



### RESEARCH ARTICLE

## EFFECT OF COVID-19 PANDEMIC ON OCCUPATIONAL THERAPY PRACTICE AND IMPLEMENTATION OF TELEREHABILITATION INCLUDING HEALTH SECTORS IN AL AHSA CITY

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### Abstract

**Introduction and Aim:** COVID-19 has turned into a worldwide public health emergency involving 223 nations and regions, and it has had a significant impact on public and health service delivery systems [1]. Tele-rehabilitation has developed as a potential strategy for virtually supervising the delivery of a physical, occupational, speech, and other therapies targeted at treating motor, mental, and neuropsychiatric deficiencies caused by sensory and motor impairments [3]. The transition to telerehabilitation offers a wealth of learning opportunities. This viewpoint offers an overview of how a learning health care system (LHS) approach to telerehabilitation research might foster innovation in health care delivery and lead to new scientific findings [4]. Telerehabilitation benefits minimize the need for patients and providers to travel and in-home rehabilitation services can save travel costs and caregiver strain. Patients with mobility issues will appreciate the convenience [5]. The aim of the study was to determine the COVID-19 pandemic effect on occupational therapy practice and use of telerehabilitation in Al-Ahsa.

**Method:** COVID-19 pandemic effect on occupational therapy practice and use of telerehabilitation in Al-Ahsa assessed by the questionnaire. The purpose of the questionnaire to measure the Effect of Covid-19 pandemic on occupational therapy practice and implementation of telerehabilitation including government hospitals, private hospitals, and clinics in ALAHSA city. We shared the link by distributing it through social media. This study was conducted in Al-Ahsa including government hospitals, private hospitals, and clinics. The data collected from SPSS. 20 questions used to assess different aspects of COVID-19 pandemic effect on occupational therapy practice and use of telerehabilitation in Al-Ahsa with five options (Strongly Agree – Agree – Neutral – Disagree – Strongly Disagree. In addition, it is cross-sectional because the study collected data at giving point across the study.

**Result:** There are 108 participants in this study. All of the participants were from Saudi Arabia in Al-Ahsa that met the inclusion criteria in

This study. The number of male participants in the research was 85 (78.70%) . Also, the ages of the participants ranged from 16 to 58 and the average age is 30,23. We found that most of the participants agreed that telerehabilitation was effective and had many benefits for patients where the percentage of answers strongly agree and agree in all questions was high. Furthermore, the ages of the participants in the research are all of them from adolescence and adulthood, as the use of electronic technology to conduct therapeutic and rehabilitative sessions is almost non-existent for people in the late adulthood stage.

**Conclusion:** We found that telerehabilitation is effective and benefits both the therapist and the patient. Also, the percentage of use of telerehabilitation by late adult patients was very low. Telerehabilitation had some problems and defects, and we hope that they will be resolved and the remote treatment system will be fully developed.

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### ..... **Introduction:-**

