no right or wrong answers, please answer as you feel appropriate. Please answer all questions as much as possible and do not hesitate to ask for any clarification regarding this questionnaire.

Best regards Faten Abed Al-Aziz Mohammed Abo Amra

### **Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza**

#### **Electronic Questionnaire**

The questions below talk about the quality of telemedicine services provided in the UNRWA clinics at the Gaza strip (care provider perception and knowledge). Please read each question carefully and answer it. Your answer will help us identify the quality of the services provided and the deficiencies in these services, which will contribute to the improvement of services in the future.

Section One: Personal Data

Part I: Perso	nal informatio	n		
1. Age:		2. Gender:	Female 🗆	Male 🗆
	-			
3. Type of	Pe	rmanent	Temporary 🗌	
employment				
4. Education	GP □	□Specialist	PhD 🗆	□ Master's degree
level:				
5. Work expe	erience at UNR	WA clinic:		
6.	North Gaza C	linic Gaza Cli	nic Middle Ga	za Clinic South Gaza Clinic
Workplace:				
7. The places	you UN	NRWA 🗆 M	inistry of health	Non-governmental
work in				organization $\Box$ Private $\Box$
8. The count	ries you			
studied in				

Protoc	ols and trai©ning		
1) Did :	you ever receive training on telemedicine	1. Yes (if yes q 2,3,4)	2. No
2) Wha	t was the type of training	1. On job training	2. Formal training
3) Whe	re was the training		
1. 2. 3. 4. 4) Whe 1. 2. 3. 5) Who	UNRWA Ministry of health Non-governmental organization Other ,specify n training was done Befor providing telemedicine During providing telemedicine with COVID-19 Post COVID-19period	9 period	
6) Wha	t was Themes discussed in training		
1. 2. 3. 4. 5. 6. 7. 8.	Remote modeling of NCD Remote management of acute illnesses Risk scoring of calls and dealing according to r Medication that could be described remotely. Referral system Appointment system The steps that you can follow if you need any h Others specify	isk. elp or support.	

7) Have you ever provided telemedicine service	ever provided telemedicine services to y				2. N	. No (if no q 12)	
clients							
8) Who was your beneficiaries (you can choos	se more	e than one o	option)				
<ol> <li>NCD patients</li> <li>Pregnancy</li> <li>Family planning</li> <li>Mental</li> <li>Recurrent visitor</li> <li>General outpatient</li> <li>Other specify</li> </ol>							
9) How many times did you provide it		10) For ho	w long th	e most recent o	one _		
11) When do you provide telemedicine				2 before	T	3 P	ost
(You can choose more than one answer)		1. During	COVID-19	COVID-19	Ð	COV	'ID-19 od
12) When do w?to one among the talance division							
<ol> <li>I don't have skills.</li> <li>I don't receive training.</li> <li>I don't agree it is effective.</li> <li>I feel more comfortable to work as fa</li> <li>It is difficult to deal with telephone at</li> <li>It is hard work.</li> <li>Not requested to do so by my seniors</li> <li>We have shortage in family team doc</li> <li>Other, specify</li> </ol>	ice-to-f nd com ctors.	face doctor.	me time.				
13) Do you have written protocols and technic related to telemedicine	cal instr	ructions	1. Yes (	if yes q 14-17)			2. No
14) If yes, can you access to such protocols ea written document	sily as	available	1. Yes				2. No
15) Are these adequate enough to guide you	1. Ye exter	es, high 1d	2. 1	Yes, some exter	nd 3	3. No	C
16) Are these applied at work	1. Ye exter	es, high 1d	2. 1	Yes, some exter	nd 3	3. No q17)	o (go
17) If no, why	1		I		I		
<ol> <li>High workload</li> <li>Limited time</li> <li>To increase response rate</li> <li>Not clear</li> <li>Not appropriate to our situation</li> <li>Not trained enough to know how I ca</li> <li>Other, specify</li> </ol>	ın impl	ement.					
18) Do you receive support from your supervisor about how to be provided telemedicine services	1.	Yes, high	extend	2. Yes, some extend		3. N	0
19) Have you been trained to be telemedicine care provider?	1.	Yes, high	extend	2. Yes, some extend		3. N	O

