https://doi.org/10.48047/AFJBS.6.Si4.2024.5624-5636

African Journal of Biological Sciences

"Importance Of Homoeopathic Rubrics & ISAA Scale In the Management Of Autism Spectrum Disorder"

Dr. Veena Dubey[1], Dr. Anita Sardar Patil[2*]

[1]Ph.D. Scholar, Department of Repertory, Bharati Vidyapeeth (Deemed to be University), Homoeopathic Medical College & Hospital, Pune, M.H, India. Email address: drveenadubey@gmail.com, ORCID: [0009-0008-0323-5178]

[2*]Head of Department, Professor, Department of Repertory, Bharati Vidyapeeth (Deemed to be University), Homoeopathic Medical College & Hospital Pune, M.H, India. E-mail address: anita.patil@bharatividyapeeth.edu, ORCID: [0000-0003-0958-8640]

***Corresponding author:** Dr. Anita Sardar Patil

*Head of Department, Professor Department of Repertory, Bharati Vidyapeeth Educational Campus, Pune-Satara Road, Pune-411043, Maharashtra, India. Email address: anita.patil@bharatividyapeeth.edu

Volume 6, Issue Si4, August 2024

Received: 22 July 2024

Accepted: 8 August 2024

Published: 8 August 2024

doi: 10.48047/AFJBS.6.Si4.2024.5624-5636

Abstract

Background: Autism Spectrum Disorder (ASD) is a complex developmental disability that affects communication, social skills, and behaviour. Conventional treatments have limited effectiveness for the core symptoms of ASD. Homoeopathy, on the other hand, uses detailed rubrics for Repertorization that can help guide individualized treatment.

Aims: -Evaluating the role of Rubrics & ISAA scale in enhancing the management of ASD.

Methodology: The study involved 120 children, between the ages of 2 to 12 years, who were clinically diagnosed with ASD. Detailed case-taking was conducted, which included physical generals, mental generals, particulars, and constitution. Prominent rubrics related to behaviour, communication, cognition, and sensation were identified and applied in repertorization for remedy differentiation. The outcomes included quantitative autism assessment scores using Assessment / diagnostic tool ISAA and qualitative feedback from parents and therapists at baseline and 12 months post-treatment.

Results: The study showed marked improvements in the main behavioural, emotional, and sensory areas after individualized homoeopathic treatment guided by rubric selection. Statistically significant differences were seen in autism scores pre- and post-treatment ($p<0.05$).

Conclusion: The study illustrates the essential role of in-depth rubric analysis in successful homoeopathic prescribing for autism spectrum disorder. The results showed positive outcomes when treatments were optimized through correlation of the characteristic symptoms and key rubrics.

Keywords: ASD, Autism Spectrum Disorder, Homoeopathy, Rubric, ISSA, Indian scale for assessment of Autism

INTRODUCTION:

Autism is a neuropsychiatric childhood disorder characterized by severe and pervasive impairment in several areas of development such as social interaction skills, communication skills and/or presence of stereotype behaviour, interest and activities. The onset is usually within the first years of life [1,2].Specific autistic characteristics usually appear before the age of 3 years, and some children on the spectrum may have limited nonverbal and verbal communication by the age of 18–24 months[3].

PREVALENCE: The prevalence of autism spectrum disorder (ASD) and, specifically, is reported to have been increasing over time [4,5]. The estimated prevalence of Autism in India is around 1 in 68 children [6,7]. Boys are more commonly affected by Autism than girls, with a male-to-female ratio of approximately 3:1[4,8][9,10]

ETIOLOGIC AND GENETICS: ASD is recognized as a complex disorder influenced by genetic, environmental, and possibly immunological factors. Studies have identified numerous genetic variations associated with ASD, highlighting the heterogeneous nature of its genetic architecture [8] Environmental factors such as prenatal exposures and maternal health during pregnancy have also been implicated in the development of ASD [11,12]

EPIDEMIOLOGY: The World Health Organization (WHO) estimates the international prevalence of ASD at 0.76%; however, this only accounts for approximately 16% of the global child population [5]. As there was no Indian scale to diagnose or measure autism, the National Institute for Mentally Handicapped (NIMH) developed the Indian Scale for Assessment of Autism (ISAA) for diagnosing and measuring the severity of autism in 2009[13–15].

The Indian Scale for Assessment of Autism (ISAA) was jointly developed by the National Trust, Ministry of Health and Family Welfare, and Ministry of Social Justice and Empowerment of the Government of India [16,17]. Norms of ISAA for Diagnosis of Autism <70 normal, 70–106 mild autism, 107–153 moderate, 153 above severe autism [17,18]

MATERIALS AND METHODS: Primary source: all cases were collected different periphery O.P.D of Bharati Vidyapeeth Homoeopathic medical college, cases were recorded according to neurologic case format, including detailed personal history, past history, medical history, family history and all necessary investigation. Total Duration of study was 12 months with 162 Sample Size, out of which 42 cases were drop out, so the total number of sample size is 120 for the study. Two group were made, Group A (constitutional) and Group B (clinical) computerized randomization, Isaa tool was used for the study.

Inclusion Criteria:

i. Age Group 2–12 years of age.
ii. Both the sexes.
iii. Mild and Moderate form of Autism.
iv. Patients ready to sign consent form.

