

The Content and Structure of Tele-physiotherapy module (i-TelePT) for the management of children with Cerebral Palsy in an inclusive educational settings: A Qualitative Study

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Abstract

Background: Preliminary evidence showed that school-based therapeutic interventions as related services implemented by special educators under supervision of therapists proclaims effectiveness to prevent physical ailments in Cerebral Palsy children. Apparently, barriers addressed by special educators in delivering physiotherapy services hinder the progress of children in curricular & co-curricular activities. Assuming the barriers, special educators intercepted about substitutive technological therapeutic approach delineating content and module of novelty in terms of inclusive Telephysiotherapy (i-TelePT) to combat physical ailments in educational settings.

Purpose: To develop content and structure of i-TelePT module for treatment and monitoring the physical impairments in children with brain disorder i.e C.P through focus group discussions.

Method: Two FGDs (offline & online) were conducted with special educators. Inqualitative focus group study, a total of ten same special educators were invited for both face to face and online FGDs to gather an in-depth understanding of the rehabilitation needs of the children with CP in the inclusive educational settings using a semi-structured question sheet. The entire sessions of FGD were audiotaped in face to face and recorded via zoom app in online FGD and after that transcribed, coded and analyzed employing a thematic analysis model.

Results: The FGDs highlights the dynamic implications of module development of Tele-physiotherapy for CP children in educational settings and this system of technology seems to be more expressive towards fulfilling the need of children as well as special educators and even therapists who cannot regularly visit such children and deliver services.

Conclusion: Undertaking evaluative work of Tele-physiotherapy reflects our pledge and enthusiasm to build a module for such Cerebral Palsy children in school settings pointing to both educational and therapeutic concerns.

Keywords: Tele-physiotherapy, Special educator, Cerebral palsy, Educational settings.

INTRODUCTION

Cerebral Palsy (CP) is a non-progressive group of disorders that frequently lead to motor deficits induced by neonate's brain injuries(1). Children with CP encounter various physical impairments such as poor posture, balance, gait deviations affecting functional abilities and participation restriction in the society(2). According to the Right to Education Act 2009, the Indian Government insisted that every differently-abled child should be educated in inclusive educational settings. However, the physical impairments hinder the children from participating in curricular and co-curricular activities in the school environment(3,4). The literature reported that neurological impairments improve when these children participate in various school-level activities with other normal children(5,6). Alternatively, special educators play a significant role in a proper sitting posture, hand grip for writing strategies to improve the fine and gross motor skills in the classroom. Despite these special educators make individualized education plans (IEP) for CP children, but have limited hands-on techniques for delivering therapeutics exercises(7,8).

The physiotherapists are the key members of community-based rehabilitation(CBR) who provide training and skills sharing to special educators for the management of physical disabilities of children with CP. However, this training lacks quality services such as detailed physical assessment, execution of the therapeutic exercise and periodic monitoring of the physical impairments(9).

In recent years, the exponential expansion of cybernetics & information and communication technology (ICT) provides a platform to deliver rehabilitation services via the internet(10). Tele-physiotherapy is a subset of telemedicine employed to deliver physiotherapy services through ICT(11). Literature reported internet-based services of occupational, physical and speech therapists have been demonstrated to improve the motor and coordination impairments, posture, strength and handwriting problems amidst differently abled children in school settings(12). In addition, it has been noticed that TR intervention could certainly be expanded to areas of cognitive problems, learning disability(LD), autism spectrum disorder(ASD), speech & language impairments and other visuomotor disorders which are important for success in academics for little kids with limited capabilities in school environments(13,14). However, there is no such structure currently available to empower the special educators to cater the effective physiotherapy services under the supervision of physiotherapists in educational settings. To develop a new i-TelePT module, it is imperative to evaluate the need for such services among end-users i.e. the special educators. Therefore, this study aimed to determine the need, content and structure of i-TelePT module for the management of physical impairments in children with CP in educational settings.

METHODOLOGY

Study design

A Qualitative, exploratory focus group approach was applied to gather an in-depth understanding of special educator's perceptions about i-TelePT. The present study was enumerated employing consolidated criteria for reporting qualitative research (COREQ) items(15).

Study sample

In total, two FGDs: one face to face and other online via zoom application were conducted with all 10 participants (9 females and 1 male) as special educators with mean age (35.4 ± 3.9) yearshaving at least two years of experience, engaged in different educational blocks of Mandi district, Himachal Pradesh. A convenient sampling strategy was adopted to enable inclusion of all special educators labouring with CP in the school context(16).

