Knowledge of Tele-practice among health professionals working with Developmental Delayed Children

Shehzadi Arshad[1], Tooba Arif[2], Maha Illahi[3], Masooma Rubab[4], Shumail Najam[5]

[1,2,5] University of Health Sciences, Lahore, Pakistan

[3,4] Pakistan Society for Rehabilitation of Disabled College, Pakistan

***Abstract*- Background:** Tele-practice is the application of telecommunication technologies in health and medical services. It facilitates cost-effective, quality, and flexible health and social services when the provider and the recipients are at a distance from each other.**Objective:** This research was designed to determine the knowledge of Tele-practice among health professionals working with Developmental Delayed Children. **Methods:** An Observational study conducted from August 2020 to July 2021 at the Department of Developmental Pediatrics Children's Hospital & the Institute of Child Health Lahore. Data was collected through consecutive sampling. The sample size was 100 and data was collected from both male and female Health Professionals who had working experience of a minimum of 2 years. Data analysis was done by using the IBM SPSS Statistics 25. **Result:** 34% of health professionals agreed that the use of tele-practice to provide services to developmentally delayed children is satisfactory. 20% of health professionals disagreed with the statement and 31 % were neutral about the statement. 34% of health professionals showed interest in the Future use of Tele-practice while working with developmentally delayed children and 28 % of health professionals showed no interest in the use of Tele-practice in future. **Conclusion:** Most health professionals want the resources of tele practice must be encouraged so that adequate services would be provided to the people who come from remote and rural areas. ***Index Terms*-** Tele-rehabilitation, Developmental Delayed, children, Health professionals

I. INTRODUCTION

Tele-practice sprang from applying existing telemedicine tools and techniques to individual rehabilitation disciplines [1]. From the first demonstration projects, the motivation for tele-practice has been to improve the delivery of rehabilitation services, enhance the continuum of care, and promote client involvement and participation in treatment [2]. Early tele-practice efforts were structured mostly as pilot projects that were small in sample size and proof-of-concept in nature [3]. In some of the first tele-practice projects, clinicians used the telephone to provide client follow-up and caregiver support and to administer client self-assessment measures [4]. The feasibility of tele-practice is shown not only in controlled clinic settings but also across long distances, bringing therapy and assessment to remote and rural populations [5]. The recent development of advanced monitoring technologies has enabled an increasing number of tele-practice applications to be arranged in homes [6]. Therapists can use telepractice to consult with, evaluate, and monitor their patients, keeping costs down, saving money, and reducing the time needed to travel [7]. Tele-orthodontics can manage most emergencies, reassuring and following patients remotely [8]. A survey was conducted on "Speech-language pathologists' perceptions of the use of tele-practice in the delivery of services to people with Parkinson's disease". A total of 63 SLPs responded. The majority (82.5%) were interested in tele-practice, but only 23.1% provided services online.77.5% are interested in using tele-practice. Most perceived tele-practice as an appropriate delivery method for speech-language pathology services [9]. Efficacy studies conducted mostly in speech pathology and physiotherapy demonstrated reliable and valid assessment and intervention outcomes across e-health and face-to-face delivery. Research has demonstrated that traditional allied health assessment and intervention services can be reliably and validly implemented through e-health [10]. A study demonstrated health professional's confidence in communicating with people with aphasia and knowledge of strategies to facilitate them, via either face-to-face or tele-practice, but neither approach was superior [11]. Findings showed that Tele-practice did not appear to hurt rapport between SLPs and pediatric clients [12]. Iin pediatric feeding, most clinicians identified a range of feeding services that could be offered via tele-practice and a range of benefits to tele-practice feeding services were identified. Many clinicians were interested in using tele-practice and had positive perceptions regarding its use [13]. Fadzil et al. investigated audiologists' perceptions of tele-audiology in Malaysia (2019). The study confirmed that support for remote audiology testing in Malaysia was divided among the audiologists. Several measures were suggested to initiate tele-audiology practice in

Malaysia and to encourage its use in the future [14]. Tele-practice can bring services to rural areas and remote areas. Through Tele-practice services can be provided during a pandemic, endemic, or in any unfavorable condition. This study aims to determine the knowledge of Tele-practice among Health Professionals. It can be very helpful for the implementation of Tele-practice in our settings.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

