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The effect of yoga on the development of shared attention skills in children with autism disorder

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Abstract:

This descriptive study aimed to investigate the impact of yoga on the development of shared attention in children with autism disorder in a random sample estimated at (20) Child practitioner and non-yoga practitioner of the Center for Rehabilitation of Children with Autism and Intellectual Disabilities in Thursday Malina. The researchers used a common attention skills assessment measure built by specialized professors at the Faculty of Education, Ain Al-Shams University, Egypt. The results also revealed that yoga helps to develop the shared attention skills and alleviate the severity of this disorder. The researchers found that there are statistically significant differences between practitioners and non-yoga practitioners of children with autism disorder. And so some recommendations and suggestions have been made.

KEY WORDS :YOGA ;SHARED ATTENTION ; AUTISM ;

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1. Study problem:

A lack of shared attention skills is an early social difficulty observed in children with autism disorder, and shared attention is a social exchange in which children and adults focus on the same thing or event, so that children use a combination of eye-sight skills, gestures, and sounds or words (Vismara & Lyons, 2007).

The average child is characterized by the development of the skills of shared attention in its logical sequence, which usually begins with looking, seeing, following the eye, looking, looking, etc. but a child with autism disorder may suffer from a disorder in this sequence or may lose some of the elements of this sequence. This makes it easier for an average child to attract the attention of an adult and for an adult to attract the attention of the average child. It is difficult for an adult to attract the attention of a child with autism disorder. This is in addition to the different order of social development skills among autism children than among ordinary children.

The lack of shared attention skills is associated with many negative effects on the various manifestations of autism disorder in children, including linguistic, social development and play skills learning, which is a social hot spot affecting many dimensions of early development in these children.(J.WNS, 2004)

Thus, the inability to take common care affects both the social and communication successful children with autism disorder. This is done through different age levels, as reaching children with autism disorder differs from communication among ordinary children, especially in the second year of age, as many children with autism disorder cannot talk, and some of them are late in developing that skill. This indicates that autism disorder affects all the communication behavior patterns necessary to give language.(Ibrahim Al-Zoriqat, 2004: 263_245)

In order to overcome the deficiencies in the shared attention suffered by children with autism disorder, early intervention is essential to promote the development of those aspects, the associated problems and related disabilities to social development and communication. The initiation of training young children with autism disorder from 4-7 years of age in the skill of shared attention has a clear impact on the communication of these children with others and on how they express their feelings and emotions in many ways. This is what many studies have aimed at, such as Suha Ahmed's (2007) study. These skills are the gateway for a child to grow well and interact with the environment, including stimuli, influences, people, and successive events, and the ways and means to help develop these skills need to be addressed. With the development of science and the therapeutic methods of the patients with autism disorder, there were more than one successful method or method of attempting to alleviate the symptoms of disorder such as medical treatment, medicinal therapy,

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dietary therapy, vitamin therapy, behavioral therapy, and Psychotherapy, sensation integration therapy, sports therapy,... And to be our specialist in physical and sports education and to be in depth in one of the therapeutic methods (treatment by exercising). We have found a new method used in the rehabilitation and education centers specialized in the rehabilitation of people with mental disabilities and autism, which is the use of yoga to develop the skills of attention and communication between the injured child, educators and others during the practice of yoga, where yoga depends on the focus of following the movement of the educator and imitating it and yoga is A series of physical modes performed successively, with consistent breathing patterns and physical style, is one of the eight types of classical yoga, developed in India to fit mind, soul and body. Hence, we noticed a problem that we had to study and look for in order to know the credibility of using yoga in alleviating or developing social skills in those suffering from autism disorder and raised the following question:

Does yoga affect the development of shared attention skills in children with autism disorder?

1.1. The following sub-questions:

- 1- are there any statistically significant differences between the average scores of practitioners and the average scores of non-practitioners of yoga in the aftermath of visual contact?
- 2- are there any statistically significant differences between the average scores of practitioners and those of non-practicing yoga, after following the visual orientation of others?

1.2. Hypotheses:

1.2.1. General hypothesis:

Yoga exercises influence the development of shared attention skills in children with autism disorder.

1.2.2. Partial hypotheses:

- 1- there are statistically significant differences between the average scores of the practitioners and the average scores of the non-practitioners of yoga in the distance of visual contact.
- 2- there are statistically significant differences between the average scores of practitioners and those of non-practicing yoga, after following the visual orientation of others.

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2. Objectives of the study :

1- to draw the attention of those working in the field to the importance of the skills of shared attention among children with autism disorder to take care of that when preparing programs aimed at improving communication among children with autism disorder.

2- to direct those working in the field and educators to the existence of new methods and must be used as they help in mitigation and development, and because every child is different if the traditional methods do not succeed, this method can succeed.

3. Study importance:

The importance of research is that it is an analytical study of the shared attention and the impact of yoga practice on the development of the shared attention skills of children with autism spectrum disorder, and on the scale of the shared attention skills we seek to demonstrate the impact of yoga on these children and on the development of their shared attention skills.

4. Previous studies :

Articl of Marie Joelle Beaudoin, Nathalie Poirier and Ariane Leroux-Boudreault , Effect of school-based yoga practice on the attention behaviors of adolescents with autism spectrum disoreder, Revue québécoise de psychologie, vol 40, numéro 3, 2019.