PROCEDURE

Ethical approval

The research study was affirmed and consented by the ethical review board of Lovely Professional University, Punjab with ethical clearance number LPU/IEC/2019/01/09.

Participants and recruitments

Special educators were recruited based on CP children in their educational blocks via email asking permission to be constituent of the discussion. The individual consent form was consigned containing information regarding FGDs for inviting all special educators by email flyers and sample size of special educators for FGDs was fixed as shown in figure 1.

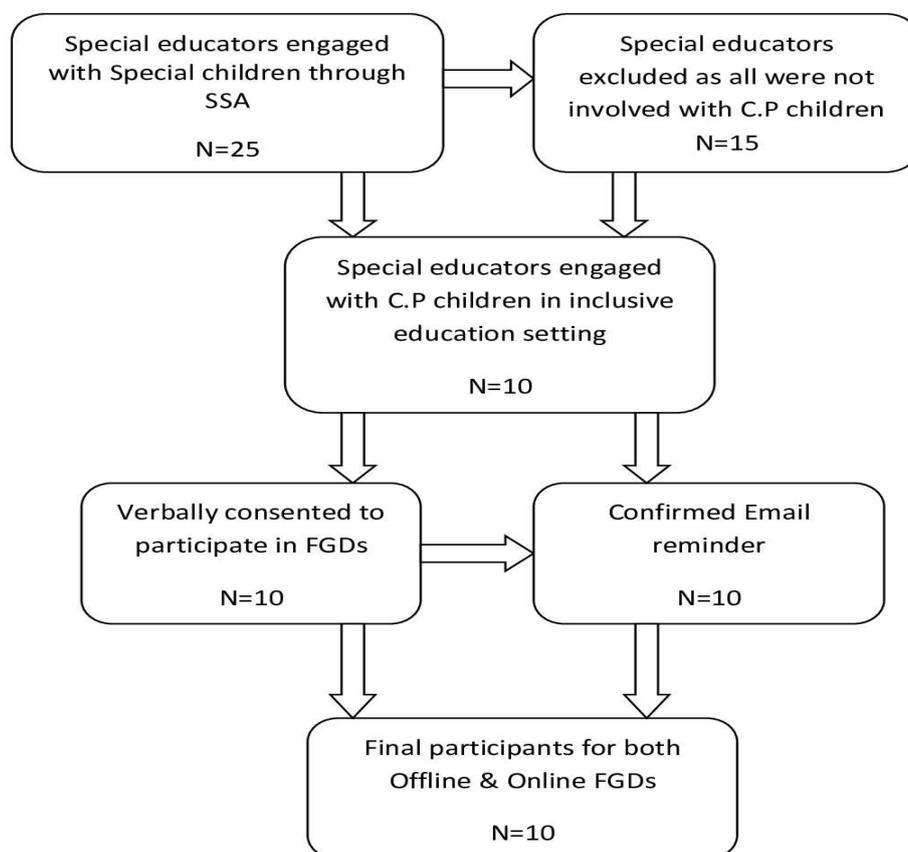


Figure 1. Sample size flowchart of FGDs

After receiving consent confirmation from special educators, the date with time and venue was fixed in face to face discussion however in online discussion, participants were encouraged to participate from their home or workplace and asked to log on before scheduled start of focus group discussion to allow time to calibrate microphones and cameras. Participants were renamed with P1 to P10 as similar to first focus group discussion.

Data collection

The present focus groups were executed based on four fundamental steps: Planning, Recruiting, Moderating, Analysing and Reporting(17). In each session of both FGDs, the facilitator sought opinions of participants concerning six questions based on the guided discussion format to collect notes. All participants responded and made their perceptions in response to questions guide for FGDs in Table 1.

Table 1. FGD Questions guide

S.N	Questions guide as key issues for focus group discussion
1	<i>Role of special educators in handling C.P child ?</i>
2	<i>Cerebral palsy children and their treatment?</i>
3	<i>Communication with C.P children and parents through technology ?</i>
4	<i>Understanding about the Telephysiotherapy for C.P children?</i>
5	<i>Telephysiotherapy Structure?</i>

Moderation of all groups was conducted by same person(PK) with an effort made to keep the style of moderation similar in both online and offline FGDs. The ICT manager handled tape recorders and videography of the whole session lasted for approximately two hours(18). The online FGD ran for approximately 1 hr 30 minutes as some time was allocated at the beginning of the online FGD to provide a brief tutorial on using some of features of zoom application.

