

Views of Speech Therapist on Efficacy of Telerehabilitation for Children with Communication Disorder

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Abstract-Telerehabilitation has the potential to provide services in the home or local community through video conferencing and interactive computer-based therapeutic activities. This form of service delivery has the potential to optimize functional outcomes by facilitating the generalization of treatment effects into the person's everyday environment and allowing long-term monitoring of communication behaviours. Speech-language pathologists face several challenges in providing assessment and treatment services to children with communication disorder.

INTRODUCTION

“Communication is the process of transferring information from one person to another, whether or not it is received with confidence. But the transmitted information must be understandable to the recipient (Brown, 2014).

Communication process is a dynamic way of exchanging messages between people. The sender first comes up with idea and sends it to the receiver, who then provides feedback over the same medium. A communication disorder is any disorder that effects an individual's ability to understand, detect, or use language to communicate effectively with others. The delays and problems can vary from simple sound substitution to the inability to understand or use one's native language. Prevention of communication disorders requires some adjustment of the traditional emphasis on speech therapy.

Prevention requires further efforts to eliminate early communication disorders and their causes and promote the development and maintenance of optimal communication.

Vrinda & Remi (2020) Assessed an analysis on telerehabilitation in the field of speech language pathology during pandemic COVID-19 outbreak in kerala & concluded there is a need of improved

infrastructure & training for professionals to ensure quality services to their clients.

Historically, the focus of this professions has been on the identification and treatment of existing communication disorders. Treatment remains an important function for speech therapists, but it can be expanded to include different focal points of attention needed for prevention.

Telerehabilitation is defined as the provision of medical care or rehabilitation to persons with rehabilitation needs via telecommunication or the internet.

Ayanikalath, Pillay and Jayaram (2018) Analysed whether India is Ready For telerehabilitation and results revealed strategies to overcome the factors must be directed at creating & Supporting opportunities in resource Constrained country to meet patient's needs, irrespective of location.

Telerehabilitation refers to the delivery of rehabilitation via variety of technologies and encompasses a range of rehabilitation services that include evaluation, assessment, monitoring, prevention, intervention, supervision, education, consultation, and coaching.

Camden, Pratte, Tousignant & Berbari (2020) assessed on diversity of practices in tele-rehabilitation for children with disabilities and effective intervention characteristics through systematic review and concluded that future research should compare tele-rehabilitation interventions to well described evidence-based face to face interventions.

Telepractice technology was reported to be used often by SLPs, primarily in the form of realtime videoconferencing. However, there were still obstacles, such as poor Internet connections and technical issues.

Speech language pathologists face several challenges in providing assessment and treatment to children with communication disorders. Challenges include facilitating equitable access to services and

providing appropriate management within a changing social and economic context. A number of image-based telerehabilitation applications have been used in the management of children with communication disorder.

Chaudhary & Kanodio (2021) compared teletherapy with the conventional face to face therapy for speech language disorders and result revealed that telerehabilitation is reliable method to deliver speech and language service at community level, on long term basis as it proven by the high term satisfaction scores among the client as well as the service providers

The growing influence of digital media on all aspects of life, especially the use of the Internet and smartphones, has not even affected the field of health care practice.

Telerehabilitation, which includes the use of telecommunications in rehabilitation activities, is widely used in the treatment of communication disorders. The use of tele-rehabilitation services makes rehabilitation more feasible, timely, prompt, and cost-effective for those who have challenges presenting themselves to health professionals.

It is therefore a boon for those who live in remote areas and do not have access to healthcare professionals in the vicinity. As a result, research is underway on optimal ways to deliver Telerehabilitation services both locally and globally and is now considered an essential activity in healthcare.

Mohan, Anjum & Rao (2017) did a survey of telepractice in speech language pathology and audiology in India and they concluded that widespread use of tele-practice throughout the nation will require an improved infrastructure, training for professionals and telepractice policies.

Telerehabilitation is a great way to ensure access to health care in privileged large city settings as well as in remote and economically disadvantaged environments. It is particularly beneficial for children with disabilities who may live communication problems, impairments in activities of daily living, sensory, motor and cognitive dysfunction, and who have difficulty best in getting to appointments. In addition, environmentally friendly remote rehabilitation and reduced travel time can help improve quality of life.

