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Survey Analysis Of Individuals With Locomotor Disability By Using Post Polio Sequel Index

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ABSTRACT:

Background: World health organization defines disability as impairment, limitation or restriction in activity caused mainly by health issues and environmental factors. As the Post polio patients faced many health problems which leads to Locomotor Disability. Hence, this study aimed to find out the most common health problem faced by Polio patients using Post Polio Sequel Index.

Objective: To find out most common health problem faced by Polio patients using Post Polio Sequel Index.

Method: This was a population based observational study conducted at DDRC, Ahmednagar. 60 samples of Post Polio patients were taken according to inclusion and exclusion criteria to come to the conclusion.
Result: Result of our study shows that, among pain, atrophy and bulbar components, pain component was most common health problem found. Thus, considering the individual component of pain factor the most common health problem faced by post polio patients was Joint Pain.

Conclusion: This study concluded that, Pain factor was the most common health problem and considering the individual component of pain factor the most common health problem faced by post polio patients was Joint Pain which leads to Locomotor Disability.

Keywords: Disability, Polio, Locomotor disability, Pain

INTRODUCTION:

World health organisation defines disability as impairment, limitation or restriction in activity caused mainly by health issues and environmental factors[3].According to WHO estimates,10% of world's population has some kind of disability and around 80 percent of disable population recites in rural areas[3].The multifactorial nature of many post-polio sequelae presents a problem in establishing a clearly demarcated and easily identifiable syndrome or constellation of symptoms attributable to later–life musculoskeletal sequelae of polio[2]. However, the use of standardized scales can facilitate cross-study comparison of prevalence and severity, as well as factors associated with such problems that may shed further light on the underlying nature or etiology of post-polio sequelae[5]. Disability is an important public health issue. It is defined as any restriction or lack of ability to perform an activity in a manner or within the range considered normal for human beings, resulting from impairment of an organ. The precise pathophysiology of these sequelae are not known, the leading theory posits that the overuse of remaining, collateralized motor neurons eventually leads to a constellation of symptoms characterized by muscle weakness, fatigue and muscle and joint pain[2]. Other syndrome associated problems include cold intolerance, gait dysfunction, spinal deformities, sleep disturbance, and pulmonary problems[6].

According to the National Sample Survey Organization (NSSO), the number of disabled persons in India constituted about 2% of the total population with a total of 14,085,000 disabled residing in rural areas and 4,406,000 disabled in urban areas.4 Among different types of disabilities, the prevalence for locomotor disability was noted to be highest in the country – 1046 in rural and 901 in urban per 100,000 persons.4 Of these, about 13% were severely disabled as they could not perform self-care, even with aid/appliance.Despite the use of such standardized scales in assessing the impact of post-polio sequelae, there is no widely used standardized self-report scale of post-polio sequelae itself. Most studies report prevalence data from questionnaires designed for that particular study[2].According to the International Classification of impairments, disabilities and handicaps (ICIDH), disability reflects performance and activity and represents disturbances at the level of the person [1]. Disability is also considered the gap between personal capability and environmental demands. Assistive devices and physical environmental barriers or modifications are examples of external factors that influence activities of daily living (ADL) in a positive or negative direction[7]. When measuring abilities in ADL, it has to be made clear whether intrinsic capability (without equipment assistance) or actual capability (with such assistance) is being assessed [1]. This survey is designed to, evaluate the percentage of symptoms among locomotor disabled individuals in kedgaon, Ahmednagar [1].

STUDY POPULATION:

The current version of the IPPS was tested on a sample of 60 community-dwelling locomotor disability survivors between the ages of 08 to 80 years old who participated in a study. Participants were recruited from Disability Camp held at Kedgaon, Ahmednagar. The inclusionary criteria for participants were, Patients who were willing to participate, Patients with locomotor disability, Polio, Congenital disability. Exclusion criteria was, Patients with eyeblindedness, deaf and dumb.