Exclusion Criteria:

i. Case < 2 years & > 12 years of age.
ii. Cases of Mental retardation, Cerebral palsy, Down syndrome, Rett's syndrome,

STATISTICS: Demographic characteristics of patients

Table 1: Distribution of patients according to age

Age	Number of patients	Percentage
3-6	21	17.5%
6-9	30	25.0%
Above 9	69	57.5%

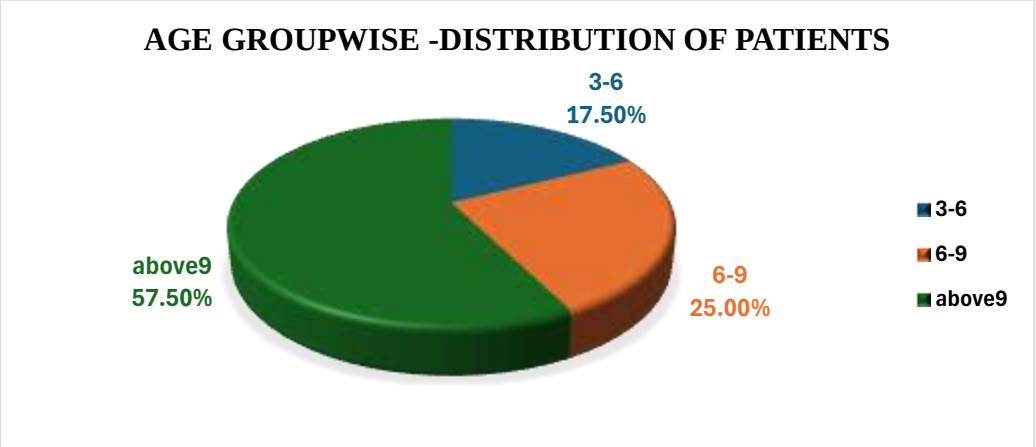

Figure 1: Pie diagram representing Age-wise distribution of patients

Above table1 and Figure 1 shows that 17.50% of the patients had an age between 3-6 years, 25% of the patients had an age between 6-9 years, and the remaining 57.50 % of the patients had an age above 9 years in the study.

Table 2: Gender-wise distribution of patients

Gender	No of Patients	Percentage
Girls	40	33.33%
Boy	80	66.67%

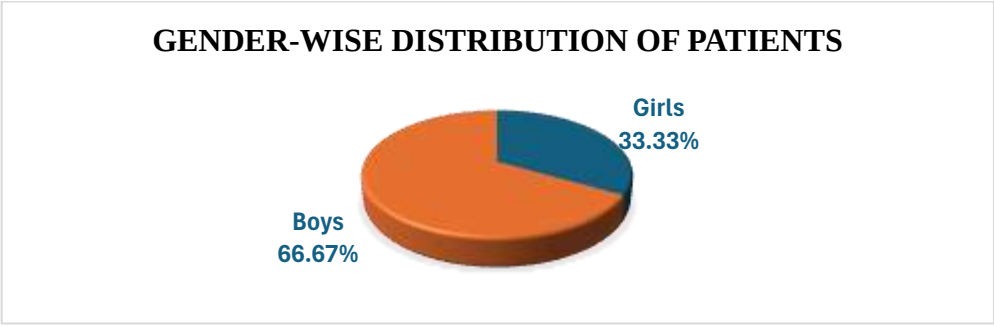

Figure 2: Distribution of patients according to Gender

Table 2 and Figure 2 show the Distribution of patients according to Gender. 33.33% of patients were girls and 66.67% of patients were boys under study.

Table 3: Distribution of Patients according to treatment group.

Group	Number of patients	Percentage
Clinical	61	50.83%
Constitutional	59	49.17%

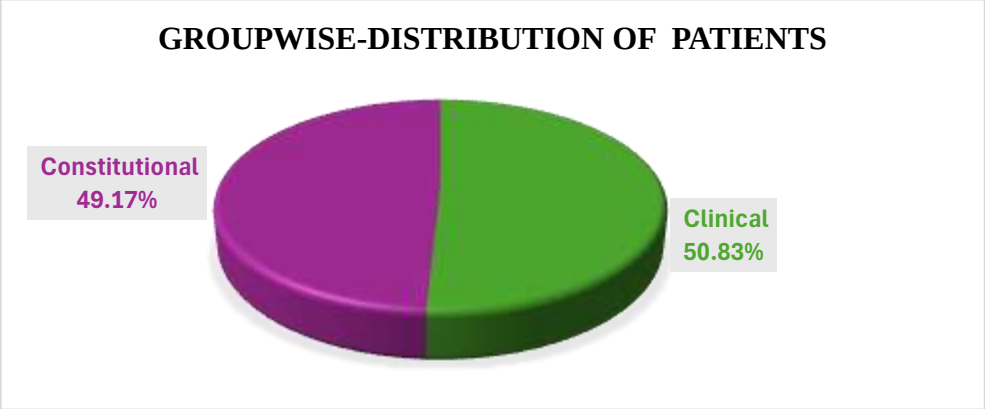

Figure 3: Distribution of patients according to treatment group.

Table 3 and Figure 3 show the Distribution of patients according to treatment group.
50.83% of the patients were treated with a clinical treatment group where Homoeopathic Medicines with Rubrics were applied. 49.17% of the patients were treated with Constitutional Homoeopathic medicines.

