P-ISSN: 2709-6254 | Journal of Development and Social Sciences | April-June 2022,Vol. 3, No. 2
O-ISSN:2709-6262 | http://dx.doi.org/10.47205/jdss.2022(3-II)01 | [01-09]

JDSS Journal of Development and Social Sciences
www.jdss.org.pk

RESEARCH PAPER

Strategies Used by Special Educationists to Control Involuntary Body Movements of Students with Autism Spectrum Disorder: A Quantitative Inquiry

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PAPER INFO

Received:
February 07, 2022
Accepted:
April 10, 2022
Online:
April 15 , 2022

Keywords:
Autism Spectrum Disorder,
Involuntary Body Movement.
Teaching Strategies

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ABSTRACT

Involuntary body movements including hand flipping, finger flecking, rocking, jumping and pining or twirling may negatively impact social and educational activities of children with Autism Spectrum Disorder (ASD) (Kapp, et al., 2019). The study intended to identify the strategies used by the special educationists to manage involuntary body movement of ASD. Employing quantitative research, data was collected from 100 teachers of children with autism from government and private special schools in Lahore District. The researchers employed a stratified sampling method for sampling. The results showed that physical exercise, providing comfortable furniture, using clear directions, remaining calm and peaceful were among the strategies used by majority. Likewise, using therapy balls, squeeze balls, play dough, touch and feel alphabets and letter were used in public and private sector. The findings showed no significant differences in material and techniques used by male and female teachers of govt. and private school having varying teaching experience.

Introduction

Deficits in socialization and communication, as well as repetitive, stereotypical pursuits, and sensory sensitivities are hallmarks of autism spectrum disorder (American Psychiatric Association (APA), 2020; Centers for Disease Control (CDC), 2020; Luiselli, 2014; McDougle, 2016; Schulz & Stevenson, 2019; Wigham, et al. 2015). Similarly to other spectrum disorders, each individual with ASD experiences a wide range of difficulties in each area of difficulty (Hollander, et al., 2011; Wilkinson, 2014; WHO, 2019). The cognitive and communication abilities of an ASD child may be severely impaired, while the same characteristics may be present in another child with ASD (Autism Speaks, 2020; Campisi, et al., 2018; Lord, et al, 2018; Lord, et al, 2020).

It's difficult for students with ASD to learn and lead normal lives because of a wide range of behavioral issues (Drysdale, et al., 2015; Krieger, et al., 2018; Taylor, et al., 2017). An involuntary body movement is one such behavioural problem that has a negative impact on a child with ASD's social and educational activities, such as hand flipping, finger flecking, rocking, jumping and pining or twirling (Kapp, et al., 2019).

Children with autism can benefit from a wide range of physical activities such as jogging or riding bicycle, playing with ball and physical exercise (National Autistic Society (NAS), 2021). They also try to create a peaceful learning environment by incorporating

activities that soothe children and help them to relax (Brennan, 2021). In addition, they use other methods to maintain a sense of calm and serenity (Cooper, et al., 2018; Gillespie-Lynch, et al., 2017; Murphy, et al., 2018). An ASD student's involuntary body movement is controlled with the use of bubble tubes and ball pit swings as well as other suitable equipment. Children with ASD have difficulty learning and interacting with others because of their uncontrollable body movements (Amos, 2013; Cheol-Hong, 2017; Harrop, 2015; Masiran, 2018; Min & Fetzner, 2018; NAS, 2021).

Helping the students overcome this difficult issue is essential (Cardona, et al., 2016; Lanzarini, et al., 2021). It is clear from the above discussion that teachers in other countries are taking different approaches to dealing with this issue. Different aspects of the situation in Pakistan need to be investigated (Qureshi, et al., 2015). As a result, the purpose of this investigation was to determine whether or not children who exhibit repetitive, unwanted movements are receiving any assistance.

Research Objectives

The major objectives were to:

1. Identify the strategies special educationists employ to manage involuntary body movement in students with autism spectrum disorder.

2. Explore about the material used by special educationists to manage involuntary body movement in students with autism spectrum disorder.

3. Find out different ways adopted by male and female special educationists of students with ASD to suppress involuntary body movements.

4. Distinguish between use of techniques for controlling involuntary bodily movements in students with ASD by private and public-school special educationists.

5. Distinguish between schoolteachers' having different teaching experience in ways for controlling involuntary bodily movements in students with ASD.

Hypothesis

1. **H0:1** there is no significant difference between the strategies used by government and private school teachers of students with ASD to control students' involuntary body movement.

2. **H0:2** there is no significant difference between the ways employed by male and female teachers of students with ASD to manage their involuntary body movements.

3. **H0:3** there is no significant difference between the strategies used by teachers of students with ASD, having different teaching experience, to control students' involuntary body movement.

Material and Methods

This study was descriptive. Teachers of students with ASD who struggle with uncontrollable bodily movements were asked to provide data in the survey.

