ClinicSearch

Clinical Trials and Clinical Research

Al Mamunur Rashid *

Open Access

Research Article

Musculoskeletal Status Among Autistic Children

Al Mamunur Rashid

Jalalabad Disabled Rehabilitation Centre and Hospital.

***Corresponding Author:** Al Mamunur Rashid., Jalalabad Disabled Rehabilitation Centre and Hospital.

Received Date: June 06, 2025; **Accepted Date: June 20, 2025; Published Date: June 25, 2025**

Citation: Al Mamunur Rashid, (2025), Musculoskeletal Status Among Autistic Children, *Clinical Trials and Clinical Research*,4(3);
DOI:10.31579/2834-5126/105

Abstract

Autism is a developmental disorder which presents before three years of age. Children diagnosed with ASD may be less coordinated and show fewer motor capabilities. This study was carried out to assess musculoskeletal profile among children with autism. A cross sectional study was conducted. The subjects were selected conveniently and conducted among 200 autistic children attending tertiary care setting. A well designed semi-structured standard questionnaire was used to collect required data from the study subjects. History taking, physical examination and medical records were used to diagnose autism and musculoskeletal status. About 90.50% of the children were normotonic and 9.50% were hypertonic. Spinal condition of the study subjects was quite normal (99%). Hypertonic children were significantly seen among 6-10 years age group and lower income families. More sample based study can be conducted to get more precise and accurate result which can be both qualitative and quantitative in nature.

Keywords: musculoskeletal status; autistic children

Introduction

Autism is a burning issue now in Bangladesh. The Government of Bangladesh is well concern about this issue. As a result number of autism corner, autism school and therapeutic centres are established but need extensive research on autism. The role of pediatric physical therapy is to help children who have difficulty with functional movement, poor balance, and challenges moving through their environment successfully. Some children with Autism Spectrum Disorder have low muscle tone, some have poor balance, others may not be well-coordinated, and still others may have a combination of all of the above. These are all areas that a physical therapist can address. The first appearance of autism starts during infancy or childhood, and generally follows a steady course without remission.1 Overt symptoms gradually begin after the age of six months, become established by age two or three years2 and tend to continue through adulthood, although often in more muted form.3 Autistic children may have different disorders and they are also vulnerable to musculoskeletal status including muscle tone, strength, length and bulkness. Some children with ASDs may have low or high levels of vitamins and minerals. The parents of the children suffering from Autism cannot always provide adequate and timely treatment and care, despite increasing evidence of the effectiveness of early interventions in improving an affected child's condition.4

Methods

A cross-cut study was conducted to identify the state of musculoskeletal conditions among children with autism attending tertiary care setting. Considering time period and resource availability, cross-sectional analytical study design was most feasible for this study. This was a six month long study. This study was conducted in tertiary care setting. This area was selected for data collection and get adequate sample for this study. As no sampling frame is available in the community level, non-probability convenient sampling was used to collect study subjects. Data were collected through questionnaire by personal interview. Face to face interview was carried out. Health status was determined by taking history and conducting physical examination. Medical records were checked if available. After administering questionnaire, data were checked for consistency. Individual sheet was checked and cleaned to avoid any error. Data were categorized and coded during entry into the SPSS software. Collected data were analyzed by computer technology SPSS version 22.0. Collected information was presented in the form of tables and graphs.

Results:

