

## Original Research Article

**Awareness of Post-Polio Syndrome amongst Physiotherapists in Gujarat, India**Srishti Sanat Sharma<sup>1</sup>, Megha Sandeep Sheth<sup>2</sup><sup>1</sup>Lecturer, CM Patel College of Physiotherapy, Gandhinagar, India<sup>2</sup>Lecturer, SBB College of Physiotherapy, VS General Hospital, Ahmedabad, India**\*Corresponding author**

Srishti Sanat Sharma

Email: [srishtisharma22@gmail.com](mailto:srishtisharma22@gmail.com)

**Abstract:** Post-polio syndrome (PPS) refers to a clinical disorder affecting polio survivors with sequel years after the initial polio attack. Prevalence of PPS among polio survivors is 86% in Gujarat, commonest symptoms being difficulty in walking, joint and muscle pain, muscle weakness and fatigue. Although these have been identified as common problems in individuals with PPS, very few medical and para-medical professionals are aware of its diagnosis, clinical features and management. Rehabilitation is the mainstay of management in PPS. Hence the need of the study was to determine the awareness of PPS among post-graduate physiotherapy students. A cross-sectional survey was conducted on a convenient sample of 70 post-graduate physiotherapy students studying in Gujarat University. Those willing to participate were assessed for awareness of PPS using a self-constructed questionnaire. Demographic details and area of specialization of the students were noted. Questionnaire consisted of knowledge regarding clinical features, diagnostic criteria, prognosis, medical- surgical management and role of physiotherapy in PPS. Data was analyzed using appropriate statistical tests. 51% of students were found to be aware of the term PPS and out of this, 34% had knowledge about its clinical features, and 27% had knowledge about its management and prognosis, followed by 12% who had knowledge about its diagnosis. Role of physiotherapy was found to be known by 5% students. 51% physiotherapy students are aware of the term PPS, whereas awareness about diagnosis and management of PPS among physiotherapists is less. There is lack of required awareness and knowledge about PPS among physiotherapists, highlighting the need to sensitize them and hence providing quality care and management of subjects with PPS.

**Keywords:** Post-polio syndrome, new muscle weakness, awareness, rehabilitation

**INTRODUCTION**

In the past few years, many polio survivors have experienced late-onset neuromuscular symptoms and decreased functional abilities [1]. After many years of stable functioning, these patients report new musculoskeletal symptoms like fatigue, pain, new and unusual muscular deficits, in healthy muscles as well as deficient muscles initially affected by the poliovirus. These symptoms have been termed Post Poliomyelitis Syndrome (PPS) [2]. The onset of PPS can be slow, spontaneous, or triggered by extraneous factors. PPS is an exclusion diagnosis. There is no diagnostic test for PPS, and the diagnosis is based on a proper clinical workup where all other possible explanations for the new symptoms are ruled out. The existence of PPS has been questioned, but the late effect of poliomyelitis, or PPS, is generally accepted as a defined clinical entity. The term PPS was introduced by Halstead in 1985 to

cover medical, orthopedic and psychological problems possibly or indirectly related to the long-term disability occurring many years after the acute episode. The criteria for PPS were as following:

1. Confirmed history of polio.
2. Partial or fairly complete neurological and functional recovery after the acute episode.
3. Period of at least 15 years with neurological and functional stability
4. Two or more of the following health problems occurring after the stable period: extensive fatigue, muscle and/or joint pain new weakness in muscles previously affected or unaffected, new muscle atrophy, functional loss, cold intolerance.
5. No other medical explanation found.

Halstead revised these criteria in 1991 and added gradual or abrupt onset of new neurogenic

weakness as a necessary criterion for PPS, with or without other co-existing symptoms [3]. Dalakas redefined and narrowed the use of PPS in 1995 with an additional criterion of neurological examination on EMG and/or MRI [4].