Table 4: Remedy-wise distribution of patients.

	Clinical		Constitutional		Overall	
Remedy	Number of patients	Percentage	Number of patients	Percentage	Number of patients	Percentage
Agaricus Muscarius	3	2.5%	1	0.8%	4	3.3%
Arnica Montana	11	9.2%	2	1.7%	13	10.8%
Arsenic Album	–	0.0%	1	0.8%	1	0.8%
Auram Metallicum	1	0.8%	–	0.0%	1	0.8%
Baryta Carbonica	–	0.0%	2	1.7%	2	1.7%
Belladonna	–	0.0%	2	1.7%	2	1.7%
Bryonia alba	–	0.0%	1	0.8%	1	0.8%
Bufo	1	0.8%	1	0.8%	2	1.7%
Calcarea Carbonica	–	0.0%	8	6.7%	8	6.7%
Carcinosinum	1	0.8%	3	2.5%	4	3.3%
Chamomilla	–	0.0%	2	1.7%	2	1.7%
Cicuta Virosa	8	6.7%	2	1.7%	10	8.3%
Cuprum Metallicum	5	4.2%	–	0.0%	5	4.2%
Gelsemium	–	0.0%	1	0.8%	1	0.8%
Hepar sulph	–	0.0%	1	0.8%	1	0.8%
Hyoscyamus Niger	–	0.0%	4	3.3%	4	3.3%
Kali carb	–	0.0%	1	0.8%	1	0.8%

Lachesis	–	0.0%	1	0.8%	1	0.8%
Lycopodium clavatum	–	0.0%	2	1.7%	2	1.7%
Medorrhinum	1	0.8%	1	0.8%	2	1.7%
Natrum-Mur	–	0.0%	1	0.8%	1	0.8%
Nux-vomica	–	0.0%	1	0.8%	1	0.8%
Plumbum Metalicum	2	1.7%	2	1.7%	4	3.3%
Stramonium	–	0.0%	2	1.7%	2	1.7%
Sulphur	–	0.0%	2	1.7%	2	1.7%
Syphilinum	–	0.0%	6	5.0%	6	5.0%
Tarentula cubensis	17	14.2%	3	2.5%	20	16.7%
Torula	–	0.0%	1	0.8%	1	0.8%
Tuberculinum	1	0.8%	3	2.5%	4	3.3%
Xerophylum	–	0.0%	1	0.8%	1	0.8%
Zincum Metallicum	10	8.3%	1	0.8%	11	9.2%