This study was designed to determine the knowledge of Tele-practice among health professionals working with Developmental Delayed Children. This was an Observational study conducted from August 2020 to July 2021 at the Department of Developmental Pediatrics Children's Hospital & the Institute of Child Health Lahore. Data was collected through consecutive sampling. The sample size was 100 and data was collected from these Health Professionals (Speech and Language Pathologist, Occupational Therapist, Physiotherapist, Clinical Psychologist, Special Educationist, and Developmental Pediatrician) who had working experience of a minimum of 2 years [15] with Developmental Delayed Child. Males and females both genders were included. Health Professionals whose working experience was less than one year were excluded [16]. To gather the data for this study, a questionnaire was designed. A questionnaire was a list of investigation questions asked to Health Professionals and considered to extract definite information. This questionnaire was designed to see the knowledge of tele-practice among health professionals. The questionnaire consists of 12 questions to meet the requirements of the study. Health professionals filled out this semi-structured, close-ended questionnaire at the hospital. First, the questionnaire was given to Research experts in the School of Allied Health Sciences Lahore to ensure that the questions were consistent with the objectives of the study and no confusing, leading, or inappropriate questions were included. Secondly, a pilot study was done on 100 Health professionals), picked randomly from the Developmental Pediatric Department at Children's Hospital & the Institute of Child Health, Lahore Pakistan. The questionnaires were scrutinized and assessed for their validity based on these pilot study responses before initiating the actual survey. Pre-testing is a technique to estimate the validity of the questionnaire to see whether it works correctly in the field. 20 questionnaires were first filled out by the Health Professionals randomly and examined. After pretesting it was decided to comprise all variables. All the data was entered in SPSS version 25 and then analyzed for statistically significant outcomes. Descriptive analysis was used to describe the basic features of the data; the chi-square test was used.

III. WRITE DOWN YOUR STUDIES AND FINDINGS

Data from 100 health professionals were analyzed. The number of answering each question was reported. 8 males (8%) and 92 Females(92%) participated in this study. 34 participants (34%) belonged to the age group of 20-25 years, 40 participants (40%) from the age group of 26-30 years, 8 participants (8%) from the age group of 31-35 years, and 18 participants (18%) from the age group of 36 or above. 20 Clinical Psychologists (20%), 15 Special Educationists (15%), 8 Occupational Therapists (8%), 28 Speech and Language Pathologist (28%), 16 Developmental Pediatricians (16%) and 13 Physiotherapists (13%) were the participants of this study. 47 participants (47%) had clinical experience between 1-3 years, 25 participants (25%) had clinical experience between 4-5 years, 4 participants (4%) had clinical experience between 6-8 years and 24 participants (24%) had clinical experience more than 8 years. 87 participants (87%) had a fair knowledge of Tele-practice and 13 participants (13%) did not know Tele-practice. 34 respondents (34%) were using Tele-practice while other 66 participants (66%) were not using it. Frequency and percentages of all answers given are mentioned in the Table 1, 2, and 3. Only two variables have p value less than 0.05 which means that they have significant association with variable "Do you have fair knowledge of tele-practice

Table 1: This table shows how much participants strongly agreed with the statement, disagreed with the statements, were Neutral about the statements, agreed with the statement, and strongly agreed with the statements.

	Statements	**SD**	**D**	**UN**	**A**	**SA**
1	You feel tele-practice can be applied in Health sciences.	6	8	22	10	54
2	Tele-practice is based on current evidence-based practice and is at least equivalent to standard clinical care.	13	18	24	7	38
3	The appropriateness of using tele-practice depends on the clinical population.	0	13	16	15	56
4	Using tele-practice to provide services for child developmental delay is satisfactory.	11	20	31	4	34
5	Tele-practice depends on the patient's cognitive ability.	0	7	12	28	53
6	Caregiver's reluctance is obstacle towards use of tele- practice in Health sciences.	3	7	14	24	52
7	Lack of knowledge about tele-practice in patients may hinder the use of it.	3	8	6	27	56
8	You will prefer tele-practice in future while working with developmental delayed child.	9	28	23	6	34
9	Tele-practice is a viable form of service delivery for people come from remote areas.	3	11	22	17	47
10	Resources of tele-practice must be encourage.	4	2	17	20	57
11	Every health professional should have awareness about Tele-practice.	0	1	5	46	48
12	It is a reliable source of providing services during any pandemic/uncertain situation.	3	1	10	41	45