Prevalence of PPS among polio survivors is 86% in Gujarat, commonest symptoms being difficulty in walking, joint and muscle pain, muscle weakness and fatigue [5]. No specific treatment is available for PPS and Rehabilitation is considered the mainstay of management with an emphasis on exercise and lifestyle modification. Acute polio is no longer a constant threat to people in the polio free areas of the world, but there are still thousands of polio survivors who are at risk of developing late manifestations of the disease. India, although declared a polio-free country, has had a large number of polio survivors.

Hence, the aim of the present study was to determine the awareness of PPS and the knowledge regarding diagnosis, clinical features, causes, management of PPS along with role of PT management in PPS, using a self constructed questionnaire.

**MATERIALS & METHODOLOGY**

A cross-sectional survey was conducted on a convenient sample of 70 post-graduate physiotherapy students studying in Gujarat University (entry level and exam going). Those willing to participate were assessed for awareness of PPS using a self-constructed questionnaire. Questionnaire was approved by a subject-expert working as an active member in post-polio health international. Questionnaire consisted of knowledge regarding clinical features, diagnostic criteria, prognosis, medical-surgical management and role of physiotherapy in PPS. Demographic details and area of specialization of the students were noted. All participants responded and data of 70 participants was then analyzed.

**STATISTICAL ANALYSIS**

Data was analyzed using SPSS 20.00 and Microsoft Excel 16. Pie-charts and bar graphs were plotted where needed. 8 males and 62 females participated in the study and other demographic details are shown in table 1. Table 2 shows details regarding area of specialization of physiotherapy students. Percentage of following was determined:

1. Knowledge of PPS
2. Clinical features
3. Diagnosis of PPS
4. Causes of PPS

5. Management of PPS
6. Medical role
7. Surgical role
8. Physiotherapy role
9. Prevention of PPS

**RESULTS**

51% of students were found to be aware of the term PPS and out of this, 34% had provided the correct option. i.e. Muscle and joint pain, fatigue and new muscle weakness. Associated symptom of PPS (i.e. Cold intolerance) was known to only 10% students. 12 % had knowledge regarding its diagnosis (i.e. history, clinical assessment and EMG/NCV). Axonal degeneration as the cause of PPS was known to only 5% students. Role of rehabilitation in management of PPS was known to only 27%. Combination of exercises, rest and lifestyle modifications as management of PPS were known to 5% students. PPS can be prevented was reported by 56% students.

**Table 1: Demographic Details**

	CHARACTERISTICS	MEAN ± SD
1.	AGE (In Years)	21.53 ± 2.65
2.	Clinical Experience (In Years)	1.25 ± 0.75
3.	Males (%)	8 (11.43)
4.	Females (%)	62 (88.57)

**Table 2: Area Of Specialisation**

1.	Orthopedics	18
2.	Neurology	18
3.	Cardio-Pulmonary	16
4.	Rehabilitation	18

**DISCUSSION**

In the present study, awareness of PPS was found to be 51% among post-graduate physiotherapy students. Knowledge regarding its clinical features, diagnosis, causes, management and role of physiotherapy was found in 34%, 12%, 5%, 27% and 5% students respectively. Associated symptom of cold intolerance was known to only 10% students. Sheth et al conducted a similar study on medical practitioners and concluded that 61% medical practitioners were aware about the term post-polio syndrome. Awareness about clinical features was 54%, about management 48% with only 32% being aware of the role of rehabilitation in PPS [6]. The findings of our study are much in line with this study, indicating the level of awareness amongst medical professionals in Gujarat. 20% of physiotherapists were aware about the condition, however in present study 51% were found to

be aware suggesting the increasing trend in knowledge about PPS.

A study conducted by the British polio fellowship in 2008 concluded that 55% of general practitioners are unable to diagnose PPS [7]. An article published by Lincolnshire library of post-polio syndrome discussed that there was a need to educate physiotherapists and medical practitioners regarding PPS [8].