Figure 4(a): Remedy-wise Distribution of patients in a constitutional group

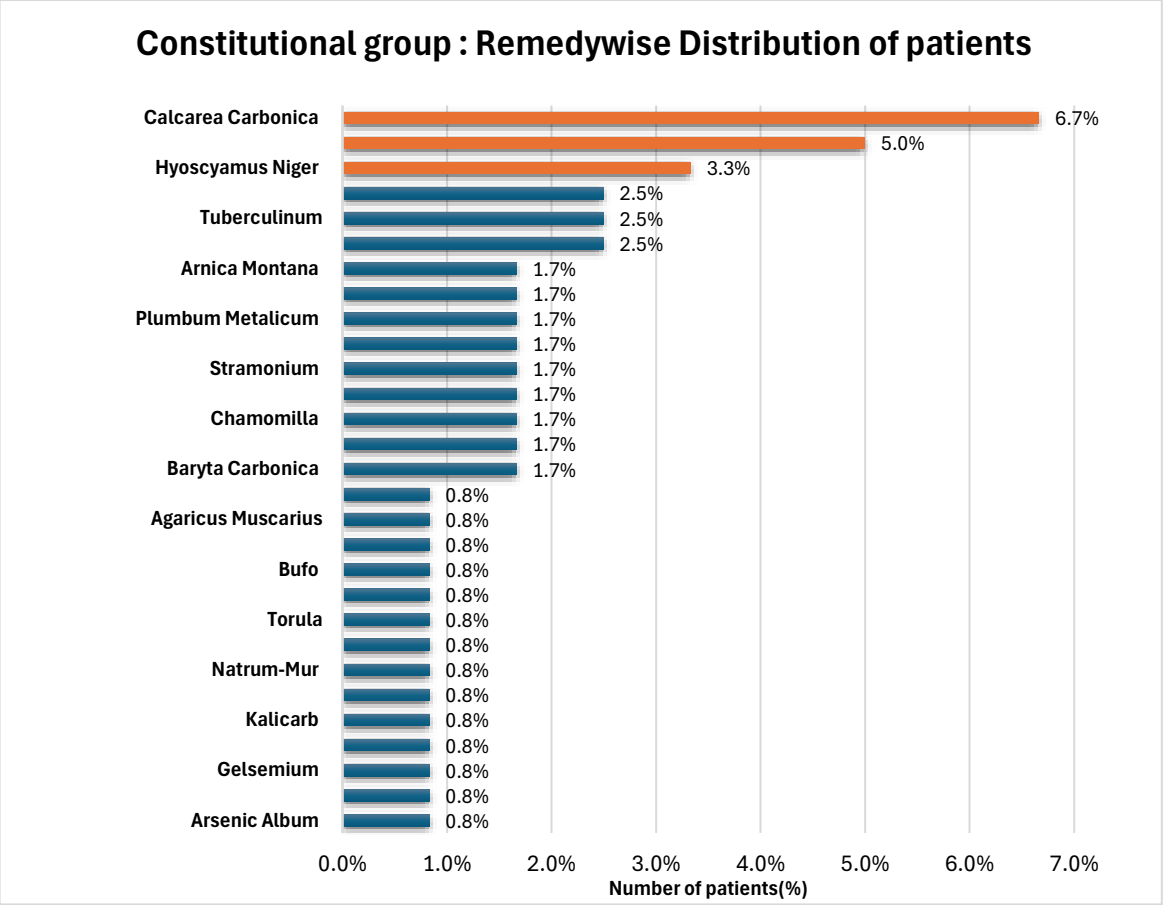

Figure 4a: Remedy-wise Distribution of patients in a constitutional group.

Figure 4(b): Remedy –wise Distribution of patients in clinical group

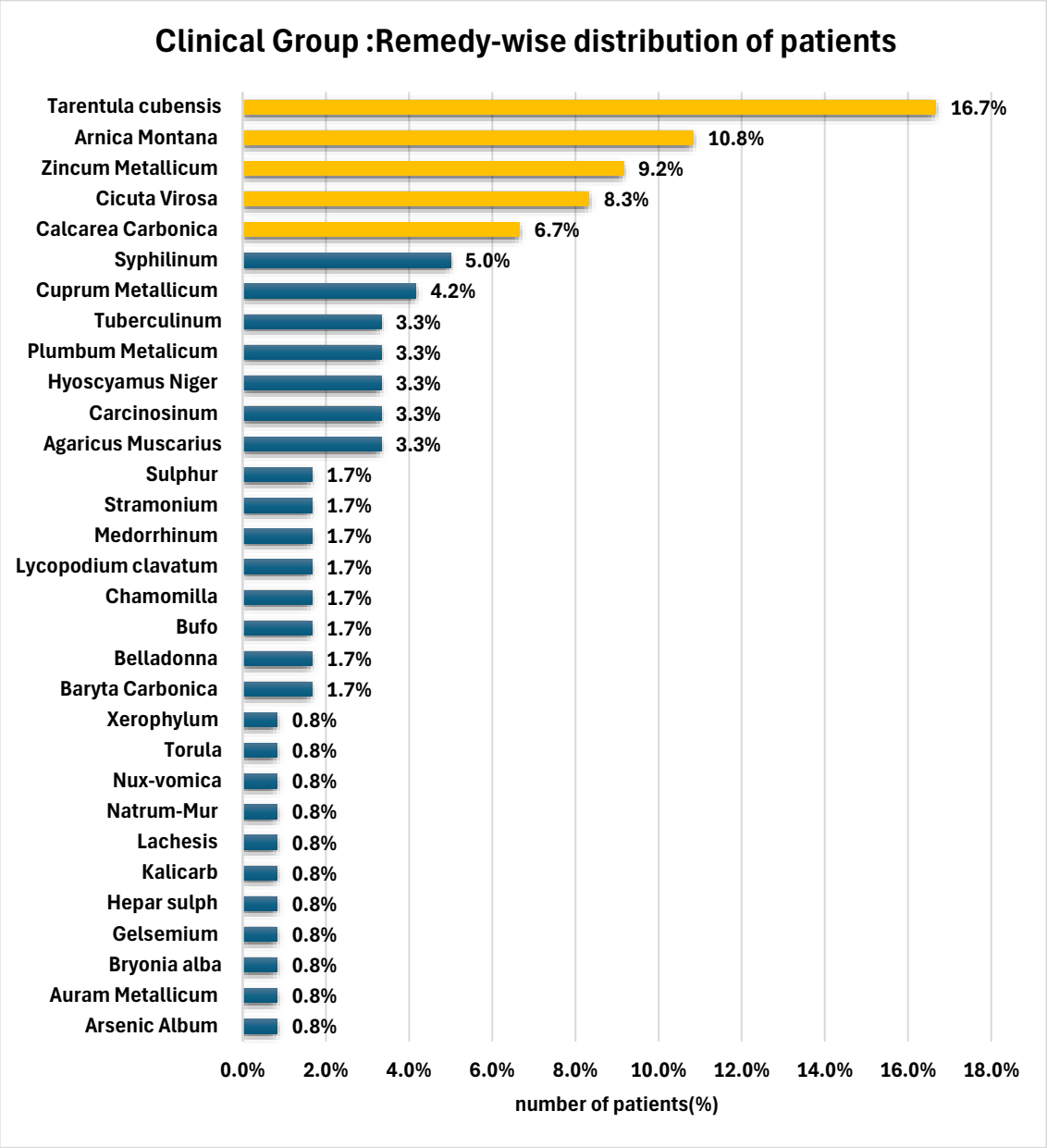

Figure 4b: Remedy-wise Distribution of patients.