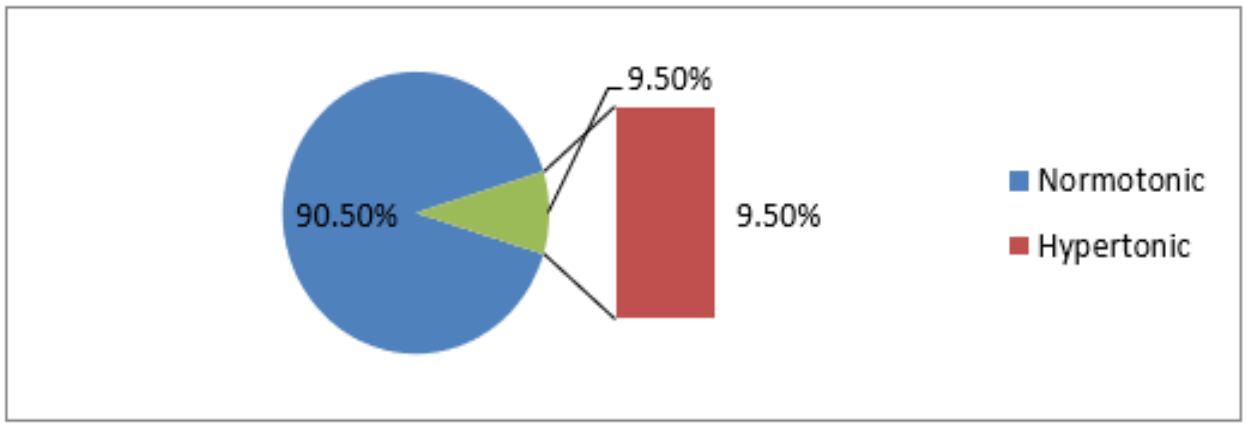

Figure 1: Muscular condition (tone) of the children.

About 90.50% of the children were normotonic and 9.50% were hypertonic.

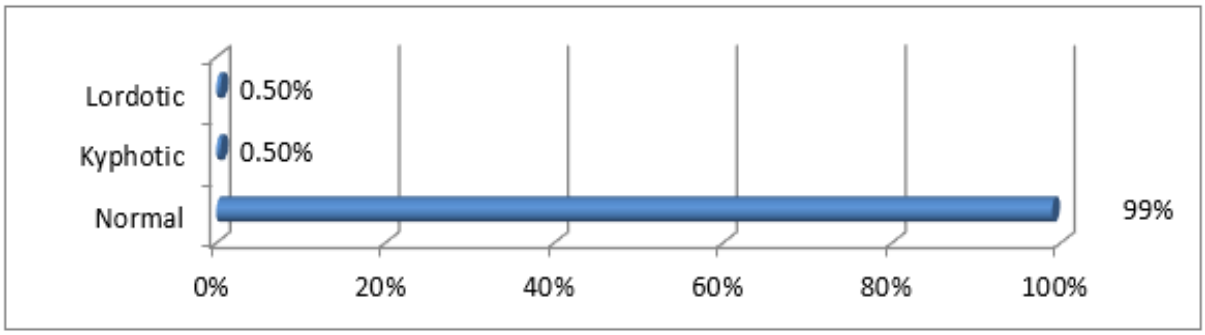

Figure 2: Spinal condition of the children.

Spinal condition of the study subjects was quite normal (99%).

Age group in years	Tone		Total	χ2	p-value
	Normotonic	Hypertonic			
≤5	94(47)	6(3)	100(50)	5.716	0.05
6-10	64(32)	12(6)	76(38)		
>10	23(11.5)	1(0.5)	24(12)		
Total	181(90.5)	19(9.5)	200(100)		

Table 1: Association between age group and tone of the muscle (n=200).

Statistical significant association was found between age group and tone of the muscle (p=0.05).

Monthly family income	Tone		Total	χ2	p-value
	Normotonic	Hypertonic			
Lower middle income (5361-21270)	167(83.5)	14(7.0)	181(90.5)	6.905	0.009
Upper middle income (21271-65761)	14(7.0)	5(2.5)	19(9.5)		
Total	181(90.5)	19(9.5)	200(100)		

Table 2: Association between monthly family income and tone of the muscle.

Statistical significant association was found between monthly family income and tone of the muscle (p=0.009).

Discussion

Autism Spectrum Disorder (ASD) and Joint Hypermobility-Related Disorders are blanket terms for two etiologically and clinically heterogeneous groups of pathologies that usually appears in childhood. These conditions are seen by different medical fields, such as psychiatry in the case of ASD, and musculoskeletal disciplines and genetics in the case of hypermobility-related disorders. Current clinical descriptions of young children with autism include hypotonia, joint laxity, clumsiness, apraxia, and toe walking as common findings.5 Interestingly, similar features have been also described in people with HRDs.6-8 The present study found that 9.50% autistic children were hypertonic and these hypertonic autistic children were significantly seen among 6-10 years age group and economically lower income group. To the best of our knowledge, the first systematic study exploring the association between JH (non-syndromic) and autism according to DSM-IV criteria (1) is that of Shetreat-Klein et al.9 These authors assessed the range of joint mobility at the elbow, wrist, metacarpo-phalangeal joint, and ankle in children with ASD aged 4 years old in average, and in matched healthy children. Results showed that the joints of children with autism were significantly suppler than their typically developing peers. In the same vein, the study of Eccles et al.10 explored JH and autonomic dysfunction in a group of adult patients with neurodevelopmental disorders, including