Language disorders in children hindering socialization in the early stages of their and necessitate evaluation and treatment from a speech-language pathologist. Traditionally, these services

were delivered in the home, school, hospital, or clinic setting. With technological advancements, teletherapy has become a more viable option for speech language pathologists and the people they serve. This article discusses the various service delivery models to think about when providing teletherapy interventions.

The American Telemedicine Association (ATA, 2022) defines telerehabilitation as providing rehabilitation services using information and communication technology. In addition, telerehabilitation includes evaluation, monitoring, prevention, intervention, supervision, and counselling. Speech-language pathology services are suitable for telerehabilitation applications because they focus on auditory and visual communication rather than physical contact or manipulation, but telerehabilitation is relatively new in the field of speech-language pathology.

A facilitator in tele-practice is a person who is on-site with the client to assist both the client and the remote therapist. Depending on the service being provided, facilitators have varying responsibilities.

The current study investigates better understanding of the difficulties of speech language pathologists encountered when providing telerehabilitation services to clients during tele-therapy and how they overcame those difficulties using self-rated questionnaire.

METHODOLOGY

AIM:

The aim of the study was to analyse the views of speech therapists on efficacy of telerehabilitation for children with communication disorders with following objectives.

OBJECTIVE:

To determine the efficacy of telerehabilitation interventions and determining how this efficacy helping for children with communication disorders. To provide additional diagnostic and therapeutic support to a wide range of children with communication disorders.

The study was carried in two phases.

PHASE1:PREPARATION OF QUESTIONNAIRE

A questionnaire with 20 closed set (yes/no) questions were prepared keeping in mind the above literature review with respect to telerehabilitation efficacy in communication disorders. The prepared questions were given for validation process to 7 speech and language professionals who are currently in practice. The second section consists of 20 closed

ended questions with 2 point rating scale (Yes/No). The questions are about knowledge and attitude in relation to tele-rehabilitation in children with communication disorders. The corrections and suggestions advised by the experienced professionals were incorporated and the final questionnaire was ready which is as below.

1. Do you think telerehabilitation is effective?
2. Does telerehabilitation provide comprehensive sessions?
3. Do you think rapport-building is easier in telerehabilitation?
4. Is telerehabilitation effective for toddlers?
5. Is telerehabilitation effective for hyperactive children?
6. Do you think telerehabilitation causes adverse effect on pre-linguistic skills?
7. Do you think children are obsessed with screen during tele-sessions?
8. Does your client focus well in tele-sessions?
9. Do you feel the need of more assistance during tele-sessions?
10. Is parent/care-takers involvement important during tele-sessions?
11. Do you think response of the child varies in the absence of parent/caretakers during tele-sessions?
12. Are parents concerned about screen time during tele-sessions?
13. Are parents finding hard to follow the instructions during tele-sessions?
14. Are children finding hard to follow the instructions during tele-sessions?
15. Do you think parents are satisfied with tele-sessions?

16. Is parents/care-takers involvement important for better results in tele-rehabilitation?
17. Do you think tele-rehabilitation is adversely affecting the pragmatic skills of the children?
18. Do you think tele-rehabilitation is helping in improving communication skills?
19. Do you prefer tele-practice over onsite therapy?
20. Do you think awareness of tele-rehabilitation increasing amongst people?

PHASE 2: PARTICIPANTS WITH INCLUSION AND EXCLUSION CRITERIA:

50 speech language therapists participated in the present study. All the participants were certified Speech language pathologists from Karnataka. Participants were currently working and students currently pursuing higher education in speech and hearing field. Participants who were non certified in speech and hearing field were excluded from the study.

STATISTICAL ANALYSIS

The data obtained was subjected to statistical analysis using IBM Statistical package social sciences (SPSS) version 23.0 (SPSS Inc., Chicago). Results were analysed descriptively.