COVID-19 has turned into a worldwide public health emergency involving 223 nations and regions, and it has had a significant impact on public and health service delivery systems [1]. Therefore, Distance medicine for occupational therapy (OT), physiotherapy (PT) has created a highly beneficial client service sitting during the 2019 coronavirus disease pandemic. However, In the Middle East, the notion of telehealth for rehabilitation services is still new, and there are no established speciality-specific clinical practice standards or guidelines to assist rehabilitation professionals [2]. Tele-rehabilitation has developed as a potential strategy for virtually supervising the delivery of a physical, occupational, speech, and other therapies targeted at treating motor, mental, and neuropsychiatric deficiencies caused by sensory and motor impairments [3]. The COVID-19 epidemic has had an influence on every element of health care. Rules, regulations, and payment procedures were changed to allow broad use of telecommunications technology instead of in-person clinical visits to safeguard health care personnel and patients throughout the country from the danger of disease transmission. As a result, occupational therapists are using telehealth modalities in new ways and with new populations, changing the way rehabilitation is delivered in various contexts. The transition to telerehabilitation offers a wealth of learning opportunities. This viewpoint offers an overview of how a learning health care system (LHS) approach to telerehabilitation research might foster innovation in health care delivery and lead to new scientific findings [4]. Telerehabilitation benefits minimize the need for patients and providers to travel, and in- home rehabilitation services can save travel costs and caregiver strain. Patients with mobility issues will appreciate the convenience." In a research with 26 Veterans involved in the Rural Veterans Telerehab Initiative, Levy et al. proved this. The average period of engagement for each Veteran was 99.2 days, during which time they avoided 2,774.7 miles of travel and saved \$1,150.50 in travel expenditures." All of these variables make healthcare more accessible to people undergoing spine surgery. Patients may be discharged earlier, lowering healthcare costs, because this type of rehabilitation provides continuity of care from the hospital to the patient's home. Also, the lack of face-to-face communication may make it much harder to establish a strong provider-patient connection. Occupational therapy sessions at the patient's own home are not the same as those in a clinic. Other staff members, other patients, and other symbols of rehabilitation, such as the treatment table, are absent from the residence. Additionally, the patient may face equipment hurdles, such as a shortage of weights, bands, or medicine balls in clinic settings, which may restrict the number of treatment modalities accessible to the patient, Patients may also lack the technology necessary to carry out telerehab or the knowledge to use it. Adequate training, support, and information must be given to patients prior to the start of their therapy. In addition, the lack of person-to-person contact makes it difficult for the provider to palpate and execute special tests that may be crucial for diagnostic purposes. Given the obstacles listed above, telerehab could be used as an adjunctive therapy where in-person sessions are utilized for initial evaluation and occasional follow-up appointments. It would be important to limit the possibility of overlooking red flags in patients with more complicated rehabilitation courses [5]. Moreover, tele-rehabilitation only requires a small workplace footprint, it benefits healthcare workers by reducing therapeutic space accommodation requirements. Remotely supervised group therapy sessions could be effectively conducted with two therapists, one to monitor the screen for patient safety and the other to demonstrate the exercises. Overall, it takes fewer employees than face-to-face groups, and the resulting decrease in footfall within the therapy center aids in the maintenance of social distance regulations in the workplace [6]. Face-to-face occupational therapy

services are fraught with difficulties. For example, clients' access to long-term rehabilitation is limited due to rising demand and the shrinking availability of OT services in rural locations. In addition, Clients' access is hampered by long travel times and distances, as well as a convoluted service structure and the high expense of intensive clinic-based therapies. To address these constraints while simultaneously enhancing accessibility and encouraging well-being and recovery, an alternate service delivery paradigm for OT is required. TR can also be classified as synchronous or asynchronous, depending on whether the provider and patients are connected at the same time but in different locations, or asynchronous, depending on whether the provider and clients have not attached simultaneously time but use 'store-and-forward' data transmission, that may include video clips, digital photos, virtual techniques, and other forms of electronic communication. Moreover, telerehabilitation (TR) provides similar clinical outcomes to face-to-face rehabilitation treatments, according to previous assessments of its effectiveness concerning the different diseases and deficiencies, healthcare usage, and rehabilitation cost [7]. Furthermore, The American Occupational Therapy Association supports the use of telerehabilitation for treatment, claiming that it might improve patient care and it could be offered in a variety of ways to fit the requirements of patients and family members [8].

**Justification:**

Distance rehabilitation was applied extensively after the Covid-19 pandemic, which affected all countries of the world in many aspects, the most important of which was the health aspect, as it claimed the lives of millions of people around the world. Therefore, it was necessary to convert the rehabilitative sessions for physical, occupational, and speech therapy into remote rehabilitative sessions and not to neglect them due to the pandemic.

**Objective of the Study:-****Aim of the study:-**

The study was designed to determine the COVID-19 pandemic effect on occupational therapy Practice and use of telerehabilitation in Al-Ahsa.

**Specific Objectives:**

1. To find how well a patient is responding to the therapeutic plan by using telerehabilitation.
2. To find the challenges that encounter clients about quality, understanding, and responding to telerehabilitation.

**Secondary Objective:**

1. To find the clients of general satisfaction about the telerehabilitation.

**Methodology:-****Study Area/Setting:**

This study was conducted in Al-Ahsa including government hospitals, private hospitals, and Clinics.

**Study Subjects:****Inclusion Criteria:**

1. 15 years old to 65 years.
2. Patients from different age groups including late childhood, early adulthood, middle adulthood, and late adulthood in Al-Ahsa.
3. Male and female Subjects.

**Exclusion Criteria:**

- 1- The Patients and therapists are not in Al-Ahsa.
- 2- Less 15 years old and above 65 years of the patient.

**Study Design:**

This study is a quantitative, Descriptive; survey design. This quantitative study design is a research focus on the number of patients who need telerehabilitation to find the Difficulties they faced during telerehabilitation. Descriptive study design is an observing and describing the impression patients during telerehabilitation.