Population and Sample

Special educationists working in Punjab province was the population of the study. Teachers of students with ASD of government and private special schools and institutes in Lahore, Punjab were the study's target group. A total of 100 special educationists of autistic students were included in the study, 50 of whom worked in private schools and the other 50 in public institutions. The researchers employed a stratified sampling method for sampling.

Instrument

For data collection, a close ended questionnaire was designed with different questions to meet the objectives of study. The reliability of the questionnaire was Cronbach Alfa=.83. It was filled by 100 teachers of children with ASD who consented to participate in the study.

Results

Total 100 teachers participated in the study. Out of that, half of the teachers were 20 to 30 years old, while remaining 49% were between the age group of 31 to 50, with 2 between 51 to 55. Teaching experience of the study group varied one to thirty years. Fifty seven percent teachers had experience of up to five years, while rest of them had experience up to 30 years.

Table 1
Strategies used by teachers

S. No.	Strategies	F	%	Mean	Std. Deviation
1	Running	86	86	1.14	.349
2	Cycling	96	96	1.04	.197
3	Evolutionary games	94	94	1.06	.239
4	Dancing	92	92	1.04	.273
5	physical exercise	100	100	1.00	.000
6	walking for a set time	97	97	1.03	.171
7	ball hitting	93	93	1.07	.256
8	ball kicking	93	93	1.07	.256
9	punching, sticking, etc.	93	93	1.07	.256
10	provide calm and peace full environment	95	95	1.05	.219
11	provide comfortable furniture	100	100	1.00	.000
12	remove distractors during session	93	93	1.07	.256
13	follow set routines	95	95	1.05	.219
14	Parent counseling	95	95	1.05	.219
15	use favorite play of the child	67	67	1.43	.498
16	praising the child	98	98	1.02	.141
17	Clear directions	100	100	1.00	.000
18	transitional objects	96	96	1.04	.197
19	Providing calm place	100	100	1.00	.000
20	remain calm and peaceful	100	100	1.00	.000

When teaching children with ASD, teachers use a variety of methods to control their uncontrollable body movements as shown in Table 1. Physical exercise, providing comfortable furniture, using clear directions, remaining calm and peaceful were among the strategies used by all the teachers of government and private school sector. Using favorite

play of the child was the strategy was least used strategy among teachers with a mean score of 1.43 and standard deviation of .498.

Table 2
Equipment and materials used by teachers

S. No.	Equipment and materials	F	%	Mean	Std. Deviation
1	bubble tube	74	74	1.26	.441
2	ball pit	74	74	1.26	.441
3	cover crash	95	95	1.05	.219
4	frame support structure	92	92	1.08	.273
5	Swing	74	74	1.26	.441
6	touch and feel alphabets and letter	96	96	1.04	.197
7	Sand	93	93	1.07	.256
8	Dough	97	97	1.03	.171
9	Tray cubbies	81	81	1.19	.394
10	Trampoline	84	84	1.16	.368
11	air tight barrel roll	72	72	1.28	.451
12	gel wave pad	80	80	1.20	.402
13	therapy balls	94	94	1.06	.239
14	squeeze ball	94	94	1.06	.239
15	fun gripper movement ball	93	93	1.07	.256
16	Cushion	97	97	1.03	.171
17	bolster swing	71	71	1.29	.456
18	weighted push cart	92	92	1.08	.273

When teaching children with ASD, teachers use a variety of the equipment and materials to control their uncontrollable body movements as indicated in Table 2. Most frequently used materials by teachers included dough, cushion (mean score= 1.03, SD= .171), therapy balls, squeeze balls (mean score= 1.06, SD= .239) and touch and feel alphabets and letter (mean score= 1.04, SD= .197). The materials less used by teachers included bubble tube, ball pit, swing with a mean score of 1.26 and standard deviation of .441, air tight barrel roll (mean score= 1.28, SD= .451).

Table 3
t-test statistics for H0: 1

Schools	N	M	SD	t	P
Govt.	50	76.62	2.649	.925	.357
Private	50	76.16	2.316		

Table 3 indicates a non-significant difference between the mean scores of government and private school teachers with a t value of .925, *p*-value .357 at α= .05. As the p value was greater than .05, therefore null hypothesis, H0:1 was accepted. The ways employed by public and private school teachers of students with ASD to manage involuntary body movement are similar.

Table 4
t-test statistics for H0:2

Gender	N	M	SD	t	p
Male	38	76.16	2.707	-.729	.468
Female	62	76.53	2.352		

Table 4 indicates t value of -.729, *p*-value .468 at α= .05. As the p value was greater than .05, therefore null hypothesis, H0:2 was accepted. In other words, there is no statistically significant difference in ways employed by male and female teachers of students with ASD to manage their involuntary body movements.