METHODOLOGY:

This was population based observational study conducted at District Disability Rehabilitation Camp, Ahmednagar District. The purposive sampling method was used to conduct the study, about 60 samples were taken to come to conclusion. The present study was conducted among post polio patients at District Disability Rehabilitation Camp, Ahmednagar District. We

included both the males and females who were diagnosed with polio as per the disability certificates. Patients who were eyeblinded, deaf and dumb were excluded from the study.

PROCEDURE:

Screening was done as per inclusion and exclusion criteria. Orientation was given regarding the purpose, procedure and benefits of the study to the patients. The Index of Post Polio Sequel was taken on the post polio patients. Components of the scale were answered by patients in the camp. This set of questions is concerned with any health problems related to post polio that they may be experiencing right now. For each problem describe in the left column titled problem description, indicates whether or not they experience this problems – to any degree – by circling "yes" or "no" in the column titled "Do you have this problems now?" If they responded yes, go on to rate the severity of that problem from 1 to 5 in which 1 is slight (Just noticeable sensations) and 5 is extreme (A sensation that could no be worse). They have to Rate the severity as they experience it currently. If they responds "no", go to the next problem until they complete all 12 items.

RESULT: Study was conducted among 60 post polio patients with locomotor disability. Scale was performed on those patients who were willing to participate and had locomotor disability, Data was analysed using Microsoft Excel 2011. Total score was calculated for individual item of pain, Atrophy and Bulbar Factors. The total score of pain factor was calculated by adding the components: 2, 4,5, 7,11,12. For the Atrophy Factor components taken into consideration were:1,3,6 and for Bulbar factor they were: 8,9. Table no.01 shows these components. Result of our study shows that, among pain, atrophy and bulbar components pain component was most common health problem found. Thus, considering the individual component of pain factor the most common health problem faced by post polio patients was Joint Pain.

Table 01: Shows Problem description along with total score of the Post polio sequel index

Sr. No	Problem Description	Total score of problems
01	Muscle Weakness (Previously involved ms)	165
02	Muscle Weakness (Previously uninvolved ms)	95
03	Muscle Atrophy	124
04	Joint Pain > 3 months	132
05	Muscle Pain > 3 months	109
06	Fatigue or low energy	95
07	Sleep Problems	49
08	Breathing Problems	27
09	Swallowing Problems	15
10	Cold Intolerance	58
11	Contractures	84
12	Carpal tunnel syndrome	2

Graph 01: Shows Problem description along with total score of the Post polio sequel index