Table 4 shows the remedy-wise distribution of patients. Figure 4(a) shows the remedy-wise distribution of patients in a Clinical group. The top three medicines prescribed in the clinical group were Tarentula cubensis, Arnica Montana, and Zincum Metallicum.Tarentula cubensis was given to 14.2% of patients in the clinical group. Arnica Montana was given to 9.2% of the patients and Zincum Metallicum was given to 8.3% of the patients in a clinical group. Figure 4(b) shows the remedy-wise distribution of patients in a Constitutional group. The top three medicines prescribed in constitutional were Calcarea Carbonica, Syphilinum, and Hyoscyamus Niger. Calcarea Carbonica was prescribed to 6.7% of the patients. Syphilinum was given to 5% of the patients and Hyoscyamus Niger was given to 3.3% of the patients. Figure 4b shows the remedy-wise distribution of patients.

The top five remedies prescribed to the patients were Tarentula cubensis (16.7%), Arnica Montana (10.8%), Zincum Metallicum(9.2%), Cicuta Virosa(8.3%), Calcarea Carbonica (6.7%).

Table 5(a)-5(c): Rubrics relating ASD considered for prescription in both the groups (constitutional & clinical) from Synthesis repertory, with corresponding chapters

Table: 5 (a)

Sr.no	chapters	Rubrics
1	MIND	ABSORBED
2	MIND	ABSTRACTION OF MIND
3	MIND	ACCIDENT-PRONE
4	MIND	ADAPTABILITY, loss of
5	MIND	ALOOF
6	MIND	ANSWERING - monosyllables; in
7	MIND	ANSWERING - reflecting long
8	MIND	ANSWERING - refusing to answer
9	MIND	ANSWERING - repeats the question first
10	MIND	ANTAGONISM with herself
11	MIND	ANTICS; playing - children; in
12	MIND	ANXIETY - causeless
13	MIND	ASKING - nothing; for
14	MIND	ASKING - same thing; constantly the - time; the
15	MIND	AUTISM
16	MIND	AWARENESS heightened
17	MIND	AWKWARD - children, in
18	MIND	BEHAVIOR PROBLEMS - children; in
19	MIND	BITING - arms; bites his own
20	MIND	BITING - children, in
21	MIND	BITING - fingers
22	MIND	BITING - hands
23	MIND	BITING - himself
24	MIND	BITING - nails
25	MIND	BITING - nails - children; in

Table 5 (b):

1	MIND	BITING - people
2	MIND	CARESSED; being - aversion to
3	MIND	CHANGE - aversion to - children; in
4	MIND	COLLECTS many things
5	MIND	COMPANY-aversion to-alone, amel; when
6	MIND	CONCENTRATION - difficult - children, in
7	MIND	CONTRADICTORY - actions are contradictory to intentions
8	MIND	DELUSIONS - absurd, ludicrous
9	MIND	DELUSIONS - hearing - illusions of
10	MIND	DESTRUCTIVENESS - children; in
11	MIND	DEVELOPMENT of children - arrested

12	MIND	DISTURBED; averse to being
13	MIND	DULLNESS - children, in
14	MIND	EATING - refuses to eat
15	MIND	EXPRESSING oneself - cannot express oneself
16	MIND	FEAR - animals, of
17	MIND	FEAR - birds
18	MIND	FEAR - cats; of
19	MIND	FEAR - causeless
20	MIND	FEAR - children, in
21	MIND	FEAR - crowd, in a
22	MIND	FEAR - dogs, of
23	MIND	FEAR - insects; of
24	MIND	FEAR - narrow place, in
25	MIND	FEAR - people; of - children, in

Table 5 (c):

1	MIND	UNOBSERVING [= inattentive]
2	MIND	UNOBSERVING [= inattentive] - spoken to, when
3	MIND	UNOBSERVING [= non-conformism]
4	GENERALS	ACTIVITY - increased
5	GENERALS	ANALGESIA
6	GENERALS	ANALGESIA - Affected parts
7	GENERALS	ANESTHESIA [= insensibility]
8	GENERALS	ENERGY - excess of energy
9	GENERALS	ENERGY - excess of energy - children; in
10	GENERALS	FOOD and DRINKS - aromatic drinks - desire
11	GENERALS	FOOD and DRINKS - bananas - aversion
12	GENERALS	FOOD and DRINKS - bland food - desire
13	GENERALS	FOOD and DRINKS - chalk - desire
14	GENERALS	FOOD and DRINKS - chocolate - desire
15	GENERALS	FOOD and DRINKS - coarse food - desire
16	GENERALS	FOOD and DRINKS - cooked food - aversion
17	GENERALS	FOOD and DRINKS - crispy food - desire
18	GENERALS	FOOD and DRINKS - delicacies - desire
19	GENERALS	FOOD and DRINKS - drinks - aversion
20	GENERALS	FOOD and DRINKS - dry food - desire
21	GENERALS	FOOD and DRINKS - earth - desire
22	GENERALS	FOOD and DRINKS - farinaceous - agg
23	GENERALS	FOOD and DRINKS - food - aversion - eating - attempting to eat; on
24	GENERALS	FOOD and DRINKS - food - aversion - eating - little; after eating a
25	GENERALS	FOOD and DRINKS - food - aversion - seen; if food is

Comparison between Treatment Groups (Clinical vs. Constitutional):

Hypotheses tested:

H_o: There is no significant difference between the two treatment groups clinical and constitutional as far as the Total score of autism before treatment is concerned.

Against

H_1: There is a significant difference between the two treatment groups as far as the Total score of autism before treatment is concerned.