20) Are promoter materials (posters, brochures, etc.) available	1. Yes		2. No		
21) To what extent do you think that you have the appropriate experiences needed for remote management	1. Yes, high extend	2. Yes, some extend	3. No		
22) To what extent do you think telemedicine improve workflow-this is not interaction – this is benefit of TMS	1. Yes, all time	2. Yes, some time	4. Not at all		
23) How you describe it	I				
23) How you describe it         1. Hard       5. Valuable         2. Noisy       6. Effective         3. Interesting       7. Efficient         4. Boring       8. Other, specify         24) Challenges you face in implementing telemedicine       10. Assure about privacy.         1. Limit human resource       10. Assure about privacy.         2. Complicated process       11. Assure about personal idt         3. No experience       12. Low Beneficiaries aware         4. Low response rate       13. Not enough communicati         5. Long time to deal with beneficiaries and ask them to give ID.       14. No training         6. Working with computer and telephone at the same time with e-heath       15. Lake of senior support         7. Beneficiaries with not clear description       18. Others, specify         8. Beneficiaries with disability like hearing or vision problem       9. Technical error like not clear voice internet interruption					
Is benefit of TMS       Intervention         23) How you describe it       23) How you describe it         1. Hard       5. Valuable         2. Noisy       6. Effective         3. Interesting       7. Efficient         4. Boring       8. Other, specify         24) Challenges you face in implementing telemedicine       10. Assure about privacy,         1. Limit human resource       10. Assure about privacy,         2. Complicated process       11. Assure about personal ider         3. No experience       12. Low Beneficiaries awaren         4. Low response rate       13. Not enough communicatic         5. Long time to deal with beneficiaries and ask them to give ID.       15. Lake of senior support         6. Working with computer and telephone at the same time with e-heath       15. Lake of senior support         7. Beneficiaries with not clear description       18. Others, specify         8. Beneficiaries with disability like hearing or vision problem       18. Others, specify         9. Technical error like not clear voice internet interruption       18. Others, specify					
1. Hard       5. Valuable         2. Noisy       6. Effective         3. Interesting       7. Efficient         4. Boring       8. Other, specify         24) Challenges you face in implementing telemedicine       10. Assure about privacy.         1. Limit human resource       10. Assure about privacy.         2. Complicated process       11. Assure about personal identit         3. No experience       12. Low Beneficiaries awareness         4. Low response rate       13. Not enough communication s         5. Long time to deal with beneficiaries and ask them to give ID.       15. Lake of senior support         6. Working with computer and telephone at the same time with e-heath       16. No Clear feedback         7. Beneficiaries with not clear description       19. Othere specify					
23) How you describe it         1. Hard       5. Valuable         2. Noisy       6. Effective         3. Interesting       7. Efficient         4. Boring       8. Other, specify         24) Challenges you face in implementing telemedicine       1. Limit human resource         1. Limit human resource       10. Assure about privacy.         2. Complicated process       11. Assure about personal ide:         3. No experience       12. Low Beneficiaries awaren         4. Low response rate       13. Not enough communicatic         5. Long time to deal with beneficiaries and ask them to give ID.       15. Lake of senior support         6. Working with computer and telephone at the same time with e-heath       16. No Clear feedback         7. Beneficiaries with disability like hearing or vision problem       18. Others, specify         9. Technical error like not clear voice internet interruption       18. Others, specify					
<ul> <li>24) Challenges you face in implementing telementing telem</li></ul>	re about privacy re about persona Beneficiaries av enough commun raining of senior suppo Clear feedback Clear instruction rs, specify	7. al identity. vareness ication skills rt			
3. Interesting       7. Efficient         4. Boring       8. Other, specify         24) Challenges you face in implementing telemedicine         1. Limit human resource       10. Assure about privacy.         2. Complicated process       11. Assure about personal id         3. No experience       12. Low Beneficiaries awar         4. Low response rate       13. Not enough communica         5. Long time to deal with beneficiaries and ask them to give ID.       15. Lake of senior support         6. Working with computer and telephone at the same time with e-heath       15. Lake of senior support         7. Beneficiaries with not clear description       18. Others, specify         8. Beneficiaries with disability like hearing or vision problem       9. Technical error like not clear voice internet interruption         1) From your perspectives, how do you evaluate the contact time with clients?       1. More than needed(go q3)       2. Enough         2) If short, what are the barriers that prevent achieving the required contact time?       1. Entrelent					
evaluate the contact time with clients?	q3)	2. Enough	enough( go q2)		
management       EX         22) To what extent do you think telemedicine improve workflow-this is not interaction – this is benefit of TMS       1. Yes, all time       2.         23) How you describe it       1. Hard       5. Valuable       2.         23) How you describe it       1. Hard       5. Valuable       2.         2. Noisy       6. Effective       3. Interesting       7. Efficient         4. Boring       8. Other, specify       24) Challenges you face in implementing telemedicine       1. Assure a         1. Limit human resource       10. Assure a       13. Not enco       14. Not trair         2. Complicated process       11. Assure a       13. Not enco       14. No trair         give ID.       12. Low Be       14. No trair       15. Lake of       16. No Clear         6. Working with computer and telephone at the same       16. No Clear       18. Others,       8. Beneficiaries with disability like hearing or vision         problem       9. Technical error like not clear voice internet       18. Others,       2         1) From your perspectives, how do you       1. More than needed(go       2         q3)       2       2       2       11 fshort, what are the barriers that prevent achieving the required contact timt         1. To give chance to other callers       5. To achive response ra					
<ol> <li>To give chance to other callers         <ol> <li>Limit working hour</li> <li>Limit human resource</li> <li>Complicated process</li> </ol> </li> <li>If long, what are the barriers that prevent achi         <ol> <li>Long time to deal with beneficieres and ask th</li> <li>Working with computer and telephone in the</li> <li>Beneficieres with not clear description</li> <li>Beneficierse with disability like hearing or vi</li> <li>Technical error like not clear voice internet in</li> <li>Other ,specify</li> </ol> </li> </ol>	<ol> <li>To achive response</li> <li>Wasting time with</li> <li>Not enough commutation in the second s</li></ol>	e rate e-heath unication skills 			
<ol> <li>Increase free lines in clinic</li> <li>Time management</li> <li>Population awareness about telemedicine use</li> <li>Other, specify</li> </ol>					

Physical amenities						
1) Did you feel comfortable with the place at which t services are provided	he telemedi	icine	1	. Yes		2. No
2) Do you think, the available place allows for keepin beneficiaries' privacy during counseling	ng and prote	ecting tl	ne 1	. Yes		2. No
3) Was there an enough device for more comfortable (ex. Headphone)	use of teler	nedicin	e 1	. Yes		2. No
4)Do you feel your duty could be easier if use more f	facilities		1	. Yes, s	pecify	2. No
Are there available technology device and information system to ect and store beneficiaries' information.       1. Yes       2. No         Are you aware about people who need the service and are unable to get       1. Yes       2. No         f yes why       1. Don't know about the service.       2. No         2. Not aware how to use service.       3. People with disabilities       4. Gender based violence.       5. Other specify				2. No		
Are you aware about people who need the service and are unable to get       1. Yes       2. No         If yes why       1. Don't know about the service.       2. Not aware how to use service.         3. People with disabilities       2. No					2. No	
<ul><li>7) If yes why</li><li>1. Don't know about the service.</li></ul>						
<ol> <li>Not aware how to use service.</li> <li>People with disabilities</li> </ol>						
<ol> <li>Gender based violence.</li> <li>Other specify</li> </ol>						
Beneficary provider interaction						
1)are you introduce yourself before starting care of p	atient	1. Yes all tin	s, 2 ne ti	2. Yes to ime	o some	3. No
Are you aware about people who need the service and are unable to get       1. Yes       2.         If yes why       1. Don't know about the service.       1. Yes       2.         1. Don't know about the service.       2. Not aware how to use service.       1. Yes       2.         3. People with disabilities       4. Gender based violence.       1. Yes,       2. Yes to some time       3.         re you introduce yourself before starting care of patient       1. Yes,       2. Yes to some time       3.         To what extent do you welcomed patient before starting all time       1. Yes,       2. Yes to some time       3.				3. No		
3) Overall, how you regard the interaction between so through telemedicine	ervice provi	iders an	d clien	ıt	1. Goo	d 2. Bad
Benefit outcome						
1) To what extent do you think telemedicine effective during crisis like (COVID-19)	1. Yes, hig extend	gh	2. Ye exten	s, some d	4.1	Not at all
2)Would you make use of telemedicine all the time without an accompanying face-to-face consultation	1. Yes, hig extend	gh	2. Ye exten	s, some d	4.1	Not at all
3) Do you think, telemedicine can be effective as an addition to face-to-face therapy	1. Yes, hig extend	gh	2. Ye exten	s, some d	4.1	Not at all