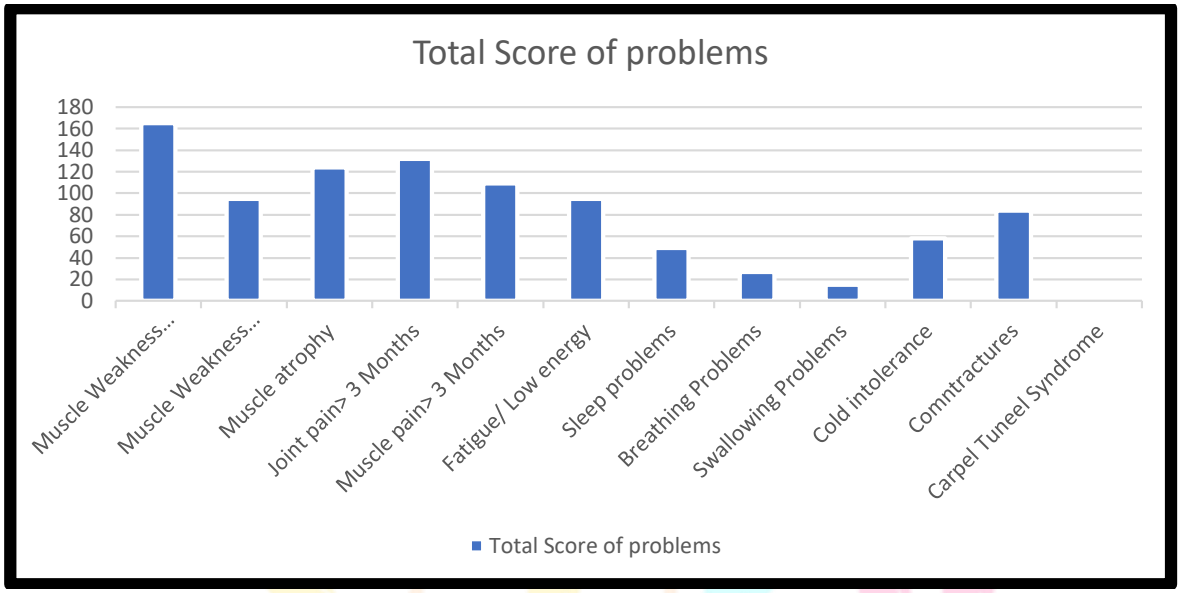


Table 02: Shows sum severity ratings for each item within the pain factor

PAIN FACTOR	Components	Individual Score	Total score
	Muscle weakness (Uninvolved muscle)	95	471
	Joint pain	132	
	Muscle pain	109	
	Sleep problems	49	
	Contracture	84	
	Carpel tunnel syndrome	02	

Graph 02: Shows sum severity ratings for each item within the pain factor

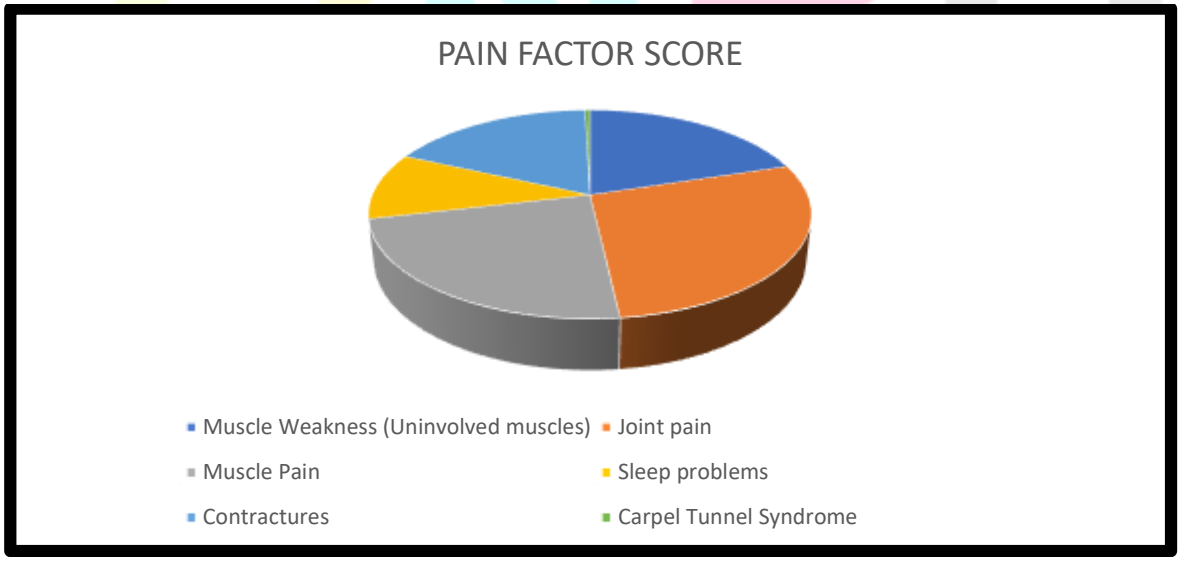


Table 03: Shows sum severity ratings for each item within the Atrophy factor

ATROPHY **FACTOR**	Components	Individual Score	Total score
	Muscle Weakness (Previously involved ms)	165	384
	Muscle atrophy	124	
	Fatigue/ Low energy	95	