Similarly,

H_{o1}: There is no significant difference between the two treatment groups clinical and constitutional as far as the Total score of autism in the middle of the treatment is concerned.

Against

H_{11}: There is a significant difference between the two treatment groups as far as the Total score of autism in the middle of the treatment is concerned.

Table 6: Mann –Whitney test of Total score autism score before, middle, and after the treatment for Treatment Groups Clinical and Constitutional.

Time	Group	N	Mean Rank	Sum of Ranks	Test statistic and P-value
Before treatment	Clinical	61	57.22	3490.50	U statistic=1599.5
	Constitutional	59	63.89	3769.50	p-value =0.294^{ns}
Mid	Clinical	61	71.23	4345.00	U statistic=1145
	Constitutional	59	49.41	2915.00	p-value=0.001**
After treatment	Clinical	61	83.43	5089.00	U statistic=401
	Constitutional	59	36.80	2171.00	p-value=0.000**

A test used: Mann-Whitney test, p-value^{ns}: non-significant (>0.05) p-value**: highly significant (<0.05), U statistic: Mann-Whitney U -statistic.

Before treatment, the mean rank of the clinical group was observed to be 57.22 and that of the constitutional group was 63.89. Here the test statistic Mann-Whitney U statistic: 1599.5 with a p-value of 0.294. Here, p-value >0.05 is statistically non-significant. We cannot reject Ho and conclude that there is no significant difference between the two groups as far as the total score of autism is concerned before the treatment.

In mid of the treatment, the mean rank of the clinical group was observed to be 71.23 and that of the constitutional group was 49.41. Here is the test statistic Mann-Whitney U statistic: 1145 with a p-value of 0.001. Here, p-value < 0.05 is statistically significant.

We can reject Ho and conclude that there is a significant difference between the two groups as far as the total score of autism is concerned in the middle of the treatment.

After treatment, the mean rank of the clinical group was observed to be 83.43 and that of the constitutional group was 36.80. Here the test statistic Mann-Whitney U statistic: 401 with a p-value < 0.001 highly statistically significant.

We can reject Ho and conclude that there is a significant difference between the clinical and constitutional groups as far as the total score of autism is concerned after the treatment.

Table 6(a): Descriptive statistics of Total score of autism before middle and after the treatment.

A total score of autism	Group	N	Mean±Sd	Min	Median(IQR)	Max
Before treatment	Clinical	61	121.74±18.03	72	123(22.5)	147
	Constitutional	59	125.95±13.15	96	128(21)	147
Mid of treatment	Clinical	61	114.36±21.51	67	106(34.5)	152
	Constitutional	59	102.14±9.17	83	102(15)	120
After treatment	Clinical	61	109.18± 21.87	63	104(26.5)	152

	Constitutional	59	75.31±11.31	59	72(8)	117

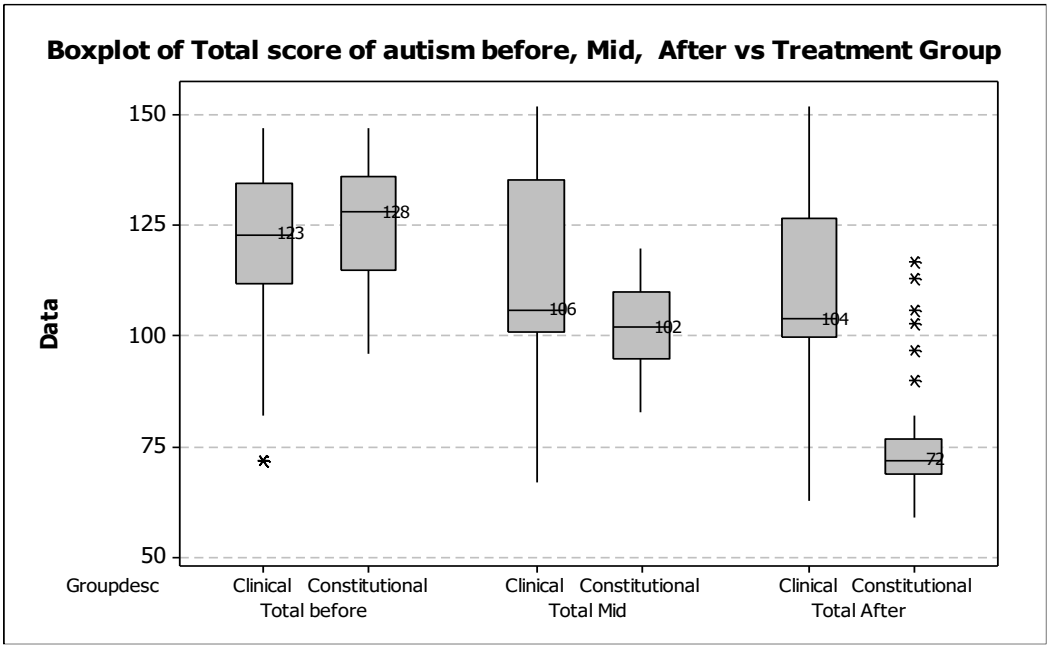

Figure 6: *Boxplot of the group-wise total score of autism before, middle, and after the treatment.*

Table 6(a) gives the descriptive statistics of descriptive statistics of Total score of autism before the middle and after the treatment and Figure 5 shows the distribution of the total score of autism for the clinical and constitutional groups before, in the middle, and after treatment.