4) Are there monitoring of the utilization of	1. Yes, all time	e 2. Y	les, some	4. N	lot at	all
telemedicine services?		tim	e			
5) By whom						
1. My senior medical officer 2. By technology engineering in UNPWA						
3 By e-health system team monitoring						
4. Other, specify						
6)What are the most common toll-free line consultation	ion					
1 For medical advice						
2. Treatment to acute illness						
3. Re describe chronic medication						
4. Assurance about lab result						
5. Psychological support						
6. NCD mointoring						
7. Follow up						
8. For overcounter drug need						
9. Appointment with family doctor						
10. Request investigation						
11. Other, specify						
7) What are the common disease consultated by toll-	free line					
2. AOEI 3. Skin rosh						
A Neurological symptom (headche)						
5 Musckloskeletal (I BP)						
6. Other .specify						
		1				_
8) Are you trained to deal remotly with such illness			1. Yes		2. 1	No
9) Are you confident with your diagnosis remotly		1. Yes a	all time	2. most		3.
				4:		N-
				ume		NO
10) What are motivation of using TMS in general at	your organizatio	n				
1 Continuity of care despite Crises						
2 Improve workflow						
2. Improve appointment system						
4 Decrease repeating visit						
5 Decrease over counter medication prescription	ion					
6. Easy access to services						
7. Decrease waiting time						
8. Continuous communication between organi	zation and benef	ficiaries				
9. To improve future of medicine						

### تقييم خدمات التطبيب عن بعد في مراكز الأونروا الصحية في غزة

عزيزي المشارك؛ / تحية وتقدير واحترام،

أنا فاتن عبد العزيز ابو عمرة. طالبة ماجستير في جامعة القدس كلية الدراسات سياسيات وإدارة صحية/ مسار الجودة وسلامة المريض. أجري هذا البحث كشرط للحصول على درجة الماجستير في السياسيات والإدارة الصحية/ مسار الجودة وسلامة المريض؛ تهدف هذه الدراسة إلى تقييم خدمات التطبيب عن بعد في المراكز الصحية التابعة للأونروا، غزة، ونتطلع في نهاية المطاف إلى تزويد صانعي القرار بالتوصيات التي قد تعزز الاستخدام المناسب للتطبيب عن بعد بما لها من اثار إيجابية على صحة الناس. لقد تم اختيارك للمشاركة في هذا الاستبيان لأنك استوفيت معايير الاختيار. تعني المشاركة في الدراسة أنك بحاجة إلى الإجابة عن بضعة أسئلة مدرجة في الاستبيان، والتي لن تستغرق أكثر من 10دقائق. هذه المشاركة انك بحاجة إلى الإجابة عن بضعة أسئلة مدرجة في الاستبيان، والتي لن تستغرق أمشاركة أو إيقاف تعبئة الاستبيان أو تخطي الأسئلة أو اسحب الاستبيان في أي وقت تريده. ستبقى إجاباتك سرية تمامًا ولن يتم تحديد أي فرد في أي تقرير يستند إلى الدراسة. لا توجد إجابات صحيحة أو خاطئة، يرجى الإجابة على النحو الذي تراه مناسبًا. الرجاء الإجابة من الاستبيان في أي وقت تريده. ستبقى إجاباتك سرية المشاركة أو إيقاف تعبئة الاستبيان أو تخطي الأسئلة أو اسحب الاستبيان في أي وقت تريده. ستبقى إجاباتك سرية تمامًا ولن يتم تحديد أي فرد في أي تقرير يستند إلى الدراسة. لا توجد إجابات صحيحة أو خاطئة، يرجى الإجابة على المشاركة أو الذي تراه مناسبًا. الرجاء الإجابة قدر الإمكان ولا تتردد في طلب أي توضيح بخصوص هذا الاستبيان.

> مع أطيب التحيات فاتن عبد العزيز محمد ابو عمرة

### استبيان الكتروني

تتحدث الأسئلة أدناه عن جودة خدمات التطبيب عن بعد المقدمة في عيادات الأونروا في قطاع غزة (إدراك ومعرفة مقدم الرعاية). الرجاء قراءة كل سؤال بعناية والإجابة عليه. ستساعدنا إجاباتك في تحديد جودة الخدمات المقدمة وأوجه القصور في هذه الخدمات، والتي ستسهم في تحسين الخدمات في المستقبل.