Data Analysis

Thematic content analysis was used for the investigation of information collected during FGDs(19). The audiotapes of FGD were transcribed in hindi language and then handwritten transcripts converted from hindi to english language into electronic format via microsoft word and later on data was migrated to microsoft excel worksheets generating columns consisting of all comments. The transcripts were qualitatively assessed and analyzed by the facilitator and other researchers not involved in the study(20). Through analyzing, each response was labeled and coded which were later on categorized with themes and subthemes(21).

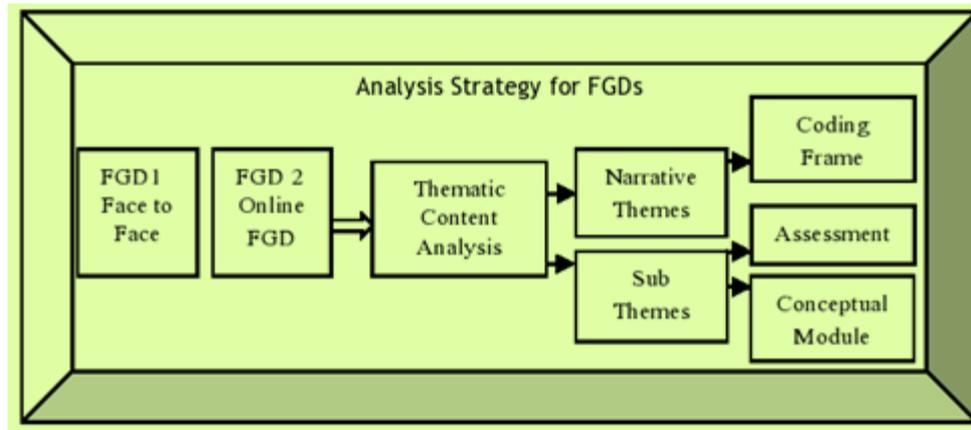


Figure 2. Analysis strategy for FGDs

RESULTS

The mean experiences of all 10 study participants were 8.55 ± 2.24 years and all participants were posted in different educational blocks of Dist. Mandi, H.P enlisted in Table 2.

Table 2. The demographic characteristics of the special educators colluded in the study

S.NO	Participant Codes	Gender	Age	Educational blocks (Mandi, H.P)	Experience (Years)
1	P1	F	34	Sundernagar	8
2	P2	F	33	Karsog	6
3	P3	M	36	Balh	8
4	P4	F	40	Gohar	8
5	P5	F	31	Gopalpur-1	8
6	P6	F	32	Sundernagar	8
7	P7	F	36	Sadar Mandi	8.5
8	P8	F	44	Sundernagar	15
9	P9	F	34	Sundernagar-1	8
10	P10	F	34	Janjheli	8

The results were organized into six themes which relates to COREQ model and were elaborated in focus group discussions. Under each theme, results are presented in a way that corresponds to the questions asked from special educators.

Theme one: Roles and responsibility of special educators

Cerebral palsy children can be coped and supported within classes and school settings by providing a barrier-free environment with good infrastructure, assisting them in providing mobility aids like wheelchairs. As noticed by a special educator who participated in FGD:

“We require barrier-free environment or wheelchair or some adaptive devices to move them up and down properly”

Theme two: Teachers knowledge, understanding and skills

Participant speaks about workshop related to Cerebral palsy & its causes and treatment in focus group discussion as:

“Sir, as the name depicts, cerebral palsy means part of brain i.e. cerebrum, in that part, there is some damage or something any problem like that in the brain so

occurs cerebral palsy, i.e. Paralysis of and child not able to walk Um.

Theme three: Access to physiotherapy as related services in inclusive education settings

As a part of related services, one of participant focused on some advice regarding positioning of child and delivering some therapeutic services and discarding some sitting positions as:

“Initially, we deny w-witting to such children who have adopted this position and advice not to have such sitting.”

“We ask to do beads activity for the fine motor of these children; we perform stretching of fingers so that writing could be better, give a smiley ball.”