patients with autism although the exact number of these subjects was not reported. Results showed that the rate of JH and autonomic symptoms were significantly higher among people with neurodevelopmental disorders than in the control group. More recently, Glans et al.11 explored the potential association between JH and autistic traits in the general population. Recently, Lipsker et al.12 described the case of a 6-years-old girl with severe chronic pain since very early age and comorbid ASD and attention deficit/hyperactivity disorder. Moreover, Eccles et al13, reported structural brain differences between subjects with and without JH in areas involved in emotion processing, attention, cognitive control of pain, and negative emotions as well as a negative correlation between JH and superior temporal volume, which is an area related to processing social and emotional signals. Differences in amygdala and superior temporal cortex anatomy have been also observed in autism.14

Conclusion

In recent years, it has become clear that children with autism spectrum disorders have difficulty with gross motor function and coordination. About 90.50% of the children were normotonic. Hypertonic children were significantly seen among 6-10 years age group and lower income families.

References

1. (2007). Pervasive developmental disorders: *World Health Organization*.
2. Rogers SJ. (2009). What are infant siblings teaching us about autism in infancy? *Autism Res*; 2(3):125-137.
3. Rapin I, Tuchman RF. (2008). Autism: definition, neurobiology, screening, diagnosis. *Pediatr Clin North Am*; 55(5):1129-1146.
4. Brooks-Gunn J, Duncan GJ. (1997). The effects of poverty on children. *Future Child*;7: 55-71.
5. Rapin I. Autism. (1997). N *Engl J Med*; 337:97-104.
6. Colombi M, Dordoni C, Chiarelli N, Ritelli M. (2015). Differential diagnosis and diagnostic flow chart of joint hypermobility syndrome/ehlers–danlos syndrome hypermobility type compared to other heritable connective tissue disorders. *Am J Med Genet C*;169C:6-22.
7. Castori M. (2012). Ehlers-Danlos Syndrome, hypermobility type: an underdiagnosed hereditary connective tissue disorder with mucocutaneous, articular, and systemic manifestations. *Dermatology*:751768.
8. Ghibellini G, Brancati F, Castori M. (2015). Neurodevelopmental attributes of joint hypermobility syndrome/Ehlers–Danlos syndrome, hypermobility type: update and perspectives. *Am J Med Genet C*;169C:107-116.
9. Shetreat-Klein M, Shinnar S, Rapin I. (2014). Abnormalities of joint mobility and gait in children with autism spectrum disorders. *Brain Dev*; 36:91-96.
10. Eccles JA, Lodice V, Dowell NG, Owens A, Hughes L, Skipper S, et al. (2014). Joint hypermobility and autonomic hyperactivity: relevance to neurodevelopmental disorders. *J Neurol Neurosurg Psychiatry*;85: e3 10.
11. Glans M, Bejerot S, Humble MB. (2017). Generalized joint hypermobility and neurodevelopmental traits in a non-clinical adult population. *BJPsy Open*; 3:236-242.
12. Lipsker CW, von Heijne M, Bölte S, Wicksell RK. (2018). A case report and literature review of autism and attention deficit hyperactivity disorder in paediatric chronic pain. *Acta Paediatr*; 107:753-758.
13. Cupo LN, Pyeretz R, Olson J, McPhee SJ, Hutchins M, et al. (1981). Ehlers-Danlos syndrome with abnormal collagen fibrils, sinus of Valsava aneurysm, myocardial infarction, panacinar emphysema, and cerebral heterotopias. *Am J Med* ;71:1051-1058.
14. Eccles JA, Beacher FD, Gray MA, et al. (2012). Brain structure and joint hypermobility: relevance to the expression of psychiatric symptoms. *Br J Psychiatry*; 200:508-509.