# القسم الأول: البيانات الشخصية

		ات الشخصية	الأول: المعلوما	الجزء	
	] أنثى	🗆 ذکر	2. الجنس:		1. العمر:
		قت 🗌	مؤ	دائم 🗌	3. نوع عقد العمل:
	دكتوراه	]ماجستیر		بكالوريوس 🗌	4. مستوى التعليم:
				، الأونروا بالسنوات:	5. خبرة العمل في عيادات
رفح	خان يونس 🗌	وسط غزة 🗌	غزة□	شمال غزة 🗌	6- مكان العمل الحالي:
آخري، حدد	یر خاص	المؤسسات غ	وزارة الصحة	اقبل عملك الحالى	7. الأماكن التي عملت فيها
منظَّمات		الحكومية 🗌			في الأونروا
دولية					**
	دول اجنبية	2 دول عربية 3	خل فلسطين	ريوس الطب .1. دا	8. مكان التخرج من بكالو

	وتوكولات والتدريب	البر
2. لا (اذهب س 7)	<ol> <li>1. نعم (إذا كانت الإجابة بنعم، فانتقل س 2-6)</li> </ol>	<ol> <li>هل تلقيت يومًا تدريبًا على التطبيب عن بُعد</li> </ol>
2. التدريب الرسمي	1. التدريب أثناء العمل	2) ما هو نوع التدريب
		3) مكان تقديم التدريب
	<ol> <li>منظمة غير حكومية</li> <li>.4</li> </ol>	1. الأونروا 2. وزارة الصحة
		4) متى تم التدريبشهر / سنة
		5) من قدم التدريب
	<ol> <li>منظمة غير حكومية</li> <li>أخرى ، حدد</li> </ol>	1. الأونروا 2. وزارة الصحة
	مكنك اختيار أكثر من إجابة واحدة)	<li>6) المواضيع التي تمت مناقشتها أثناء التدريب (ي</li>
إذا كنت بحاجة إلى أي	<ul> <li>6. نظام المواعيد</li> <li>7. الخطوات التي يمكنك اتباعها مساعدة أو دعم</li> <li>8. الدو مانن.</li> </ul>	<ol> <li>المتابعة عن بعد للأمراض المزمنة</li> <li>التدابير العلاجية للأمراض الحادة عن بعد</li> </ol>
	<ol> <li>٥. الدعم التقليي</li> <li>٩. أخرى حدد</li> </ol>	<ol> <li>٢. تصنيف المحالمات حسب حضورة الشكوى</li> <li>٩. الأدوية التي يمكن وصفها عن بعد</li> <li>5. نظام الإحالة</li> </ol>
2. لا (انتقل السؤال 12)	1. نعم (انتقل للأسئلة من 8 إلى 11)	7) هل سبق لك أن قدمت خدمات التطبيب عن بعد
حدة)	عن بعد (يمكنك اختيار أكثر من إجابة وا.	<li>8) نوع الخدمات التي قدمتها من خلال التطبيب ع</li>
ں المرضى	<ol> <li>الصحة النفسية</li> <li>زيارات متكرر لبعض</li> <li>مرضى العام</li> <li>أخرى، حدد</li> </ol>	<ol> <li>1. الأمراض المزمنة</li> <li>2. صحة الأم والحمل</li> <li>3. صحة الطفل</li> <li>4. تنظيم الأسرة</li> </ol>

		ب عن	ة التطبير	، لخدمة	فترة تقديمك	10) ف			<li>9) كم مرة قدمت خدمة التطبيب عن بعد</li>	
					<u></u>	بعد	<u> </u>			
رة ما بعد	4. فتر	ترة	ي قبل ف	د 3	ناء التصعي	2-أث	لال فترة	1. خا	11) متى قدمت التطبيب عن بعد	
	الوباء		وباء	ΙL	روب	والحر	كورونا	وباء ک	(يمكنك اختيار أكثر من إجابة واحدة)	
					واحدة)	إجابة و	ار أكثر من	ك اختي	12) لماذا لم تقدم التطبيب عن بعد (يمكن	
in the state of th										
		[]ای	القراءين	ں ساق برد ا		0 7			<ol> <li>بیس دی مهاری</li> <li>ام أناف ندیدا</li> </ol>	
	لأسب ذ	يب فرية ١	العيام بد أطداء أ	ب مىي سى ف	ر تم يتعلم / إدرزا زة	<i>ו</i> ג			<ol> <li>حم منبق حريب</li> <li>أنا لا أه افق عله أزما فعالة</li> </ol>	
		ر الله ا	· · <del>·</del>	-ں - <i>ي</i> حدد	. ا <u>ب -</u> ک أخر عن	9	جهأ	ليب ه	<ol> <li>4. أشعر براحة أكبر في العماء كط</li> </ol>	
			••			•		J	لوجه	
							يوتر في	والكمب	<ol> <li>من الصعب التعامل مع الهاتف</li> </ol>	
							<b>.</b> ·		نفس الوقت	
	2. لا				1. نعم	<b>د</b> ر	طبيب عن ب	مات الت	13) إذا تم منحك الخيار، فهل ستقدم خد	
) للسؤال	لا (انتقل	.2			· 4		نية متعلقة	يمات فز	14) هل لديك بروتوكولات مكتوبة وتعل	
	(	19			٦. تعم				بالتطبيب عن بعد	
	× 2		. <u>.</u>	بولة	كولات بسه	بروتوك	ل إلى هذه الب	الوصوا	15) إذا كانت الإجابة بنعم، فهل يمكنك	
	⊿.∠	م	1						كوثيقة مكتوبة متاحة	
		3. ע	م ، ا	2 <u>.</u> نع لحد ما			م ، لحد کبير	1. نع	16) هل هذی کافیة لإر شادك	
للسؤال	(انتقل	3. צ		لحدما	2 نعر،		م ، لحد کبیر	1. نع	17) هل تطبق في العمل	
		(18								
					حدة)	بابة وا	ِ اکثر من اِج	، اختيار	18) إذا كانت الإجابة لا ، فلماذا (يمكنك	
	الواقع	ت مع ا	وتكولاه	ب البر	<u>؛</u> لا تتناس	5			<ol> <li>زيادة عبء العمل</li> </ol>	
كنني	، کیف یم	لمعرفة	ا يكفي	دربًا بم	) لست م	6			<ol> <li>وقت محدود للمكالمة</li> </ol>	
					تنفيذها	_			<ol> <li>لزيادة معدل الاستجابة</li> </ol>	
				حدد	ا اخرى،	7			4. غير واضحة	
3. צ	، لحد	<u>م</u> نعم ا	2	کبیر	نعم ، لحد	.1	ديم خدمات	کیفیہ تف	19) هل تتلقى دعمًا من مسؤولك حول د	
	. 1		^			1				
3. צ	، بحد	<b>ء</b> ۔ تعم ۱	2	حبير	نعم ، تحد	.	حبيبات	، دڪاهه	20) هن المواد الترويجية التعليمية (منط	
	1216		~	200	) al cari	1	يرة اللازمة	ت المذار	معنی) متولرد 21) الماری مدیر تعتقد أن ادرای الخدر ان	
3. لا		<b>ء</b> م ا	- A	<u> </u>		. '	ىب ،درىد		الاتطريب عن بعد الاتطريب عن بعد	
	، لحد	ز نعم	>	كىير	نعم، لحد	1	سن سير	ىعد بحا	22) الى أي مدى تعتقد أن التطيب عن	
3. צ		ι.	- A	J	1		J. U		العمل	
			ة)	بة واحد	ثثر من إجا <u>ا</u>	نيار أك	. (يمكنك اخت	عن بعد	23) كيف تصف تقديم خدمات التطبيب	
					1	uh ä	11-9 6		ano 1	
					دىا	۔ دبة ماد			····· 2 منعجة	
					۔۔۔ ائدۃ	مة الف	8 عدد		2 ممتعة	
					بدد	م، د			ي. 4 مملة	
						0.	.0		ح. 5_ ذات قىمة	