A cross-sectional survey of polio survivors in Gujarat state, India, evaluated 72 subjects with PPS. The majority experienced increased or new symptoms and problems in ADL, muscle pain, joint pain, fatigue, atrophy, and difficulties in walking. Muscle pain was reported by 39%, joint pain by 24%, and 37% had both muscle and joint pain. The most common sites of muscular pain were arm, leg and foot musculature, and pain was most in the knee, shoulder and hip joints and joints of lower back and neck. Most of the polio survivors experienced pain since the past 3-5 years, and some complained of pain since 7-10 years. The maximum number had pain during work but got relief by resting, while some had continuous pain. There is a positive correlation between interference in ADL due to pain and intensity of pain [9]. A previous study by same authors concluded that administration of a regular exercise programme can be beneficial to clients with post-polio syndrome. It would be appropriate to give those with distinct impairment in functional capacity an exercise programme along with lifestyle modification. Those who cannot follow an exercise programme can be advised lifestyle modification only [10].

Thus, this study highlights the lack of awareness and knowledge regarding PPS amongst physiotherapists in Gujarat. There are many polio survivors in India who are at a risk of PPS and since rehabilitation is the mainstay of management, it becomes imperative to sensitize masses as well as medical professionals about clinical features, causes, diagnosis as well as management of PPS and hence providing quality care to subjects with PPS.

Future studies can be conducted at national level, surveys can be done including larger pool of physiotherapists i.e. clinicians and academicians. Seminars can be arranged and pre-post research designs can be used to find out the effect of such seminars of knowledge and awareness.

## CONCLUSION

51% physiotherapy students are aware of the term PPS, whereas awareness about diagnosis and management of PPS among physiotherapists is less.

## ACKNOWLEDGEMENT:

Authors would like to acknowledge all the participants for their valuable response.

## CONFLICT OF INTEREST: NONE

## REFERENCES

1. Silver, Julie K. Post-Polio syndrome: A guide for polio survivors and their families. Yale University Press. 2001: 209-211
2. Halstead LS, Rossi CD. New problems in old polio patients: results of a survey of 539 polio survivors. *Orthopedics*. 1985 Jul 1; 8(7):845-50.
3. Halstead LS. Assessment and differential diagnosis for post-polio syndrome. *Orthopedics*. 1991 Nov 1; 14(11):1209-17.
4. Dalakas MC. The post-polio syndrome as an evolved clinical entity. *Annals of the New York Academy of Sciences*. 1995 May 1; 753(1):68-80.
5. Sheth MS, Sharma SS, Jadav R, Ghoghari B, Vyas NJ. Prevalence of Post-Polio Syndrome in Gujarat and the Correlation of Pain and Fatigue with Functioning in Subjects with Post-Polio Syndrome. *Indian Journal of Physiotherapy and Occupational Therapy-An International Journal*. 2014; 8(4):230-5.
6. Sheth MS, Jadav R, Vyas N. Awareness of Post-Polio Syndrome in Medical Practitioners in Ahmedabad – A Cross-Sectional Survey Study. *International Journal of Medical and Health Research*. October 2015; 1(3): 98-100
7. Pentland B, Hellawell DJ, Benjamin J, Prasad R. Survey of the Late Effects of Polio in Lothian, British Polio Fellowship 2008 [www.poliosurvivorsnetwork.org.uk](http://www.poliosurvivorsnetwork.org.uk)
8. Uriadka C, Physiotherapy management of the late effects of polio, Post-Polio Clinic, West Park Hospital, Toronto, Ontario. [www.poliosurvivorsnetwork.org.uk](http://www.poliosurvivorsnetwork.org.uk)
9. Sheth MS, Ghoghari B, Vyas NJ. Presentation and Impact of Pain in Persons with Post-Polio Syndrome: A Cross-sectional Survey Study. *Disability, CBR & Inclusive Development*. 2014 Feb 13;24(4):91-106.
10. Sharma SS, Sheth MS, Vyas NJ. Fatigue and functional capacity in persons with post-polio syndrome: Short-term effects of exercise and lifestyle modification compared to lifestyle modification alone. *Disability, CBR & Inclusive Development*. 2014 Dec 23;25(3):78-91.