

Perception of massage application among clinicians and parents in spastic cerebral palsy: Qualitative study

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Abstract

Objective: To explore the perceptions about traditional massage and its modified techniques among clinicians and families of the patients with spastic cerebral palsy.

Method: The qualitative, cross-sectional study was conducted from November 2019 to August 2020 in Sialkot, Pakistan, after approval from the ethics review committee of Riphah College of Rehabilitation Sciences, Islamabad, and comprised neuro paediatricians and paediatricians in Group A, parents of children with spastic cerebral palsy aged 8-15 years in Group B, and musculoskeletal physiotherapists and orthopaedic manual physical therapists in Group C. The professionals in groups A and C had a minimum of 5-year paediatric experience in government and teaching hospitals. Data was collected using a semi-structured pilot-tested questionnaire. Qualitative approach and thematic code analysis was used to analyse the collected data.

Results: Of the 26 subjects, 10(38.5%) were in Group A, 8(30.7%) in Group B and 8(30.7%) in Group C. Overall, there were 16(61.4%) males and 10(38.5%) females. Among the professionals, experience ranged 5-38 years in Group A, and 5-9 years in Group C. The identified themes were reforms in recommendations, and application of massage techniques, with the participants overwhelmingly favouring termination markers to prevent increase in hypertonicity in spastic cerebral palsy.

Conclusion: Termination markers of massage should be considered in interventions to improve outcomes in children with spastic cerebral palsy.

Keywords: Cerebral palsy, Massage therapy, Perception, Swiss massage, Spasticity. (JPMA 72: 1086; 2022)

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Introduction

The documented prevalence rate of cerebral palsy (CP) is 1.5 to 4 per 1,000 live births.¹ In Pakistan, it was 1.22/1000 births reported in Swabi.² Spastic CP (SCP) affects 70-75% of the cases.^{3,4} It is caused by multiple gestational risk factors.⁵ It effects cognition impairment, behavioural changes, hyperreflexia and activity limitations ending up with musculoskeletal malformations.⁶ Management options in practice include maximising the functional potentials of the affected child. One such intervention being traditionally practised is massage with a variety of techniques,⁷ such as Swedish massage,⁸ deep friction massage,⁹ traditional Thai massage,¹⁰ Qigong massage¹¹ etc. Clinical evidence supporting the effectiveness of massage intervention is inconclusive and weak.¹² Dissension in opinions among clinicians exists regarding the biological plausibility of massage in the management of hypertonicity, requiring more investigation before it may be considered the treatment of choice.¹³

The current study was planned to explore the perceptions

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about traditional massage and its modified techniques among clinicians and families of the patients with SCP.

Subjects and Methods

The qualitative, cross-sectional study was conducted from November 2019 to August 2020 in Sialkot, Pakistan, after approval from the ethics review committee of Riphah College of Rehabilitation Sciences (RCRS), Islamabad, and comprised neuro paediatricians and paediatricians in Group A, parents of children with SCP aged 8-15 years in Group B, and musculoskeletal physiotherapists and orthopaedic manual physical therapists in Group C. The sample was raised using purposive sampling technique from the District Headquarters (DHQ) Teaching Hospital, the Children Surgical Hospital, the Imran Idrees Teaching Hospital, and the Government Sardar Begum Teaching Hospital in Sialkot.

Physicians with 5 years of paediatric experience in government and teaching hospitals of Sialkot, physiotherapists with 5 years of experience in CP rehabilitation, musculoskeletal and neuromuscular rehabilitation and orthopaedic manual physical therapy associated with government and teaching hospitals of Sialkot, and parents or guardians of SCP children were

ANNEXURE

Semi-Structured Interview Questionnaire (Group B: Parents).

1. Does your child with cerebral palsy receive massage? If no why, If yes answer the following questions.
2. Who provides the massage?
3. How do you come to know about massage?
4. What are the techniques that you followed for massage to the patient?
5. Which direction do you follow for massage?
6. Which group of muscles do you apply for massage?
7. How often is the massage given (frequency and duration)?
8. How many sessions in a week do you give of massage to your child?
9. Which medium (Medicated Gels/ lubricant) have you used for massage? If no why?
10. What are the outcomes that you have observed?
11. How much do you get satisfied after giving session to your child with massage?
12. If you stopped getting massage for your child, why?

Care Taker and Child Demographics:

Patient Age: _____ Patient Gender: _____
 Care Taker Gender: _____ Family Income: _____
 Care Taker Education: _____

Semi-structured Interview/ Questionnaire (Group A: Physicians).