Before treatment, for the clinical group of patients, the mean±sd of the total score of autism was 121.74±18.03 and the median (IQR) was 123(22.5). For a constitutional group, the mean±Sd of the total score of autism was 125.95±13.15 and the median (IQR) was 128(21).

During the treatment, for the clinical group of patients, the mean±sd of the total score of autism was 114.36±21.51 and the median (IQR)was 106(34.5). for a constitutional group of patients, the mean autism score was 102.14±9.17 and the median (IQR) was 102(15).

For the constitutional group, the median autism score was significantly lower than the median autism score for the clinical group.

After treatment, for the clinical group of patients, the mean±sd of the total score of autism was 109.18± 21.87 and the median (IQR) was 104(26.5). for a constitutional group of patients, the mean autism score was 102.14±9.17 and the median (IQR) was 102(15). For the constitutional group, the median autism score was significantly lower than the median autism score for the clinical group.

Figure 6 shows the treatment groupwise boxplot of the total autism score before, middle, and after treatment. The boxplot shows that the range of autism scores for the constitutional group was significantly lower than that of the clinical group.

Table 7: **Friedman's test and Descriptive statistics of the total autism score before, middle, and after treatment.**

Group	Total autism Score	N	Mean±Sd	Mean rank	Test Statistic Value	P-Value
Clinical	before treatment	61	121.74±18.03	2.63	Chi-square statistic with df 2=59.503	0.000**
	Middle	61	114.36±21.51	1.86		

	after treatment	61	109.18±21.87	1.51		
Constitutional	before treatment	59	125.95±13.15	3.00	Chi-square statistic with df 2=116.034	0.000**
	Middle	59	102.14±9.17	1.98		
	after treatment	59	75.31±11.31	1.02		

A test used: Friedman's test **: Highly Significant Difference, here, P Value <0.01 is considered to be statistically highly significant.

The results from the Friedman test as indicated by the table show that there is a highly significant difference in total autism scores across different time points within groups since the p-value is less than 0.01. This suggests that treatment has had a statistically significant effect on total autism scores. we can reject the null hypothesis and conclude that there is a significant difference in total autism scores across at least one of the time points within groups. This indicates that the treatment had an impact on improving or altering total autism scores among participants.

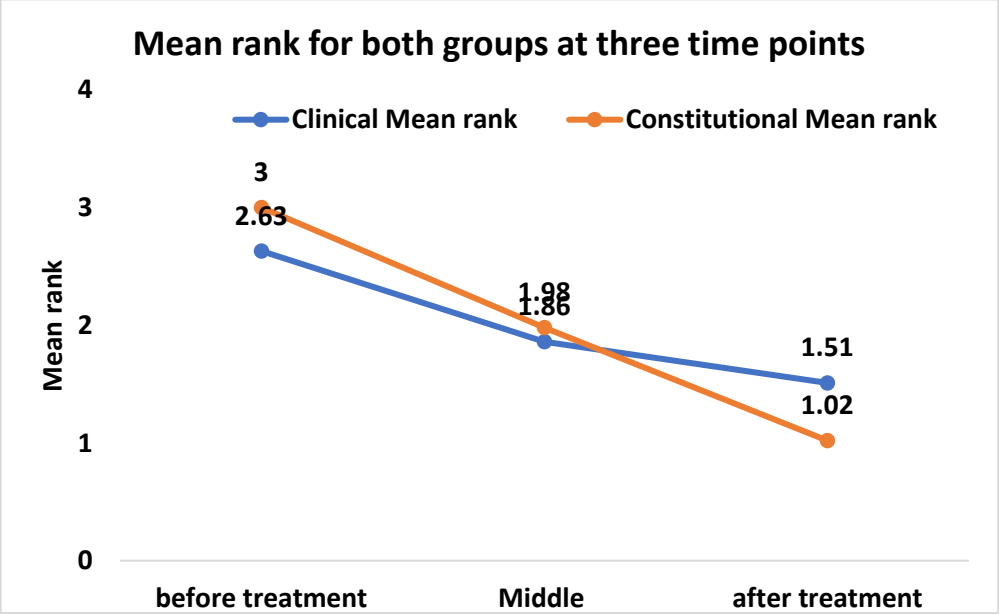

Figure 7: the mean rank of total score of autism at three points of time for clinical and constitutional groups.

Figure 7 shows the mean rank of the autism score at three points in time for clinical and constitutional groups.

For the clinical group, the mean rank of the autism score was 2.63 which reduced to 1.86 in the middle of the treatment and further significantly reduced to 1.51 after treatment. For the constitutional group, the mean rank of the autism score was 3.00 which reduced to 1.98 in the middle of the treatment and further significantly reduced to 1.02 after treatment.

RESULT: For both clinical and constitutional treatment groups, there is a significant difference between average autism scores in the Middle and after treatment. The test statistic value for the clinical group was 0.352 with a p-value <0.001 highly significant and for the constitutional group, the test statistic value was 1.983 with a highly significant p-value <0.001.