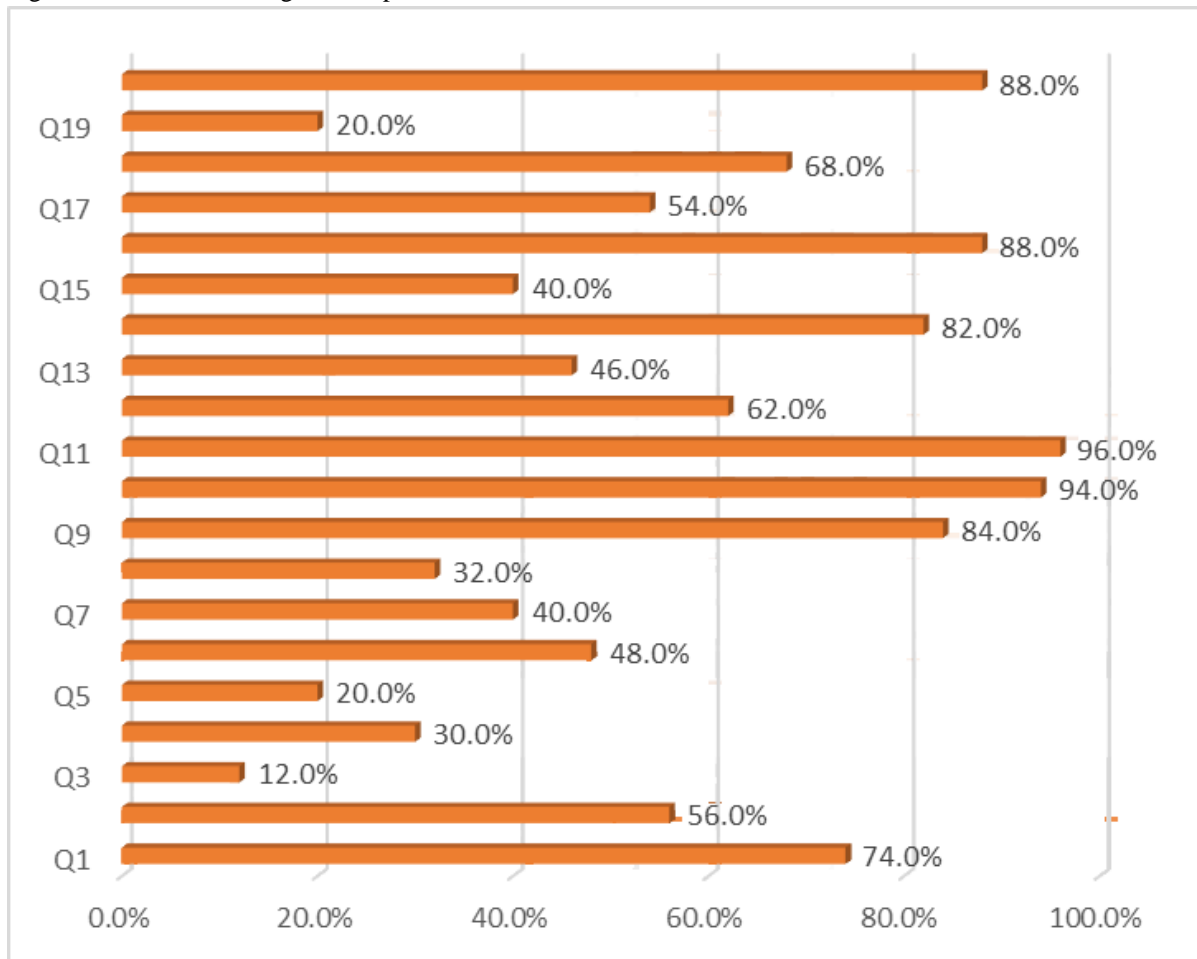
RESULTS AND DISCUSSION

Table1: Shows the frequency outcome of knowledge and percentage of the target participants of knowledge in various aspects of tele-rehabilitation and its outcomes.

	No		Yes		Total	
	Count	Row N %	Count	Row N %	Count	Row N %
Q1	13	26.0%	37	74.0%	50	100.0%
Q2	22	44.0%	28	56.0%	50	100.0%
Q3	44	88.0%	6	12.0%	50	100.0%
Q4	35	70.0%	15	30.0%	50	100.0%
Q5	40	80.0%	10	20.0%	50	100.0%
Q6	26	52.0%	24	48.0%	50	100.0%
Q7	30	60.0%	20	40.0%	50	100.0%
Q8	34	68.0%	16	32.0%	50	100.0%
Q9	8	16.0%	42	84.0%	50	100.0%
Q10	3	6.0%	47	94.0%	50	100.0%
Q11	2	4.0%	48	96.0%	50	100.0%
Q12	19	38.0%	31	62.0%	50	100.0%

Q13	27	54.0%	23	46.0%	50	100.0%
Q14	9	18.0%	41	82.0%	50	100.0%
Q15	30	60.0%	20	40.0%	50	100.0%
Q16	6	12.0%	44	88.0%	50	100.0%
Q17	23	46.0%	27	54.0%	50	100.0%
Q18	16	32.0%	34	68.0%	50	100.0%
Q19	40	80.0%	10	20.0%	50	100.0%
Q20	6	12.0%	44	88.0%	50	100.0%