رقم	س.	نعم	Y
.1	الكوادر البشرية محدودة		
.2	التطبيب عن بعد عملية معقدة		
.3	لا يوجد خبرة في هذا المجال		
.4	معدل الاستجابة للاتصالات منخفض		
.5	نحتاج وقت أطول للتعامل مع المستفيدين والتحقق من بياناتهم		
.6	العمل مع الكمبيوتر والهاتف في نفس الوقت		
.7	المستفيدون من ذوي الإعاقة مثل مشاكل السمع أو الرؤية		
.8	خطأ فني مثل عدم وضوح الصوت أو انقطاع في الإنترنت		
.9	عدم الحفاظ على الخصوصبية		
.10	عدم اليقين بشأن هوية المتصل		
.11	انخفاض وعي المستفيدين حول استخدام التطبيب عن بعد وإعطاء المعلومات المطلوبة		
.12	غير مدرب للقيام بذلك		
.13	مهارات التواصل بحاجة إلى تطوير		
.14	عدم وجود دعم كاف من المسؤول		
.15	لا توجد تغذية راجعة واضحة		
.16	لا توجد تعليمات واضحة		
17	آخری جدد		

تواصل مقدم الخدمة بالمتلقى									
.3 צ	2. نعم بعض الوقت		1. نعم، في جميع الأوقات			<ol> <li>هل تقدم نفسك قبل البدء في رعاية المتلقي</li> </ol>			
.3 צ	ض الوقت	<sup>ميع</sup> 2. نعم بعض الر		1. نعم، في ج الأوقات		<ol> <li>٤) هل رحبت بالمريض قبل البدء في الاستشارة.</li> </ol>			
	3. غير	ی مرضی ،	لحد 2	1. مرضى ،	2	<li>3) بشكل عام، كيف تنظر إلى التفاعل بين مقدمي الخدمة</li>			
-	مرضى	حد ما	L	کبیر		والمتلقي من خلال التطبيب عن بعد			
	النتائج ودرجة الانتفاع								
.3	1. نعم ، لحد 2. نعم ، لحد 3		ت مثل	ماد	<ol> <li>إلى أي مدى تعتقد أن التطبيب عن بعد فعال أثناء الأز</li> </ol>				
3 2	) al cuai	<u>ما</u>	حبیر ۱ زمر	المقدم ما مدقعا		(الوباء، حرب) 2) هار ستستفد من التطريب من محر طرال الدقت دين ا			
כ. ע	. نغم ، نحد	، بحد مے . اما	ا. تعم کس	ناره مصاحبه	un	<li>2) هن مستسفيد من التطبيب عن بعد طوان الوقت دون ال</li>			
.3	نعم ، لحد	، لحد 2	<u>ر</u> 1. نعم	ة للعلاج	عال	3) هل تعتقد أن التطبيب عن بعد يمكن أن يكون إضافة ف			
لا	,	ما	کبیر ٰ			وجهاً لوجه			
سؤال	لا، (انتقل لل	، لحد 3	2. نعم	ً. نعم ، لحد	1	4) هل هناك مراقبة ومتابعة لاستخدام خدمات التطبيب			
		6	ما	بیر	کړ				
		· · · · · · · · · · · · · · · · · · ·	ti 1 t-	واحدة)	ابة	5) من قبل من تكون المتابعة (يمكنك اختيار اكتر من إج.			
	<u>م</u>	حه الإلكتروند	طام الصد در	ی فریق د ۸ أنبه		<ol> <li>مدير المركز الصحي</li> <li>مدير المركز الصحي</li> </ol>			
		(ä)>1	<u>حدد</u> احادة م	4. ا <del>حرى،</del> اختيار أكثر من	ای	<ol> <li>2. بواسط، هندسه، المحتولوجي في وحالة العوت</li> <li>6. ما هـ أكثر استشارات الخطوط المحاذية شده عا (يمكن)</li> </ol>			
	فة طببة	ہے۔ لة يدون وصا	<u>إجب</u> و المستعم	،ر ،ر من 8_ للأدوبة		<ol> <li>للحصول على المشورة الطبية</li> </ol>			
		، الأسرة	ع طبيب	9. موعد م		2. علاج المرض الحاد			
			حاليل	10. طلب ت		<ol> <li>إعادة وصف الأدوية المزمنة</li> </ol>			
ž	4. التأكد من نتيجة المختبر								
		ل المواعيد	ات حوا	12. استفسار		5 الدعم النفسي			
			، حدد	13.آخرى		6. متابعه الأمراض غير المعديه حيا تذاريد باله			
	<i>[*</i> ,	1 1 1 1 .	<u>ا أى:</u>	··· 1 41:6 .) ·1	1	۲. مراجعه لحالات العام ۲. ا. ۱۰ ۱۸ ۱۰ ۱۴۵۱ ۲۰ ۲۰ ۲۰ ۱۰ ۱۰ ۱۱			
	حده)	من إجابه وال	بار اهر	ائي (يمكنك احبر ة العاذل)	مجا خذ	<ol> <li>ما هي الأمراص السائع الإستفسار عليها على الحط الر <ol> <li>أور احزب الأطافال مثل (الذكار الذكار الذي لات) المعددة ت</li> </ol> </li> </ol>			
			(än	- (ليصف) ت و العظاد ، عد	ىلاي ىلاي	<ol> <li>الأمد إض العامة (طفح جادي ، مشكلة في العض</li> </ol>			
<ol> <li>الأمراض العامة (طفح جندي ، مسحلة في العصلات والعصم ، عصبية)</li> <li>أمد اجزء الأمر أخر الأمر أجزر عاربة ما جرال عمل المتعلقة وتنظره الأسريق والستشاريق عاربة ما قرل</li> </ol>									
الحمل )									
						4. مرض ُغير معدي			
						5. مرض نفسی			
						6. أخرى ، حدد			
9) إلى أي مدى أنت واثق من تشخيصك عن بعد 1. نعم ، لحد كبير 2. نعم ، لحد ما 3. لا									
10) ما هو الدافع لاستخدام التطبيب عن بعد بشكل عام في مؤسستك (يمكنك اختيار أكثر من إجابة واحدة)									
<ol> <li>استمرارية الرعاية رغم الأزمات</li> <li>العنان الانتظار</li> </ol>									
	_المسفيدين	ین الاونروا و ۱. )	مسمر ب تقبل ال	8. النواصل ال 0. أن يسبن س		2. تحسین سیر العمل 2. تحسین نظار الساحید			
		ب	ىنەبى انھ مالەمل	<u>9.</u> تتحسین مس 10 اتقاران جرب		ی حسین تصام المواضیت ۸ انقادار تکرار الذیار خ			
	4. تقليل لحرار الريارة $-5$ تقادل المراجعين للعدادة لأخذ الأدوية الأزمة $-11$ أخرى ، حدد								
				۰.IT		دون و صفة طبية			
						<ol> <li>سهولة الوصول إلى الخدمات</li> </ol>			