Theme four: Hindrance in rehabilitation services and commencing novelty in terms of treatment for CP children

Special educators were very keen to commence some novelty in treatment because therapeutic camps organized at schools not benefitting much and it becomes very difficult to take the child to rehabilitation centres and poor geographical conditions of Himachal Pradesh described as:

“All the children are not benefitted and for a camp, you can’t describe everything in a one-day event to all such children and even that could not reach over there keeping in mind the geographical condition of ours.”

Theme five: Ranges of technology modes for physiotherapy

From point of view of Special educators, physiotherapy could be delivered through tablets, android phones through video calling by using the internet facility. A female participant discussing and speaking about tele-physiotherapy as:

“This physiotherapy can be delivered through the phone, smartphone and Google also. There are some software in mobiles”

“Sir, this tele-physiotherapy would be very effective for C.P. children, either it's an offline or online mode based on the distance of school (15 Kms) from home because our main aim is to give benefitHm to children, video offline or online.”

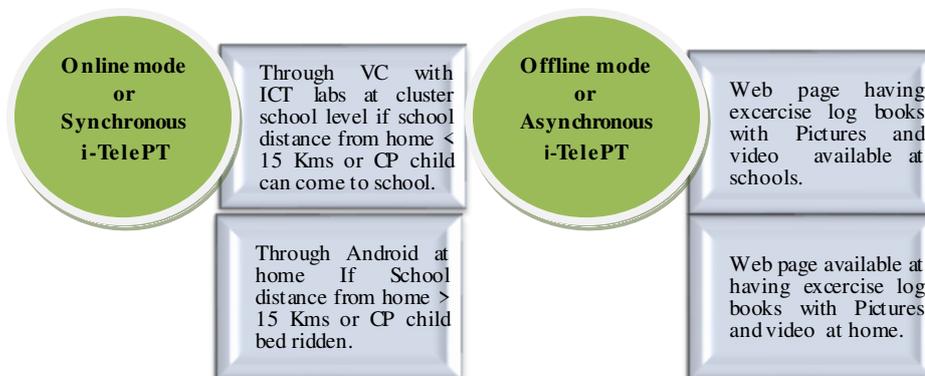


Figure 3. Simplified module of i-TelePT in educational settings

Theme Six: Delivery of Tele-physiotherapy through ICT labs in school settings

This tele-physiotherapy could be conducted at cluster level of all educational blocks for CP children involving zonal primary schools in the centre as there are 4-5 schools at block levels in Mandi as told by one of the male participants;

“Every Senior Secondary School has its ICT Labs with free Wi-Fi available and we can easily use it for all children at the central level.” Tele-physiotherapy is very good and should be there only where ICT labs exist in schools.”



Figure 4. Fabrication of School Central Cluster Level (SCCL) Model

DISCUSSION

The present qualitative study builds on six themes based on experiences and perceptions of special educators to develop content and structure of the novel i-TelePT module in school settings. Addressing the role, special educators manage C.P children by providing a barrier-free environment in schools and arrange mobility devices like wheelchairs, CP chair, counsel about correct posture, positioning along with simple exercises to parents regarding their child. Comprehensively a study conducted by Yasin et al, (2010) emphasized the role of special educators in the specific school infrastructure to provide a barrier-free environment for easy wheelchair access and a comfortable classroom with appropriate safety measures should be considered (22).

Discussing knowledge & skills, all special educators are qualified regarding all disabilities along with C.P affiliated by the Rehabilitation Council of India (RCI) with experience of nearly 8 years. Time to time, all special educators attend various Continuing Rehabilitation Education (CRE) programmes of 3-5 days conducted by Government institutions for upgrading curriculum skills to address the issues related to CP and its management. Supporting the above point, the Ministry of Social Justice & Empowerment and Ministry of Human Resource Development, Government of India create an environment that provides a better quality of life in terms of equal opportunities and effective access to rehabilitation measures of differently abled children (23). However, the special educators acknowledged some limitations regarding the scarcity of therapists, inaccessible buildings, environmental factors, hence cannot do all such children due to encumbering conditions. Validating this, the educators would need to be provided intensive training to work with various disabilities (24,25). Elaborating their experiences in FGDs, all educators shared in detail about CP, its causes and management techniques taught in their diploma course both theoretically and practically which could be implemented to treat and manage such CP children in school settings. This concurs with the comprehensive course structure developed

by RCI fulfilling the various curricular and therapeutic approach of special educators for children with CP to compensate for their needs in the class and school environment(26).