Figure 1: Shows knowledge and experience on tele-rehabilitation



On tele-rehabilitation effectiveness 74.0% of participants reported positively and 56.0% agreed that it provides comprehensive sessions. 56.0% agrees that tele-rehabilitation provide comprehensive sessions, 88.0% disagreed that rapport-building is difficult when compared to face-to-face session, 70.0% believes that tele-rehabilitation is not effective for toddlers. 80.0% agrees that tele-rehabilitation is not effective for hyperactive children, 52.0% responds that telerehabilitation is not adversely affecting on pre-

linguistic skills, 60.0% disagreed for the obsession on screening time during tele-rehabilitation. 68.0% disagreed on requirement of more assistance needed during tele-sessions, 84.0% agrees that more assistance is needed during tele rehabilitation, 94.0% agrees that parent/care-takers involvement is important in tele-session, 96.0% agrees that child's response varies in absence of parents/ caregiver, 62.0% agreed that parents are concerned on screen time in tele-session. 54.0% disagreed that parents are not finding hard to follow instructions during

tele-session, 82.0% agrees that children are not finding hard to follow instructions in tele-sessions, 60.0% accepts that parents are not satisfied with tele-rehabilitation, 88.0% agrees that involvement of parents/care-takers is important, 54.0% accepts that tele-rehabilitation adversely affecting pragmatic skills of children with communication disorders.

68.0% agrees that tele-rehabilitation is helping to improve communication skills, 80.0% of professionals does not prefer for tele-practice over onsite therapy and 88.0% accepts that awareness of tele-rehabilitation is increasing amongst people.

Table 2: Explain significance outcomes on knowledge of tele-rehabilitation

	Yes		Testing a proportion =0		
	Count	Row N %	Z value	p	
Q1	37	74.0%	11.9	0.000	HS
Q2	28	56.0%	8.0	0.000	HS
Q3	6	12.0%	2.6	0.012	sig
Q4	15	30.0%	4.6	0.000	HS
Q5	10	20.0%	3.5	0.001	HS
Q6	24	48.0%	6.8	0.000	HS
Q7	20	40.0%	5.8	0.000	HS
Q8	16	32.0%	4.9	0.000	HS
Q9	42	84.0%	16.2	0.000	HS
Q10	47	94.0%	28.0	0.000	HS
Q11	48	96.0%	34.6	0.000	HS
Q12	31	62.0%	9.0	0.000	HS
Q13	23	46.0%	6.5	0.000	HS
Q14	41	82.0%	15.1	0.000	HS
Q15	20	40.0%	5.8	0.000	HS
Q16	44	88.0%	19.1	0.000	HS
Q17	27	54.0%	7.7	0.000	HS
Q18	34	68.0%	10.3	0.000	HS
Q19	10	20.0%	3.5	0.001	HS
Q20	44	88.0%	19.1	0.000	HS

The likelihood ratio test was used to find significant differences of tele-rehabilitation among speech language professions. There was a significant difference ($p < 0.05$) for the questions like, do you think rapport-building is easier in telerehabilitation? Is tele-rehabilitation effective for hyper-active children? Do you prefer tele-practice over onsite therapy? With the experience on efficacy of tele-rehabilitation. Other questions show no significant differences.

DISCUSSION

Study aimed to examine that teletherapy allows for patient centered care in their natural environment, thereby maximizing therapeutic benefits and facilitating rapid intervention throughout the course of the disorder. The continued development of technology will lead to the advent of more

sophisticated applications for the effective assessment and treatment of communication disorders as well as improving the quality of life of in the society.

Further development of such applications and other computer-based therapies, cost-benefit and cost-effectiveness analyses, and professional education are needed if telerehabilitation is to become an integral part of speech-language pathology practice.

CONCLUSION

The current study, conducted using a self-assessment questionnaire, explores the status of telerehabilitation in the field of speech-language pathology and the challenges that speech-language pathologists face during telerehabilitation, and the benefits of telerehabilitation in speech pathology.

The study concluded that future trials should compare tele-rehabilitation interventions to well

described evidence-based face-to-face interventions and document their cost-effectiveness and directed the study of technical issues, and personal issues encountered during telerehabilitation services specifically pertaining to specific communication disorders in children.

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