## **Annex 6: Clients FGD questions**

Clients focus group questions.

Focus group Discussion

Group number: Males / Females

Place:

Date: / /

1- What do you think about telemedicine?

Probing questions

- What comes to your mind first when we mention telemedicine services?
- Elaborate more tell me about your impressions about telemedicine services
- 2- Tell me about the telemedicine services provided at your center.

Probing questions

- Types of services you received
- What services not found in telemedicine and should be added?
- 3- How do you evaluate the quality of the telemedicine services Probing questions
  - Are you satisfied with the quality of provided services?
  - If you are not satisfied? What could be done to improve the quality of services?
- 4- How do you describe the importance of telemedicine?

Probing questions

- Is it really needed?
- What would be loss if we don't have?
- •How care change in comparison with pre- telemedicine, give examples?
- 5- From your view, what are the main obstacles that prevent you from utilizing the services?

Probing questions Knowledge about the services and it is benefits. Limited availability of device Vulnerable people Waiting time Availability of medication in pharmacy Do you need to visit the clinic for the same reasons, Why and how that could be solved?

6- From your perspectives, tell me about your interactions with care providers and contact time?

### Probing questions

•Are care providers introducing themselves, welcomed you, share with you needed information

•How do you evaluate the contact time?

- If short, what are the barriers that prevent achieving the required contact time?
- If long, what are the barriers that prevent achieving the required contact time?
- What could be done to achieve the required contact time?

7- From your perspectives, what are the main effects of the telemedicine services on you and your family health?

Probing question

- Reflect on the positive and negative effects,
- Short and long term
- Intended and unintended effects.
- Give examples.
- 8- From your perspectives, what are the positive and negative effects of the TM services?

Probing question

- on accessibility
- on saving your times
- decrease waiting time in clinic
- 9- Tell me about usability of telemedicine.

Probing question

- Easy to lean
- Easy to use
- Barriers to use
- 10- From your view, what are the main strategies to scale up the telemedicine services should be done?

Probing questions -Current problems and solution -Future view of the service

11- Do you have other questions?

Thank a lot for your time and efforts.

## Annex 7: Care providers FGD questions

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Group number:	Males / Females	Place:	Date: / /
1			

1- What do you think about telemedicine?

Probing questions

- What comes to your mind first when we mention telemedicine services?
- Elaborate more
- 2- Do you have written protocols and technical instructions related to telemedicine?

Probing questions

- Can you access to such protocols, if available?
- Have you been trained on those protocols?
- Are these protocols up to date?
- Do you think the colleagues fully applying the written protocols?
- If you have the option, what could you add to the current protocol?
- 3- How do you evaluate the quality of the telemedicine services? Probing questions
  - Are you satisfied with the quality of provided services?
  - if you are not satisfied? what could be done to improve the quality of services?
- 4- From your perspectives, tell me about your interactions with clients, contact time?

Probing questions

- •How do you evaluate the contact time with clients?
- If short, what are the barriers that prevent achieving the required contact time?
- If long, what are the barriers that prevent achieving the required contact time?
- What could be done to achieve the required contact time?
- 5- To what extent do you think that you have the appropriate knowledge and skills needed for providing telemedicine?

Probing questions To large extend, how? Not at all, why?

6- To what extent do you think that you have the appropriate experiences needed for providing telemedicine?

Probing questions to large extend, how? Not at all, why? 7- How you describe the support you receive, training, on the job, supervision?