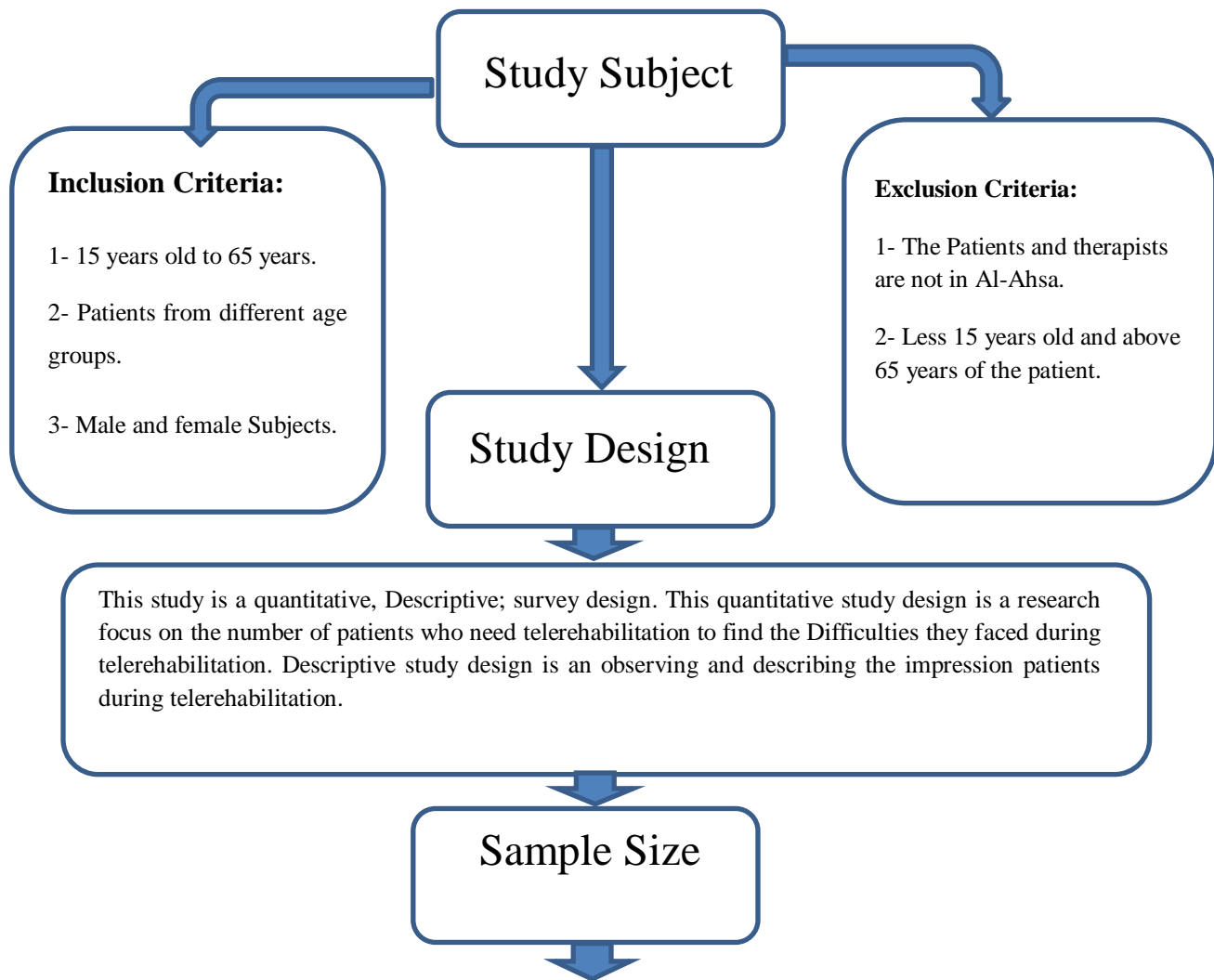
**Sample Size:**

The number of participants in the study was 323 Patients; we assessed these Patients to meet the inclusion criteria in this study.

**Sampling Technique:**

This study cross sectional study and assess the Purpose Sampling Technique. This technique to evaluate through the issuing of a questionnaire to patients. The questionnaire will be made in paper and electronic form and will be published by distributing paper questionnaires in hospitals and rehabilitation centers and electronic will be shared on social media sites, and when the responses are completed they will be sorted to get responses in the various criteria that we have set.