1. Do you recommend massage for patients of cerebral palsy? If no why?
2. If so, who will be the provider?
3. Which massage techniques do you recommend to patients?
4. Which medium (Medicated Gels/ lubricant) do you recommend to patients for massage?
5. How often is the massage given (frequency and duration)?
6. Any specifications of group muscles to be targeted for massage?
7. Any specification of direction or pattern to be followed for targeted area?
8. When to terminate massage? Any specific Guidelines
9. Why is massage being provided (outcomes on patient's health)?

Demographics:

Age: _____
 Gender: _____
 Experience in the field: _____
 Specialty: _____

Semi-structured Interview/ Questionnaire (Group C: Physiotherapists).**CLINICAL SETTINGS:**

1. For which type of spastic Cerebral palsy patients do you recommend massage?
2. Which massage techniques are in your practice?
3. What are the potential benefits of your recommended techniques?
4. How long a massage session could last?
5. Which groups of muscles are being targeted?
6. What is the frequency, duration and in which direction targeted muscles you prefer to apply massage?
7. What do you prefer oil/ medicated gel medium for massage sessions and why?
8. In case of termination to the treatment what are your assessments with patients?

GUIDELINES FOR HOME FOLLOW UPS:

9. Specify your guidelines (dosage, medium, direction, technique, target muscles, termination) for massage application.
10. What are the believes that you observe regarding use of oil/ medicated gels in patients?
11. What are your clinical observations barriers of massage as home follow ups?

Demographics

Age: _____
 Gender: _____
 Experience in the field: _____
 Specialty: _____

included. Patients' medical record evaluated by either a paediatrician or a child neurologist regarding SCP diagnosis were also accessed. were included.

Those with comorbid conditions, like stress or secondary disorders associated with SCP, those not willing to share the medical record and those with impaired hearing were excluded.

Written informed consent was taken from all the study subjects.

The final versions of the questionnaires were cross-verified by the RCRS committee and were piloted with 3 participants; one from each group. This led to minor changes specifying more guidelines about home follow-ups and ensuring open-ended questions. The questionnaire meant for the parents was translated in Urdu. Interviews were conducted as one-to-one interactions and were audio-recorded. The length of all semi-structured interviews ranged 19-60 minutes in both pilot and actual study. An interview guide (Table-1) was designed in the light of literature.¹³ During and after an interview, field notes were taken which were utilised in coding the recorded data and to identify themes later. To explore their views, different clinical skills were employed, including reflective listening and empathising, to encourage their discourse about the target content. Probing queries were used to investigate issues more in detail where required. Participants were encouraged to answer the questions repeatedly in areas where the content needed to have detailed clarity, and to understand their explanatory views.

Despite the clearly explained questionnaire items in simple language, the transcripts were cross-checked by the participants after the interview and field notes to avoid any bias and cultural variation in language. Following each semi-structured interview, the CP child's

Table-1: Main sections of the interview guide.

Recommendations about massage

Probe: "I would like to know your observations....."

Understanding of massage techniques

Probes: "I would prefer to know how you apply it, which medium are you using for how long "

Termination of massage

Probe: "I would like to find out what important changings you watched for"

Outcomes of massage

Probe: "I am very much interested in knowing your experiences. Has massage done things good or bad things to your patient/child?"

medical record was reviewed. The collected data included diagnosis, health-related information and Gross Motor Functional Classification System (GMFCS) scoring which is a measure of classification for ambulatory severity.¹⁴

Transcripts were imported to MAXQDA.2020 software to manage and analyse qualitative data.¹⁵ Thematic code analysis was conducted following the steps described in literature,¹⁶ which included familiarization with the data for analysis by assigning preliminary codes to the data to describe the content, sorting codes into themes, which is interpretation of the codes, searching for patterns/themes in the assigned codes across the various interviews, and reviewing the themes to produce the report. Preliminary themes and conclusions were reviewed by two senior physiotherapists to minimise the chance of biasness in understanding the content from a single perspective. Besides, a physician, a parent and a physiotherapist were invited to review the themes and transcripts. The themes were revised throughout on audit trail in MAXQDA before producing the final outcome.

Results

Of the 26 subjects, 10(38.5%) were in Group A, 8(30.7%) in Group B and 8(30.7%) in Group C. Overall, there were 16(61.4%) males and 10(38.5%) females. Among the professionals, experience ranged 5-38 years in Group A, and 5-9 years in Group C (Tables-2, 3).

Table-2: Demographics of participants in Group A and Group C.