Graph 03: Shows sum severity ratings for each item within the Atrophy factor

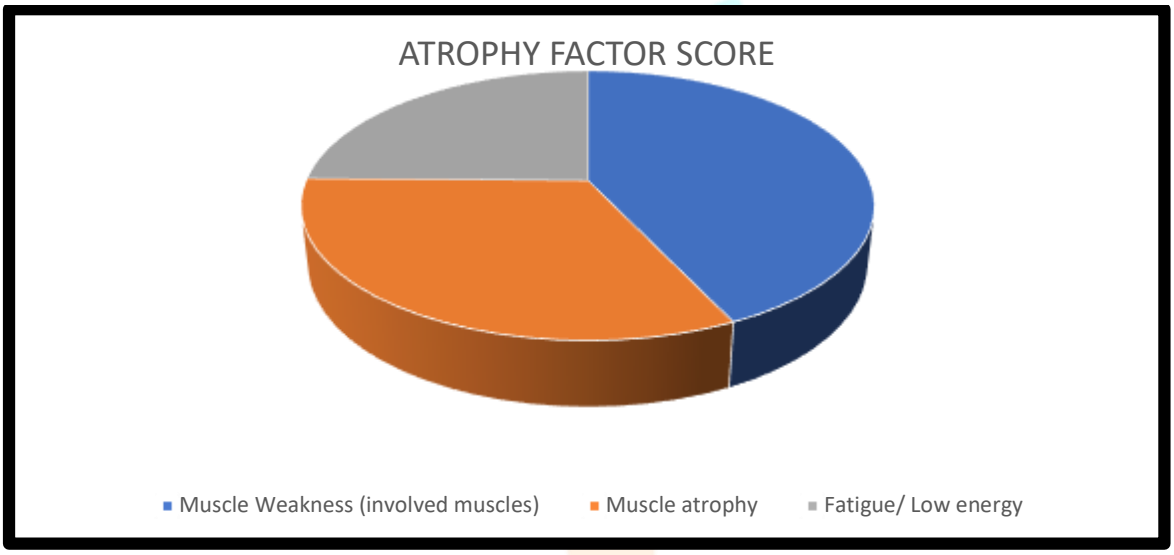
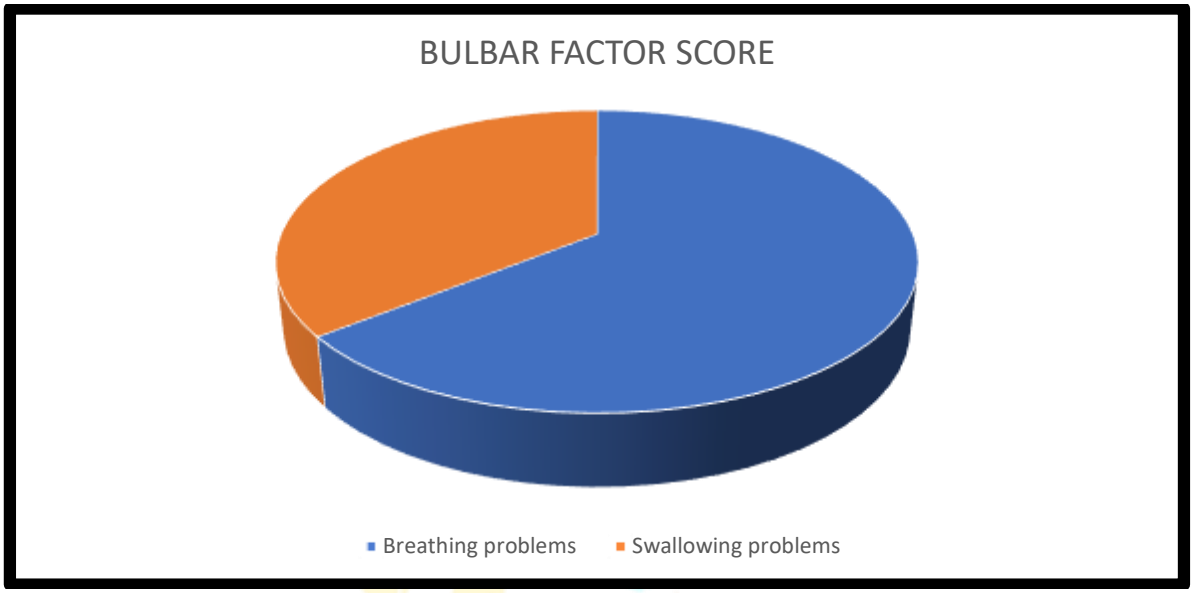