- **Flowchart of the study design that describes the research methods**



We are including 2000 in this study Effect of Covid-19 pandemic on occupational therapy practice and implementation of telerehabilitation in AL-AHSA city.

Confidence interval: 95%

Margin error: 5%

Population size: 2000

Response distribution: 50%

Based on the Population size in the Al Ahsa region 2000 In Al-Ahssa. We find the estimated sample size based on the recommended population is 323. So we will take 323 patients and give them the questionnaire to answer it. We find the estimated sample size based on estimated population

### Sampling Technique

Sampling Technique is Convenience sampling Technique, which is a type of non-probability sampling. The data collected from Questionnaire responses. All the participants who meet the inclusion criteria.

### Data Collection

We will use it for this study's one questionnaire. We will ask questions about how can patients use telerehabilitation during the Covid-19 period. The questionnaire will be reviewed by one occupational therapist to ensure the content of validity and reliability. The study will be conducted by a questionnaire-type assessment. 20 questions for patients will be used to assess different aspects of the Effect of the Covid-19 pandemic on occupational therapy practice and implementation of telerehabilitation in ALAHSA city, with five options (Strongly Disagree – Disagree – Normal – Agree - Strongly Agree). We choose these scales because they are perfect for encouraging people to answer detailed questions about measures of how patients feel about telerehabilitation. In addition, these scale questions are good to help and the same time avoids asking the people difficult survey questions like open-ended, fill-in-the-blank, simple yes/no, select all that apply, and ranking questions.

**Data Management and Analysis Plan:**

In our analysis, after we collected the data, we chose the data of the people who have met the inclusion criteria. Then we transferred the data to SPSS version 28 for analyzing descriptive statistics. The important part that date analyzed the Effect of Covid-19 pandemic on occupational therapy practice and implementation of telerehabilitation including government hospitals, private hospitals, and clinics in ALAHSA city.

**Ethical Consideration:**

- Approval was obtained from King Abdullah International Medical Research Center (KAIMRC) IRB Committee, which is the authorized department to allow conducting research in MNGHA.
- Research procedures have ensured privacy during data collection.
- Data was stored securely with adequate provisions to maintain the confidentiality of the data.
- All possible measures were ensured that participants' identities are not directly or indirectly disclosed for secondary data analyses.

**Results:-**

There are 108 participants in this study. All of the participants were from Saudi Arabia in Al-Ahsa that met the inclusion criteria in this study. The number of male participants in the research was 85 (78.70%) . Also, the ages of the participants ranged from 16 to 58 and the average age is 30, 23. By observing the responses in (Table 1) we found that most of the participants agreed that telerehabilitation was effective and had many benefits for patients where the percentage of answers strongly agree and agree in all questions was high. Furthermore, the ages of the participants in the research are all of them from adolescence and adulthood, as the use of electronic technology to conduct therapeutic and rehabilitative sessions is almost non-existent for people in the late adulthood stage.

After observing and analyzing the data, we found that the Covid-19 pandemic affected the application of telerehabilitation through the use of electronic technologies because some patients faced some difficulties in using the technology and communicating with the therapist that shown in (Table 1), on contrary, some patients found the facilitation and approval of the application of the therapeutic and rehabilitative sessions through telerehabilitation.

Among the difficulties that patients faced was the application of therapeutic exercises during the treatment session or by sending them to patients through social media. To sum up, patients were generally satisfied with the use of telerehabilitation.