AUTHORS' CONTRIBUTION:

VD, ASP: contributed to design, concept, data collection, manuscript writing; VD: contributed to data interpretation, manuscript modification and analysis of data, Supervision: ASP

ACKNOWLEDGEMENTS:

We would like to thank the Department of Homoeopathic Repertory and Periphery O.P.D of Bharati Vidya Peth Homoeopathic Medical College Hospital & Research centre.

INFORMED CONSENT:

Written consent was obtained from the parents of these children with the assurance that the anonymity will not be disclosed.

SOURCE OF FUNDING:

No funding was received for this work.

Conflict of interest:

The authors declare that they have no conflicts of interest.

REFERENCES:

1. Psychiatry.org - Updates to DSM-5-TR Criteria and Text [Internet]. [cited 2024 Jul 5]. Available from: https://www.psychiatry.org/psychiatrists/practice/dsm/updates-to-dsm/updates-to-dsm-5-tr-criteria-text
2. Annio Posar 1Child Neurology and Psychiatry Unit II of NS of BI 2Department of B and NSU of BBI. Autism according to diagnostic and statistical manual of mental disorders 5th edition: The need for further improvements. Journal of pediatric science. 2015 Apr;10-2(april-june 2015):1-3.
3. Arun P, Chavan BS. Development of a screening instrument for autism spectrum disorder: Chandigarh autism screening instrument. Indian Journal of Medical Research. 2018 Apr 1;147(April):369–75.
4. Fombonne E. Editorial: The rising prevalence of autism. J Child Psychol Psychiatry. 2018 Jul 1;59(7):717–20.
5. Newschaffer CJ, Croen LA, Daniels J, Giarelli E, Grether JK, Levy SE, et al. The Epidemiology of Autism Spectrum Disorders *. 2007 [cited 2024 Jul 6]; Available from: www.annualreviews.org
6. All You Need to Know About Early Detection and Diagnosis of Autism [Internet]. [cited 2024 Jul 7]. Available from: https://www.indiaautismcenter.org/early-detection-and-diagnosis-of-autism-in-india-importance-and-challenges/
7. Autism Spectrum Disorder: Everything You Need to Know [Internet]. [cited 2024 Jul 7]. Available from: https://redcliffelabs.com/myhealth/health/autism-spectrum-disorder-everything-you-need-to-know/
8. Geschwind DH. Genetics of Autism Spectrum Disorders. Trends Cogn Sci [Internet]. 2011 Sep [cited 2024 Jul 7];15(9):409. Available from: /pmc/articles/PMC3691066/
9. Shaw KA, McArthur D, Hughes MM, Bakian A V., Lee LC, Pettygrove S, et al. Progress and Disparities in Early Identification of Autism Spectrum Disorder: Autism and Developmental Disabilities Monitoring Network, 2002–2016. J Am Acad Child Adolesc Psychiatry. 2022 Jul 1;61(7):905–14.

10. Chakrabarti S, Fombonne E. Pervasive developmental disorders in preschool children: Confirmation of high prevalence. American Journal of Psychiatry. 2005 Jun;162(6):1133–41.
11. Modabbernia A, Velthorst E, Reichenberg A. Environmental risk factors for autism: an evidence-based review of systematic reviews and meta-analyses.
12. Nayak A, Khuntia R. Development and Content Validation of a Measure to Assess the Parent-Child Social-emotional Reciprocity of Children with ASD. Indian J Psychol Med [Internet]. 2024 Jan 1 [cited 2024 Jul 5];46(1):66–71. Available from: http://www.ncbi.nlm.nih.gov/pubmed/38524962
13. Chakraborty S, Bhatia T, Sharma V, Antony N, Das D, Sahu S, et al. Protocol for Development of the Indian Autism Screening Questionnaire: The Screening Version of the Indian Scale for Assessment of Autism. Indian J Psychol Med [Internet]. 2020 Dec 1 [cited 2024 Jul 5];42(6_suppl):S63–7. Available from: https://journals.sagepub.com/doi/full/10.1177/0253717620969068
14. Mukherjee SB, Malhotra MK, Aneja S, Chakraborty S, Deshpande S. Diagnostic accuracy of Indian Scale for Assessment of Autism (ISAA) in chidren aged 2–9 years. Indian Pediatr [Internet]. 2015 Mar 1 [cited 2024 Jul 5];52(3):212–6. Available from: https://pubmed.ncbi.nlm.nih.gov/25848996/
15. Use of Indian Scale for Assessment of Autism in Child Guidance Clinic: An Experience - PMC [Internet]. [cited 2024 Jul 7]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3271508//
16. Mukherjee SB, Malhotra MK, Aneja S, Chakraborty S, Deshpande S. Diagnostic accuracy of Indian Scale for Assessment of Autism (ISAA) in chidren aged 2–9 years. Indian Pediatr [Internet]. 2015 Mar 1 [cited 2024 Jul 7];52(3):212–6. Available from: https://link.springer.com/article/10.1007/s13312-015-0608-z
17. The National Trust. INDIAN SCALE FOR ASSESSMENT OF AUTSIM (ISAA). NATIONAL INSTITUTE FOR THE MENTALLY HANDICAPPED An ISO 9001: 2000 Institution. 2009;1–21.
18. Assessment of Severity of Autism Using the Indian Scale for Assessment of Autism - PMC [Internet]. [cited 2024 Jul 5]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4418249/