SD=Strongly Disagree, D= Disagree, UN=Un-decided, A=Agree, SA=Strongly Agree

Table 2: This table shows P value of all variables. The variables whose p value is less than 0.05 have association with Group variable. Only two variables have p value less than 0.05 which means that they have significant association with "group" variable.

Using tele-practice to provide services to child developmental delay is satisfactory						P Value
	Strongly Disagree	Disagree	Undecided	Strongly Agree	agree	
clinical psychologist	5	5	5	1	4	0.525
special educationist	1	5	2	1	6	
occupational therapist	0	1	2	0	5	
speech and language pathologist	1	4	13	1	9	
Developmental pediatrician	3	2	5	0	6	
physiotherapist	1	3	4	1	4	
Tele-practice depends on patient's cognitive ability.						0.174
clinical psychologist	2	4	2	12	20	
special educationist	2	1	7	5	15	
occupational therapist	0	0	5	3	8	
speech and language pathologist	1	4	6	17	28	
Developmental pediatrician	2	0	4	10	16	
physiotherapist	0	3	4	6	13	
Caregiver's reluctance is obstacle towards use of tele-practice in health sciences.						0.477
clinical psychologist	1	4	2	2	11	
special educationist	0	1	4	3	7	
occupational therapist	0	0	1	3	4	
speech and language pathologist	1	1	4	5	17	
Developmental pediatrician	1	1	2	4	8	
physiotherapist	0	0	1	7	5	
Lack of knowledge about tele-practice in patients may hinder the use of it.						0.587
clinical psychologist	2	2	2	3	11	
special educationist	0	1	1	3	10	
occupational therapist	0	0	1	5	2	
speech and language pathologist	1	2	2	9	14	
Developmental pediatrician	0	1	0	5	10	
physiotherapist	0	2	0	2	9	
You will prefer tele-practice in future while working with developmental delayed child .						
clinical psychologist	2	9	4	0	5	

special educationist	1	5	2	2	5	0.553
occupational therapist	0	1	2	0	5	
speech and language pathologist	4	7	7	0	10	
Developmental pediatrician	2	3	5	2	4	
physiotherapist	0	3	3	2	5	
Tele-practice is a viable form of service delivery for people come from remote areas.						0.43
clinical psychologist	1	3	6	2	8	
special educationist	0	1	6	5	3	
occupational therapist	0	0	2	3	3	
speech and language pathologist	1	3	5	2	17	
Developmental pediatrician	1	3	1	3	8	
physiotherapist	0	1	2	2	8	
Resources of tele-practice must be encourage.						0.005
clinical psychologist	0	1	5	1	13	
special educationist	1	0	1	4	9	
occupational therapist	0	0	0	6	2	
speech and language pathologist	1	1	3	3	20	
Developmental pediatrician	2	0	2	2	10	
physiotherapist	0	0	6	4	3	
Every health professional should have awareness about tele-practice.						0.242
clinical psychologist	0	1	6	13	20	
special educationist	1	1	5	8	15	
occupational therapist	0	0	7	1	8	
speech and language pathologist	0	2	16	10	28	
Developmental pediatrician	0	1	5	10	16	
physiotherapist	0	0	7	6	13	
It is a reliable source of providing services during any pandemic/uncertain situation.						0.17
clinical psychologist	0	0	2	7	11	
special educationist	0	0	1	4	10	
occupational therapist	0	0	0	7	1	
speech and language pathologist	1	0	4	13	10	
Developmental pediatrician	2	1	2	3	8	
physiotherapist	0	0	1	7	5	
You feel tele-practice can be applied in health sciences.						
clinical psychologist	1	5	7	1	6	