**Table:**

Table 1	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Q1) The telerehabilitation help me access to healthcare services during Covid-19 pandemic.	29 (26.9)	40 (37)	35 (32.4)	4 (3.7)	0
Q2) The telerehabilitation saves my time going to a hospital or specialist clinic during Covid-19 pandemic	35 (32.4)	47 (43.5)	22 (20.4)	4 (3.7)	0
Q3) The telerehabilitation contribute to reduce cost of therapy during Covid-19 pandemic.	28 (25.9)	49 (45.4)	25 (23.1)	6 (5.6)	0
Q4) Telerehabilitation system was simple for me to use during Covid-19.	19 (17.6)	54 (50)	27 (25)	6 (5.6)	2 (1.9)
Q5) I think the visits provided over the telehealth system are the same benefit as in person visits.	22 (20.4)	30 (27.8)	27 (25)	24 (22.2)	5 (4.6)
Q6) I was able to express what I want effectively in telerehabilitation.	18 (16.7)	46 (42.6)	29 (26.9)	12 (11.1)	3 (2.8)
Q7) I had difficulties entering the specialist communication program.	7 (6.5)	13 (12)	39 (36.1)	37 (34.3)	12 (11.1)
Q8) I feel comfortable communicating with the clinician using the telerehabilitation system.	18 (16.7)	48 (44.4)	31 (28.7)	8 (7.4)	3 (2.8)
Q9) The way I interact with this system are pleasant.	18 (16.7)	44 (40.7)	35 (32.4)	8 (7.4)	3 (2.8)
Q10) The technique of exercise was difficult to learn during telerehabilitation in Covid-19 pandemic.	15 (13.9)	30 (27.8)	45 (41.7)	13 (12)	5 (4.6)
Q11) The quality of voice and image was clear in Telerehabilitation communication.	18 (16.7)	45 (41.7)	36 (33.3)	7 (6.5)	2 (1.9)
Q12) My health improved by telerehabilitation during Covid-19 pandemic.	15 (13.9)	43 (39.8)	37 (34.3)	10 (9.3)	3 (2.8)
Q13) The length of time during telerehabilitation was enough for me.	15 (13.9)	47 (43.5)	36 (33.3)	9 (8.3)	1 (0.9)
Q14) The therapist was spending maximum his effort during telerehabilitation in Covid-19 pandemic	33 (30.6)	45 (41.7)	25 (23.1)	4 (3.7)	1 (0.9)
Q15) The therapist was committed in appointments during telerehabilitation in Covid-19 pandemic	27 (25)	49 (45.4)	28 (25.9)	2 (1.9)	2 (1.9)
Q16) The therapist was committed in the patient privacy through telerehabilitation in Covid-19 pandemic.	36 (33.3)	45 (41.7)	25 (23.1)	0	2 (1.9)
Q17) I satisfied for the telerehabilitation service during Covid-	24	44	31	6 (5.6)	3 (2.8)

19pandemic.	(22.2)	(40.7 )	(28.7)		
Q18) I would use telerehabilitation services again.	23 (21.3)	42 (38.9 )	33 (30.6)	8 (7.4)	2 (1.9)
Q19) I will recommend telerehabilitation to a family member and friend.	21 (19.4)	41 (38)	30 (27.8)	12 (11.1)	4 (3.7)
Q20) I support continue telerehabilitation system in the future.	25 (23.1)	43 (39.8 )	28 (25.9)	7 (6.5)	5 (4.6)

### Discussion:-

The research indicated that the Covid-19 pandemic affected the application of telerehabilitation through the use of electronic technologies because some patients faced some difficulties in using the technology and communicating with the therapist which affect outcomes and goals of patients.

Our study test COVID-19 pandemic effect on occupational therapy practice and use of telerehabilitation in Al-Ahsa. Which there were strengths and limitations where the strengths were most of the responses were positive and support the effectiveness and continuity of telerehabilitation. Also, the availability of technological devices for everyone, as it facilitated communication with the participants. And, telerehabilitation reduced the time and cost of treatment. There are some limitations to this study. Although the cross-sectional design is appropriate for the objectives we proposed, we could not draw cause-and-effect conclusions from it, and the number of responses was less than sample size required, and not getting enough responses from female.

As a result of this study, we have been able to find Similarities and Differences. The similarities were most of the participants support continue telerehabilitation system in the future. Also, most of the participants think The therapist was committed in the patient privacy through telerehabilitation in Covid-19 pandemic. Differences were about that responses were different about difficulties that participants faced to entering the specialist communication program.

### Implications:

Poor understanding of practical sessions during the quarantine will affect their health and outcome, and leading to feel unsatisfied during the day.

Poor internet connection considered one of the most challenges that facing the patients during the learning and their online session, which will make the patients feel bored and reject telerehabilitation. For instance, connection lost while the patient taking the session will make him rejected and non-recommended the telerehabilitation.

### Limitation:

Our questionnaire distributed online which played a main reason for not reaching the aimed sample size and distributing the questionnaire. Our finding shows that the online questionnaire have less responds rate than paper questionnaire. Getting inaccurate information of the students because our research started post the quarantine. In the future, we hope to conduct other studies to find out how COVID-19 pandemic effect on occupational therapy practice and use of telerehabilitation in Al-Ahsa.

### Conclusion:-

In conclusion, we found that telerehabilitation is effective and benefits both the therapist and the patient. Also, the percentage of use of telerehabilitation by late adult patients was very low. Telerehabilitation had some problems and defects, and we hope that they will be resolved and the remote treatment system will be fully developed.

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