Table 04: Shows sum severity ratings for each item within the Bulbar factor

BULBAR FACTOR	Components	Individual Score	Total score
	Breathing problems	27	42
	Swallowing Problems	15	

Graph 04: Shows sum severity ratings for each item within the Bulbar factor



The third version of the scale was used in a study, In 2003, as part of a large, national study evaluating issues related to aging menopause and in late polio, the IPPS was revised a third time. This third and (current) version contains the same eleven symptoms and operational definitions, however the pain item was been differentiated into muscle pain and joint pain resulting in the current 12-item scale. Questions about duration of the problem were dropped because they were found to be problematic; subjects had difficulty recalling with some degree of precision the year or age of problem onset or worsening of the problem. In addition, for the current version of the IPPS, the severity ratings were expanded from a 3-point (mild, moderate and severe) to a 5-point Likert scale ranging from 1 (slight) to 5 (extreme). The scale ranges were increased in order to improve the scale's internal consistency and sensitivity

DISCUSSION:

The results of this study study shows that, among pain, atrophy and bulbar components pain component was most common health problem found. Thus, considering the individual component of pain factor the most common health problem faced by post polio patients was Joint Pain. According to claire zabelle et al. [(2)] preliminary exploration of the psychometric properties and factor structure of a standardized index of the prevalence and severity of polio-polio sequelae suggest that it is a reliable and useful tool. Furthermore, examination of its factor structure suggests a core set of symptoms that cluster consistently into three well-defined factors: pain (muscle and joint pain and contractures); atrophy (muscle atrophy, involved muscle weakness and fatigue) and bulbar (breathing and swallowing problems). While the IPPS is a psychometrically sound measure of an individual's overall post-post sequelae severity, these analyses revealed that symptoms should be more appropriately be conceptualized as clustering into three core groups or dimensions[(4).] There is reason to believe that loss of motor units combined with an insufficient capacity to fully compensate for dropping out of motor units is the main factor causing reduced muscle function. Persons who have already made use of the compensatory mechanisms, such as large motor units and muscle fiber hypertrophy, have a limited ability to use these mechanisms, with further loss of motor units[(4).] They are therefore at a greater risk for development of new symptom. persons who have had poliomyelitis with large initial motor deficits, but who recovered rather well and kept

physically active for a long period, may also be at greater risk for developing new symptoms. Joint and muscle pain, being caused by overload, may also lead to inhibition of muscle activation and thus to muscle wasting and weakness, but this has not been studied[4]. Reduced muscle function may also lead to increased loading of connective tissue and joint structures, which may lead to the development of joint instability. General orthopedic problems are thus quite common in persons with PPS. Agre et a13 report that about three fourths of persons with PPS have joint or back problems. It is also a general finding that many of these individuals do not have orthoses for optimal support of their unstable joints[5].
The findings of this study supports the conclusion of our study that, the most critical and highly reported symptoms in the IPPS, such as muscle weakness of involved and uninvolved muscles, muscle atrophy, joint and muscle pain, fatigue and sleep problems, were rated similarly to those presented by the Kalpakjian et al. study [2].

Conclusion: This study concluded that, Pain factor was the most common health problem and considering the individual component of pain factor the most common health problem faced by post polio patients was Joint Pain which leads to Locomotor Disability.

Conflict of interests: Authors asserted no conflicts of interest.
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ETHICS STATEMENT
Institutional ethical committee decided that, this study did not need ethics approval.

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