special educationist	1	0	4	3	7	0.051
occupational therapist	0	0	2	1	5	
speech and language pathologist	2	2	2	1	21	
Developmental pediatrician	1	1	4	0	10	
physiotherapist	1	0	3	4	5	
Tele-practice is based on current evidence-based practice and is at least equivalent to standard clinical care.						0.283
clinical psychologist	1	7	3	0	9	
special educationist	3	0	5	2	5	
occupational therapist	0	0	2	2	4	
speech and language pathologist	4	5	7	0	12	
Developmental pediatrician	3	4	4	1	4	
Physiotherapist	2	2	3	2	4	
The appropriateness of using Tele-practice is based on clinical papulation.						0.309
clinical psychologist	0	5	3	2	10	
special educationist	0	1	1	3	10	
occupational therapist	0	0	1	1	6	
speech and language pathologist	0	2	8	4	14	
Developmental pediatrician	0	2	2	5	7	
Physiotherapist	0	3	1	0	9	

Table 3: This table shows P value of all variables. The variables whose p value is less than 0.05 have association with variable. Only two variables have p value less than 0.05 which means that they have significant association with variable "Do you have fair knowledge of tele-practice".

You feel tele-practice can be applied in health sciences.							
		Strongly disagree	Disagree	Undecided	Strongly agree	Agree	p value
Do you have fair knowledge of tele-practice	yes	5	6	18	9	49	0.67
	no	1	2	4	1	5	
Tele-practice is based on current evidence-based practice and is at least equivalent to standard clinical care							
Do you have fair knowledge of tele-practice	yes	11	15	21	7	33	0.856
	no	2	3	3	0	5	
The appropriateness of using tele-practice depends on clinical population.							
Do you have fair knowledge of tele-practice	yes	0	8	12	15	52	0.004
	no	0	5	4	0	4	
Using Tele-practice to provide services to child developmental delay is satisfactory							
Do you have fair knowledge of tele-practice	yes	9	17	25	4	32	0.469
	no	2	3	6	0	2	
Tele-practice depends on patient's cognitive ability.							
Do you have fair knowledge of tele-practice	yes	0	6	8	26	47	0.146
	no	0	1	4	2	6	
Caregiver's reluctance is obstacle towards use of tele-practice in health sciences.							
Do you have fair knowledge of tele-practice	yes	2	5	12	22	46	0.528
	no	1	2	2	2	6	
Lack of knowledge about tele-practice in patients may hinder the use of it.							
Do you have fair knowledge of tele-practice	yes	1	5	5	26	50	0.006
	no	2	3	1	1	6	
You will prefer tele-practice in future while working with developmental delayed child .							
Do you have fair knowledge of tele-practice	yes	9	22	19	6	31	0.296
	no	0	6	4	0	3	
Tele-practice is a viable form of service delivery for people come from remote areas.							
	yes	2	8	18	16	43	
Do you have fair knowledge of tele-practice	no	1	3	4	1	4	0.267
Resources of tele-practice must be encourage.							
Do you have	yes	4	1	14	18	50	

fair knowledge of tele-practice	no	0	1	3	2	7	
Every health professional should have awareness about tele-practice.							
Do you have fair knowledge of tele-practice	yes	0	1	3	43	40	0.13
	no	0	0	2	3	8	
It is a reliable source of providing services during any pandemic/uncertain situation.							
Do you have fair knowledge of tele-practice	yes	3	1	7	37	39	0.472
	no	0	0	3	4	6	