Participants	Age (Years)	Gender	Experience (Years)	Speciality
Group A: Physicians Characteristics				
Participant 1	65	Male	35	Neuro paediatrician
Participant 2	33	Female	6	Paediatrician
Participant 3	35	Male	5	Paediatrician
Participant 4	36	Male	6	Paediatrician
Participant 5	55	Male	20	Neuro paediatrician
Participant 6	59	Male	38	Paediatrician
Participant 7	39	Female	7	Paediatrician
Participant 8	59	Male	26	Paediatrician
Participant 9	48	Male	12	Neuro paediatrician
Participant 10	39	Female	8	Paediatrician
Group C: Physiotherapists Characteristics				
Participant 1	35	Male	6	Musculoskeletal
Participant 2	32	Female	5	Musculoskeletal
Participant 3	36	Male	8	Orthopaedic
Participant 4	38	Male	9	Musculoskeletal
Participant 5	37	Female	7	Orthopaedic
Participant 6	35	Male	6	Musculoskeletal
Participant 7	36	Male	7	Orthopaedic
Participant 8	37	Male	9	Musculoskeletal

Table-3: Characteristics of children with spastic cerebral palsy (SCP).

Group B	Patient age (Years)	Gender	GMFCS Level
Participant 1	9	Female	II
Participant 2	11	Female	IV
Participant 3	8	Male	I
Participant 4	11	Female	II
Participant 5	13	Male	IV
Participant 6	14	Male	I
Participant 7	15	Female	II
Participant 8	12	Female	II

GMFCS: Gross motor function classification system.

Identified themes were reforms in recommendations, and application of massage techniques.

Regarding the first theme, 4(40%) physicians said CP demands extensive care throughout the life of a patient and may lead to fatal conditions. One participant said,

"CP children usually present at such a stage where they have other co-morbidities..."

In Group A, 6: 6 - 6, the theme deduced that patient mostly visit hospitals in terms of major fall in health condition. Maintaining medical coverage for CP child in most cases was financial burden on families with low socio-economic status (SES); home follow-ups of mobility routine satisfies psychological needs of patients. Besides, 6(60%) physicians contradict massage, observing it as an unsupervised application aggressive in manner done at home. A physician said: *"... condition gets worse in the form of hypersensitive skin, allergic reactions sometimes to mixture of oils, seeds, and above all rough handling of bed-*

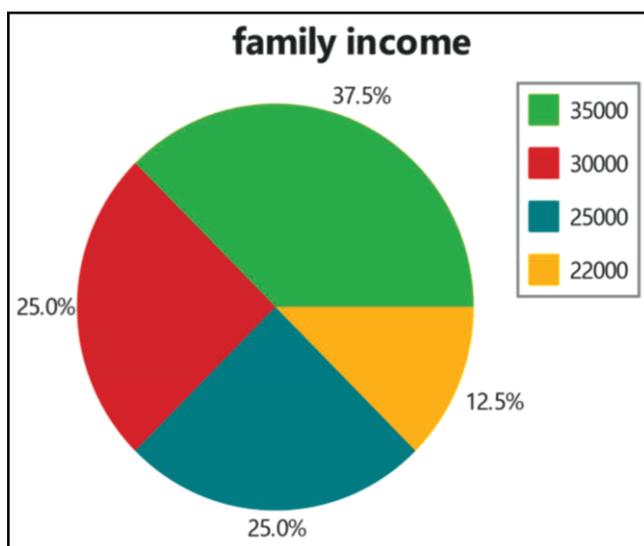


Figure: Group B family income.

ridden patients."

Also in Group A, 8: 7 - 7, it was deduced that massage without any clinical supervision results in increased spasticity was harmful, and applying non-tested lubricants caused adverse effects as skin reactions.

Group B discussed various sources they came to know about massage, 2 of the participants said doctor trained the attendant, 6(75%) interviewees got to know about it from other's experiences. *"Neighbours told us they have such a baby in their daughter-in-law's family ... her mother massaged him with olive oil ...,"* a participant said.

Group B 1: 11 - 11 also reflected lack of awareness related to sensory and behavioural markers which made the CP child sensitive to touch, stranger anxiety and non-cooperative attitude. In the Group C, 3(37.5%) physiotherapists said massage techniques were preferably applied on athetoid and diplegic types of CP. *"...Athetoid CP is most preferred..."*, one observed.

"... I mostly prefer to involve children in an active technique because somehow patient's muscles are already weaker...", said another.