Conferring about related services, participants specifically detailed about analogous therapeutic services which they deliver under supervision in school settings keeping in mind the individualized therapeutic and educational need of the child. These consequences are quite similar to the findings as Xiaoli XU, Olli-Pekka M (2015) pointing out supplemental related services provided by special educators in inclusive school settings reinforcing the theme access to physiotherapy as related services in inclusive education settings(27). However all these related activities are delivered as a part of inclusive education, the educators often find difficulty in dealing and providing services to such children due to overburdening of school administrative work that hurdles their responsibilities towards CP children. Concluding all, the special educators are qualified rehabilitation professionals with good knowledge of CP and ability to impart therapeutic services to children under the auspices of the therapist and address physical impairments in educational settings.

Describing about the hindrance in rehabilitation services, special educators comprehensively acknowledged that children are not getting benefitted enough by therapeutic centres as it becomes very hellacious to take children to rehabilitation centers keeping in mind the poor geographical conditions. Moreover, other challenges like poverty, poor transportation facilities and remoteness pose obstacles in keeping the children away from receiving regular therapy sessions. Substantively, special educators were very keen to commence some newness under technology and expressed their dire need to develop new concepts for the management of children with C.P in educational settings.

Talking about the novel technology, special educators consistently voiced enthusiasm on video calling methods through android smartphones, ICT labs and insisted on Telephysiotherapy for CP children in school set up postulated as inclusive Telephysiotherapy (i-TelePT). Participants in the study remarkably assured that Telephysiotherapy could be empowering if implemented with due permission from school authorities. Promoting the originality and oddity in therapeutics, a study conducted by Sara Benham (2017) displayed that therapy delivered to CP children via tele-rehabilitation may be a promising delivery model of services for ameliorating motor skills in children(28). This study advocates the views of special educators that Telephysiotherapy a subset of tele-rehabilitation could be gratifying for such children.

Affirming with contents and structure of inclusive Tele-physiotherapy, it was suggested that it could be operated by clubbing 4-5 schools of particular educational blocks having CP children and setting up a central school cluster level with ICT lab with Wi-Fi facility. Telephysiotherapy could be commenced weekly in two ways as online and offline modes. Firstly, in the online system, the CP children of different educational blocks in District Mandi residing within 15 Kms distance from school and who can come to cluster-level school can avail the benefit of videoconferencing (VC) system. VC based physiotherapy will be performed in cluster central level school settings at a rate of one session per week. Children with C.P will undergo an exercise programme of about one hour at school under supervision of a special educator present in the school and remotely by physiotherapists. Furthermore in the online system, CP children of the different educational block whose school distance from

home is more than 15 Kms or are bedridden due to severe physical impairments and disabilities, the special educators of that block will visit that particular child at home and will communicate with a therapist through video calling on WhatsApp using smart phone and will implement individually designed therapeutic plan for a duration of 1 hour.

On the contrary, an offline mode is also a good option where designed protocols, record of exercises and logbooks of CP children can be stored and maintained by using web pages by the care providers. CP children, their parents and special educators can visit the web page by logging in and go through pictures or demonstrated videos particularly designed for such CP children. Aiding the technology, a study executed by Drigas A & Petrova A (2014) exposed that ICT has catalyzed as assistive tools for therapists in assessing and intervention purposes in remote areas (29,30). The present finding of participants reveals that ICT labs could be good options at the cluster school level to furnish physiotherapeutic services.

This study is one of the few qualitative studies embracing special educator's perceptions towards the need, content and structure of the i-TelePT module to alleviate physical impairments in CP children in educational settings. Utilizing special educator's skills and experience as pivotal in the Telephysiotherapy structure will boost therapeutic culture at the school level in the future.

LIMITATIONS

The particular FGDs were limited to only one kind of population of disability i.e. CP and in only one district of Himachal Pradesh, India. In terms of future perspectives through all over world, more qualitative studies could be conducted with special educators for other 20 Disabilities as enlisted in the revised Rights of Persons with Disability act (RPWD ACT) (31).

CONCLUSION

A common denominator of views expressed by all special educators revealed positive perceptions about the practice of handling CP children, provision of related services, and management of CP children in school settings and relatively less knowledge on the understanding of Tele-physiotherapy structure. However, participants showed a curiosity about the contents and structure of this novel technological model to be implemented in such educational settings to limit down the impairments and to access their normal education in an inclusive environment.

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CONFLICT OF INTEREST

There are no conflicts of interest to share and no competing financial interests exist.

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