DISCUSSION

In this research, 34% of health professionals agreed that the use of tele-practice to provide services to developmentally delayed children is satisfactory. 20% of health professionals disagreed with the statement and 31 % were neutral about the statement. 34% of health professionals showed interest in the Future use of Tele-practice while working with developmentally delayed children and 28 % of health professionals showed no interest in the use of Tele-practice in future. In Monique Hine, Kim Bulkeley, Simone Dudley & Sue Cameron & Michelle Lincoln's (2019) research on Delivering Quality Allied Health Services to Children with Complex Disability via Tele-practice. Data analysis indicated that tele-practice services were highly acceptable to parents. Children showed positive outcomes for a variety of functional goals related to speech-language pathology and occupational therapy. Findings indicated that quality tele-practice can deliver reliable services to children with disability. Most important were the skills of health professionals to facilitate person-centered practice and strong therapeutic relationships with children and parents [17]. In this research, 38 % of health professionals agreed that tele-practice is based on current evidence-based practice and equivalent to standard clinical care. 18% of health professionals disagreed with this view. Renée Speye, Deborah Denman, Sarah Wilkes-Gillan, Yu-Wei Chen, Hans Bogaardt, Jae-Hyun Kim, Dani-Ella Heckathorn, and Reinie Cordier (J Rehabil Med, 2018) reviewed the effects of Telehealth intervention delivered by Allied Health Professionals and Nurses working in rural and remote areas and compared the effects of telehealth interventions with face-to-face interventions. The interventions were delivered by a range of allied health professionals and nurses. This research showed that telehealth interventions may be as effective as face-to-face interventions[18]. In this study, 47% of health professionals agreed that it is a viable form of service delivery for people who come from remote and rural areas. Only 11% disagreed with this view. 57 % of health professionals agreed that resources of tele-practice must be encouraged.20 % strongly agreed with this. Only 2% of health professionals disagree with this statement. In Jessica Hay Campbell's research on the Implementation of Telehealth innovations in a rural Pediatric population through the Allied Health and Education Service (2019. This study aimed to determine the knowledge about telehealth innovations in allied health and education for rural children and how they could be executed in real-world contexts. Outcomes of telehealth innovations yielded a range of benefits. Telehealth provides better access to health care than in-person services, better cost outcomes, positive clinical outcomes, and satisfactory outcomes. All telehealth inventions increased client access to health care and reduced distance barriers to accessing services[19]. According to this research, 56% of health professionals agreed that Lack of knowledge about tele-practice in patients may hinder the use of it. In Teresa Iacono, Kellie Stagg, Natalie Pearce, and Alana Hulme Chambers's (2016) scoping review on attitudes of allied health professionals towards e-health. Assessments through e-health and intervention outcomes were comparable with face-to-face delivery. Efficacy studies conducted mostly in speech pathology and physiotherapy demonstrated reliable and valid assessment and intervention outcomes across e-health and face-to-face delivery. The outcome was at odds with client perspectives, which reflected a more positive attitude and willingness to participate in e-health [10]. According to research findings, 52 % of health professionals agreed that caregiver reluctance is an obstacle to the use of tele-practice in Health sciences. 24 % of Health professionals strongly agree with the statement. In Raymond Fong, Chun Fung Tsai, and Oi Yan Yiu's (2020) research on The Implementation of Tele-practice in Speech-Language Pathology in Hong Kong During the COVID-19 Pandemic. An online survey was conducted between February and March 2020. About one-third of participants reported having provided services through tele-practice, whereas 72.3% of them started in less than 3 months. Among the other participants, 83% of them indicated that incompatible patient was the main reason for not providing tele-practice [15].

CONCLUSION:

Many health professionals showed positive response towards tele-practice. The encouraging thing about the study is that most health professionals want the resources of tele practice must be encouraged so that adequate services would be provided to the people who come from remote and rural areas. It also signifies the factors that may hinder the use of it including lack of awareness among caregivers, inadequate facilities e.g. access to the internet, and less knowledge of caregivers about the technology, etc.

Limitations:

The time to conduct the study was short. Due to COVID-19, it was a great challenge to collect a large amount of data. Data was collected using a questionnaire, without observations.

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AUTHORS

First Author – **Shahzadi Arshad**, Lecturer, Speech and language pathologist, University of Health Sciences, Lahore, Pakistan.

Second Author – **Tooba Arif**, Physiotherapist, Lecturer, Department of Physical Therapy, University of Health Sciences, Lahore, Pakistan.

Third Author – **Maha Illahi,** Lecturer, Pakistan Society for Rehabilitation of Disabled College, Pakistan.

Fourth Author: Masooma Rubab, Lecturer,Pakistan Society for Rehabilitation of Disabled College, Pakistan.

Fifth Author: Shumail Najam, Lecturer, Occupational Therapist, University of Health Sciences, Lahore, Pakistan .

Correspondence Author – Tooba Arif,
ORCID I'd: https://orcid.org/0000-0001-7698-7217