Probing questions

- If yes how often do they provide trainings?
- What topics were covered?
- What trainings you wish to have?
- 8- From your view, what are the main obstacles that prevent clients from utilizing the services?

Probing questions Knowledge about the services and it is benefits. Limited availability of device Vulnerable people Waiting time

9- From your view, what are the main strategies to scale up the telemedicine services should be done?

Probing questions -Current problems and solution -Future view of the service

10- Do you have other questions?

Thank a lot for your time and efforts.

## Annex 8: Key informants interview questions:

السيد\ة:

أنا الطالبة فاتن عبد العزيز ابو عمرة، ملتحقة ببرنامج ماجستير إدارة صحية وسلامة مريض - جامعة القدس لقد تم اختيارك للمشاركة في هذه الدراسة التي تهدف إلى تقييم خدمات الخط المجاني في الأونروا بغزة وتم اختيارك بشكل استراتيجي لأن لديك معرفة ودراية بها. وأنا ممتنة لوقتك واستعدادك للمشاركة فقد تساعد نتائج واستنتاجات هذه الدراسة في تحسين الخدمات المقدمة للاجئين هذه الدراسة متطلب للحصول على درجة الماجستير -جامعة القدس أبوديس اشتراكك في هذه الدراسة معد الرسالة تطوعية يحق لك القبول أو الرفض لا يوجد إجابات صحيحة أو خاطئة السرية مكفولة ستستغرق مدة اللقاء حوالي 60 دقيقة

## شكرا لتعاونكم

Name of interviewer	
Position of interviewer	
Name of interviewee	
Place of interview	
Date of interview	

1-Being one of the key persons in UNRWA health department, why telemedicine?

Probing questions

How the idea emerged?

•Definition

• Goal

• Effectiveness (To what extent telemedicine achieved its intended goals, what worked well what didn't work well?)

- Efficiency
- Other benefits

2-What do you think about the services available through telemedicine?

Probing questions

• What do you think about the quality of services received?

• What are the missing services, what needs to be done?

b• Contribution of telemedicine to service provision, which services Treatment availability (antibiotic, psychology treatment, chronic disease medication like DM, HTN and Cardiac), which categories of people, how much resources are available?

- Time consuming
- Appointment

- Health education and psychological support
- 3- Tell me about protocols/technical instruction related to telemedicine
- Probing questions
- accessible
- applicable
- Renewable
- Effective

4- Please elaborate about training reflect on capabilities of health providers to provide telemedicine

- Probing questions
- -When training done?
- -Where?
- -issues discussed
- 5- Can we talk about the resources needed for telemedicine
- Probing questions
- Human resources (number, distribution, qualification, training, sex and age)
- -Building quality and physical space facilities.
- Availability of E-health system.
- 6- What are the major obstacles telemedicine implementation face?

Probing questions

- Strategies and protocols
- Limited availability of service tools
- Quality of services
- Accessibility
- Referral system
- Follow up

7-In your opinion, what's the future of telemedicine? What are the possible opportunities for strengthening and scaling up telemedicine services?

8- Do you have other questions?

Thank a lot for your time and efforts.

## Annex 9: Helsinki Committee



Name: Faten Abed Al-Aziz Abo Amra

الاسم:

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

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/1041/22 in its meeting on 07/02/2022

و قد قررت الموافقة على البحث المذكور عاليه بالرقم بالتاريخ المذكوران عاليه

Signature Member Member airman CI 20200 eu Specific Conditions:-Genral Conditions:-Valid for 2 years from the date of approval. 1. It is necessary to notify the committee of any change 2. in the approved study protocol. The committee appreciates receiving a copy of your final research when completed. 3 E-Mail:pal.phrc@gmail.com غزة - فلسطين Gaza - Palestine شارع النصر - مفترق العيون

### **Annex 10: UNRWA approval**

From: ALBAIK, Shatha <<u>S.ALBAIK@UNRWA.ORG</u>> Sent: Wednesday, June 22, 2022 4:35 PM To: ABU-AMRA, Faten <<u>F.ABUAMRA@UNRWA.ORG</u>> Cc: AL-JADBA, Ghada <<u>G.ElJadba@UNRWA.ORG</u>>; QUQA, Rihab <<u>R.QUQA@UNRWA.ORG</u>>; ELKHATIB, Zoheir <<u>Z.ELKHATIB@UNRWA.ORG</u>>; HAMAD, Khalil <<u>Kh.Hamad@UNRWA.ORG</u>>; ZAQQOUT, Randa <<u>R.ZAQQOUT@UNRWA.ORG</u>>; HALABI, Nisreen (G/HD) <<u>N.HALABI@UNRWA.ORG</u>>; SHOUMAN, Asmahan <<u>A.Shouman@UNRWA.ORG</u>>; SEITA, Akihiro <<u>A.SEITA@UNRWA.ORG</u>>; SHAH, Sayed <<u>S.SHAH@UNRWA.ORG</u>> Subject: RE: Proposal approval

Dear Dr Faten , cc GFO colleagues

Please note that the research proposal "Evaluation of Telemedicine Services at UNRWA Health Centers in Gaza". submitted to UNRWA's RRB has been reviewed and got approval to proceed with the implementation phase

Dear Dr Faten,

As per the RRB rules, findings should be shared with RRB as well as GFO. Thus , please work closely with our colleagues in GFO to give their feedback on the research process as needed

Attached copy for the latest approved proposal for your kind reference

Congratulation!

Shatha

دراسة بعنوان: تقييم خدمات التطبيب عن بعد في عيادات الأونروا بقطاع غزة إعداد: فاتن عبد العزيز محمد ابو عمرة إشراف: بروفسور. بسام أبو حمد

ملخص الدراسة

# مقدمة:

بسبب ما تلاقيه تكنولوجيا المعلومات من اهتمام كبير في الأونة الأخيرة بصفة عامة، وفي القطاع الصحي بصفة خاصة جاءت هذه الدراسة لتقييم؛ خدمات التطبيب عن بعد في مراكز الأونروا الصحية بقطاع غزة؛ لتحديد تأثير هذه الخدمات على جودة الخدمة الصحية.