Table 5
ANOVA Statistics for H0:3

Mean	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.000	4	.000	.063	.993
Within Groups	.133	95	.001		
Total	.133	99			

Table 6
Multiple Comparisons

(I) experience of participants	(J) experience of participants	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
9month-1year	1year-5year	-.00054	.01038	1.000	-.0294	.0283
	5-10years	.00102	.01169	1.000	-.0315	.0335
	10-20years	-.00123	.01278	1.000	-.0368	.0343
	20-30years	.00662	.01643	.994	-.0391	.0523
1year-5year	9month-1year	.00054	.01038	1.000	-.0283	.0294
	5-10years	.00155	.01022	1.000	-.0269	.0300
	10-20years	-.00069	.01145	1.000	-.0325	.0312
	20-30years	.00715	.01542	.990	-.0357	.0500
5-10years	9month-1year	-.00102	.01169	1.000	-.0335	.0315
	1year-5year	-.00155	.01022	1.000	-.0300	.0269
	10-20years	-.00224	.01265	1.000	-.0374	.0329
	20-30years	.00560	.01633	.997	-.0398	.0510
10-20years	9month-1year	.00123	.01278	1.000	-.0343	.0368
	1year-5year	.00069	.01145	1.000	-.0312	.0325
	5-10years	.00224	.01265	1.000	-.0329	.0374
	20-30years	.00784	.01713	.991	-.0398	.0555
20-30years	9month-1year	-.00662	.01643	.994	-.0523	.0391
	1year-5year	-.00715	.01542	.990	-.0500	.0357
	5-10years	-.00560	.01633	.997	-.0510	.0398
	10-20years	-.00784	.01713	.991	-.0555	.0398

Table 5 shows the ANOVA statistics to compare the mean scores of teachers of students with ASD, having different teaching experience, in using strategies to control students' involuntary body movement. The value of F is .063, *p*-value .993 at α= .05. As the p value was greater than .05, therefore null hypothesis, H0:3 was accepted. As a result, there is no statistically significant difference in means of teachers with varying levels of teaching experience in controlling ASD children' involuntary body movement.

Discussion

First and foremost, the researchers set out to discover the methods that special education teachers employ to keep an eye on their students' uncontrollable bodily movements. This study's findings are in line with other studies around the world. This investigation reveals that teachers use physical activities to encourage students to engage in unplanned movement for stimming (Craig, et al., 2018; Harrop, 2015; Melo, et al., 2020; Valente,et al., 2019), and for teaching social skills (Fazil, Qureshi and Tabassum, 2021). For

teachers and students in Pakistan, alternative methods of physical activity include running, fixing cycling, dancing and playing evolutionary games such as football. They also engage in physical activity by hitting and tossing balls and practicing an exercise regimen (locking, punching and sticking). According to teachers of children with ASD around the world have used all these strategies (Amos, 2013; Craig, et al., 2018; Harrop, 2015).

The findings of this study are consistent with those of other studies that show that teachers implement strategies such as creating a calm and peaceful learning environment (Cooper, et al., 2018; Gillespie-Lynch, et al., 2017; Murphy, et al., 2018; Teka and Harris, 2022). Students with ASD have a wide range of needs, so their teachers make sure they have comfortable seating and easy access to the supplies they need. Students with ASD are taught by removing all distractions from the classroom environment. Routines and schedules are established for all of the work. Educators recommend that parents of children with ASD be friendly and attentive (Raising children network, Australia, 2020). Involuntary body movement can be controlled through martial arts practice. If a child's involuntary body movement is halted for a predetermined amount of time, the teacher can play the child's favorite game and laud him. There are two options for each assignment. The teacher creates a daily schedule that details all of the events that will occur (Campisi, et al., 2018; Lord, et al, 2018; Lord, et al, 2020).

As a transitional object, teachers of autistic children allow the child to take the object from one activity to another (Kapp, et al., 2019). Educators maintain a serene demeanor in class (Cardona, et al., 2016; Lanzarini, et al., 2021). Other research objectives included determining whether male or female teachers use different methods to control a child's involuntary body movement based on their gender. No significant differences in strategies were found between male and female teachers as well as between government and private school teachers, according to the study. Both types of institutions employ similarly qualified and trained teachers who are knowledgeable about teaching students with autism spectrum disorders. Gender has been found to have no significant impact on ASD students' ability to control their involuntary body movements. Teachers of both sexes have long provided students with a similar learning environment, as well as the same services and resources.

Conclusions

Commonly used equipment and materials by teachers to control involuntary body movements of students with ASD include dough, cushion, therapy balls, squeeze balls and touch and feel alphabets and letter. Frequently used strategies by teachers for uncontrollable body movements include physical exercise, providing comfortable furniture, using clear directions and remaining calm and peaceful. No significant differences in strategies were found between male and female teachers as well as between government and private school teachers, according to the study.

Recommendations

1. Special educationists should be practically involved in learning to use of different strategies to control involuntary body movements in students with ASD during various training sessions organized by department of special education govt. of Punjab.
2. Pre-service and in-service training tailored to the specific needs of students with ASD would be provided for all instructors at public and private sectors.
3. Govt. and private sector schools would provide access to students with ASD to state-of-the-art sensory equipment in all required domains.
4. Trainings not only focusing on use of strategies to control involuntary movement, however, also focus on antecedents of involuntary body movements.

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