Achieving restoration of mobility to masked hypertonicity was more goal-oriented in spasticity. In Group C, 5(62.5%) physiotherapists reported that massage sessions at home were not supervised like in clinical setting. Positioning, stretching, involving CP children into active and playful techniques, neurodevelopmental techniques in contrast to massage for CP showed more benefits.

Also, 6(75%) professional reported that most were not following a single practice. *"... some quoted distal to proximal who were once guided by the doctor, some say circular..."*, one professional said.

In Group A-, it was inferred that physicians explained massage was not the treatment of choice for muscles with increased tension. Most physicians 8(80%) highlighted that signs leading to termination of massage were to be observed very keenly. Physicians described these indications as un-comfortability with tactile stimuli, declining mobility with increased muscle guarding, and no restoration of flexibility. They also said that CP patients mostly got admitted on co-morbidity flare-ups, so these assessments were missed and undue tapering off lead to increase in spasticity with massage. A participant said: *"... parents were considering high tonicity as a symbol of strength in the affected child and they were very hopeful he can walk in the future..."*.

Also in Group A, physicians said that in their observation,

applied pressure with massage was always an area of concern. CP child seldom provides you gesture of discomfort and pain which contributes to fatal effects, like increase in spasticity. In Group B, 5(62.5%) parents reported adverse results after massage with the applied mediums as home remedy. A participant said: *"...I'm scared of that red hot area on her back. Maybe her skin is reacting adversely..."*.

Also, 3(37.5%) parents said their CP child felt relaxed and his sleep quality improved with massaging. They described it as relaxation which had a prompt effect on their CP child and that was more appealing to them. One participant said: *"Doing something extra for your child is always satisfying..."*

In Group C, 3(37.5%) physiotherapists reported the Swedish technique as the most common in their clinical practice. Target muscles depend on the CP severity with which a patient presented. A participant said: *"Swedish ... I found the results very beneficial in my practice..."*.

Also in Group C, it was inferred that achieving restoration of mobility to masked hypertonicity was more goal-oriented with clinically supervised application of massage in such CP types. Muscle flexibility, gain in ranges of motion (ROMs), prevention of decubitus sores due to prolonged immobility in severe CP manifestation and preventing muscle disuse atrophies were the potential benefits.

Discussion

Exploring differences and congruency among the physicians suggested massage was meant for patient satisfaction only. Deploring of massages among the physicians was due to its aggressive application by untrained attendants at home. The results show that non-tested lubricants lead to skin allergic reactions in CP children. Physiotherapists believed massage was for the diplegic and athetoid types with the primary goal being to restore mobility. Similar results have been found earlier.¹⁷ The current study inferred that the Swedish technique was common in practice among physiotherapists. The technique was also reported earlier as having significant therapeutic effects.¹⁸ The current study showed techniques involving active participation of the patient, and neurodevelopmental approaches were more effective compared to massage. Similar results were reported earlier.¹⁹ Physiotherapists in the current study also described sustained stretching with active involvement was useful in overcoming the hypertonic weakness of the muscles. This is in line with literature.²⁰ The current study showed that active participation of CP child as in playful activities

effectively decreased spasticity. This was reported earlier as well.²¹ In line with a previous study,²² the current study also found that working on active and dynamic postures of the child promoted muscular control and central alignment. The parents in the current study said sleep quality improved in the CP child with massage and it brought satisfaction to them, as parents, that they were doing something extra for their child. This has been reported by an earlier study as well.²³

The current study showed that the termination of massage was the most ignored part. The reason could be that 80% physicians in the current study reported that regular assessments of CP child was missed, and they were not followed up accordingly. CP children were mostly neglected because of the financial burden of health service coverage. Hallmarks of massage termination are apparent when the child is no more comfortable with tactile stimuli, mobility of joints begins to decline with muscle guarding, and muscle flexibility no more gets restored. Among the physiotherapists, 37.5% reported gestures described as non-verbal cues of pain, level of discomfort and resilient behaviour of child as terminator of massage in CP child. Tapering off massage was necessary as bodily reflex system became more protective with continuous stimuli. Regular assessment and feedback from the patient could overcome the barrier of distant communication.

The findings of the study were confined to a specific government and teaching hospitals of Sialkot. Semi-structured interviews were telephonically recorded owing to the coronavirus disease-2019 (COVID-19) pandemic. Dragging the semi-structured interviews to the actual point of concern and interpreting a large volume of qualitative data was challenging.

Conclusion

Health experts should consider the findings addressing termination markers of massage. Techniques involving the active participation of CP child must be considered to improve functional outcomes in CP children.

Disclaimer: The text is based on an academic thesis.

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