# الأساليب:

تتضمن هذه الدراسة الجزء الكمي والنوعي، حيث شارك في الجزء الكمي 400 مستفيد من خدمات الأونروا بغزة و 197 طبيب لدى الأونروا، كما أجري الجزء النوعي من خلال المجموعات البؤرية لكل من المستفيدين من الخدمات الصحية بالأونروا (3 مجموعات) والأطباء كمقدمين لخدمات التطبيب عن بعد بعيادات الأونروا (3 مجموعات)، وتضمن الجزء النوعي أيضا ثلاث مقابلات مع صانعي القرار والمسؤولين في القطاع الصحي بالأونروا، كما تم اختيار الجزء النوعي بما يضمن إثراء وتفسير الجزء الكمي للدراسة.

وقد تم جمع البيانات الكمية للمستفيدين من خلال مقابلات أجريت لتعبئة الاستبيان من خلالها، كما أجري مسح عبر شبكة الإنترنت لمقدمي الخدمات، وقد استخدمت النتائج الأولية المستمدة من الجزء الكمي لإثراء عملية جمع البيانات النوعية، وقد استخدم برنامج الحزمة الإحصائية للعلوم الاجتماعية' لإدخال البيانات الكمية وتحليلها، بينما استخدمت تقنية الترميز مفتوح المواضيع' لتحليل البيانات النوعية.

## النتائج:

لقد تبين من خلال النتائج أن 76.3% من الذين استجابوا لتعبئة الاستبيان هم من الإناث، كما أن 58.2% من المستجيبين لديهم معرفة بوجود خدمات التطبيب عن بعد، بينما أعرب معظم المستفيدين من خدمات التطبيب عن بعد عن رضاهم عن طريقة تواصلهم وتفاعلهم مع مقدمي الخدمة (38.3% راضين لحد كبير ،55.5% راضين لحد ما).

أما فيما يتعلق بالتحديات التي تواجههم عند استخدام خدمة التطبيب عن بعد فقد اتفق غالبيتهم على انشغال الخطوط، فقد استخدم الغالبية (95.5%) التطبيب عن بعد للحصول على العلاج الطبي، كما كشفت النتائج أن35.9% من المستجيبين وافقوا إلى حد ما على أن خدمات التطبيب عن بعد يمكنها توفير أموالهم، بالإضافة الى أنها سهلت الوصول الى الخدمات الطبية كما بين غالبية المستجيبين (96.1%)، حيث أفادت الغالبية العظمى أن استخدام التطبيب عن بعد قد قلل من وقت الانتظار ، وعلاوة على ذلك فإن التطبيب عن بعد له تأثير إيجابي على صحة المتلقين وأسرهم كما أوضح 87.5% من المستجيبين.

أما فيما يتعلق بنتائج المسح للأطباء العاملين بالأونروا فقد شارك كل من الذكور والإناث في المسح بالنسبة نفسها تقريبا (50.8%،92.2% على التوالي)، وقد أوضح 59.4% أنهم قد تلقوا تدريبا على التطبيب عن بعد، في حين أن الغالبية العظمى من الأطباء قدموا خدمة التطبيب عن بعد مرة واحدة على الأقل، كما أن غالبيتهم (1.19%) أبدوا رضاهم عن تفاعلهم مع المستفيدين من خلال التطبيب عن بعد، وأكدوا على وجود احترام لخصوصية المستغيدين (7.29%) وبيئة عمل ملائمة لتقديم هذه الخدمات (89.2%)، كما أشاد العديد من الأطباء (75%) بفاعلية التطبيب عن بعد، بل ذهب 5.15% إلى إمكانية الاكتفاء بالتطبيب عن بعد للمستفيدين دون أدنى احتياج لدمجه مع العلاج وجها لوجه، حيث إن الاستشارات الطبية الأكثر استخداما للخط المجاني تمحورت كما يعتقد مقدمو الخدمة حول أمراض الطفل (89.3%) مثل (نزلات الطبية الأكثر استخداما للخط المجاني تمحورت كما يعتقد مقدمو الخدمة حول الخط المجاني للأمراض العامة مثل (الطفح الجلدي، أمراض الجهاز الهيكلي والعظمى، أمراض الجهاز العصبي)؛

إن خدمة التطبيب عن بعد تضمن استمرار تقديم الخدمات الصحية خلال الأزمات حيث إن هذا كان من أهم الدوافع التي أعرب عنها مقدمو الخدمة لاستخدامهم التطبيب عن بعد (77.7%)، ليس ذلك فحسب بل إن 68.5% من مقدمي الخدمة يؤمنون بأن التطبيب عن بعد ساهم في تنظيم الزيارات المتكررة من بعض المستفيدين، كما أنها حسنت سير العمل حسب ما يرى 57.9% من مقدمي الخدمة، كذلك حسنت الوصول إلى الأدوية المتاحة دون وصفة طبية كما أوضح 53.8% من مقدمي الخدمة.

لقد اتفقت نتائج الجزء الكمي مع الجزء النوعي الى حد كبير مما أضاف مزيدا من الإثراء والرؤية.

### الخلاصة:

تؤكد الدراسة على المساهمات الإيجابية الهامة لخدمات التطبيب عن بعد التي يمكن الارتقاء بها لتصبح جزءا من الخدمات الصحية المتوفرة في جميع الظروف الطارئة والعادية على حد سواء، وللوصول إلى الأهداف المرجوة من خدمات التطبيب عن بعد والتقليل من أي أضرار محتملة هناك حاجة إلى وضع بروتوكول شامل وواضح ومتفق عليه من أجل تحسين تنظيم خدمات التطبيب عن بعد، كما أن هناك حاجة لتكثيف التدريب الذي يليه الإشراف والمتابعة الدقيقة والكافية.