5. Define terms:

5.1. Autism :

(Adel Abdullah, 2014, p. 11) defined autism as a complex developmental and mental disorder to which a child is exposed before three years of age and is accompanied for life, which can be seen as a widespread or developmental disorder that negatively affects many aspects of the child's development and appears in the form of behavioral responses. It is characterized by a deviation and delay in the growth of essential psychological functions associated with the growth of social and linguistic skills that include attention, sensational awareness and motor growth. These symptoms occur during the first three years of life.

5.2. Shared attention:

The ability of a child to use gestures and visual contact to organize attention with another person, share attention and care for things and events.(LIM, Hayoung,2012,P88).

5.3. Yoga:

Yoga is an art of spiritual sport, based on focus and meditation, so yoga was clear from its content - calm - and we could not say it in a hasty, nervous and powerful

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manner, and yoga is a sports system made up of a series of physical situations carried out in a sequential manner. A consistent breathing pattern and a body style is one of the eight types of classical yoga, which has been developed in India to fit the mind, the soul and the body. (troekes ,2000 ,p22)

6. Methodology for research:

6.1. Descriptive approach:

There is no doubt that any scientific achiever who aspires to qualify as scientific finds himself required to develop a plan, method or curriculum by which he will determine the steps he has followed in reaching his results, and therefore we have relied on the descriptive curriculum as "a way of describing, analysing and interpreting in scientific form a social situation or a social or population problem".

It also "examines the prevailing facts associated with a particular phenomenon or situation, group of individuals, group of events or group of situations". Mohammed Hassan Allawi - Osama Kamel Salary 1999, p. 219.

6.2. The exploratory study:

It is the first step we made before starting to line the outlines of the research and before starting the field study and it was done through two stages:

- (1) Before identifying the problem of research, it was to familiarize us with the various references of books, magazines and lectures that are not published, and it was in order to broaden our knowledge base on the subject and to ascertain the importance of research.
- (2) We visited teams and interacted with coaches and players to take an overview of the topic and its importance, and we saw a difference in the skill of joint attention in children with autism disorder practising and non-yoga practising.

7. Sample research and how to choose it:

Considering the sample to be the cornerstone of any field study, based on the questionnaire as a core asset, the concept is: "The sample is part of the study community from which field data are collected and is considered part of the whole in the sense that a group of members of the community is taken to be representative of the research community..

Our research included a portion of children with autism spectrum disorder affiliated to the Center of Practitioners and Non-Yoga Practitioners aged 6 to 8 years of age of both sexes. The sample was randomly selected without planning or arrangement, i.e. no appointment to circulate the results. It included:

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- ❖ 11 child yoga practitioner.
- ❖ 9 non-yoga children.

And this is some of the exercise used in yoga with the children in their daily activities:

Pigeon Pose - وضعية الحمامة



Downward Dog - وضعية الكلب المنخفض



Child's Pose - وضعية الطفل



Warrior pose - وضعية المحارب



Cobra pose - وضعية الكوبرا



The Butterfly - وضعية الفراشة



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8. Areas of Research:

8.1. Spatial Area

Field research was conducted at a Centre located at Al-Salam , Khemis Miliana, Ain Al-Defla , specialized in the rehabilitation of children with autism and intellectual disabilities

8.2. Temporal area:

We studied these in three areas of time:

- 1) Theoretical field from March to May 2022.
- 2) Applied area from 20 UT to 15 September 2022.
- 3) Sorting and analyzing results from 15 to 30 September 2022.

9. Adjust search variables:

Through our research there are two variables, one independent and the other dependent.

9.1. Independent Variable:

is the variable that the researcher assumes is the cause or one of the reasons for a given result, and his study may lead to knowledge of its impact on another variable. (Nasser Thabet, Kuwait, 1, 1984, p. 58)

- Identification of the independent variable: "Yoga."

9.2. Affiliate Variable

It affects the independent variable and its value depends on the effect of the values of other variables as whenever modifications to the values of the independent variable will appear on the dependent variable. (Nasser Thabet, Kuwait, 1, 1984, p. 58)

- Identification of the dependent variable: "skill of shared attention."

10. Tools and techniques used in research:

10.1. Measurement of shared attention skills in children with autism disorder

It is a measure of A's preparation. Dr. Abdulrahman Sayed Suleiman and A. Dr. Jamal Mohammed Hassan Nafi and A. Hana Shehta Ahmed Abdel Hafiz Professors in the Department of Special Education of the Faculty of Education, Ain Al-Shams University of Egypt, published in 2015 in the Journal of the Faculty of Education-Ain Al-Shamsa, Egypt amsa.

In our study we relied on the overall score of the scale in the general hypothesis and then tested two skills for shared attention:

1. visual contact, it is meant to meet the eyes that occur between the child and the other person.

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2. the visual orientation of others: It is meant to track the child to the other person's gaze and look at the same thing that is perceived.

In the grades we rely on the sum of the grades of each of the approved dimensions where each dimension we rely on a number of phrases of the scale:

First dimension: Eye contact: 11 first phrases of the scale

Second dimension: visual orientation of others: 6 phrases from phrase 12 to 17.

The specialist answers the scale phrases by selecting one of the following answers: always happens - sometimes happens - never happens. Each of these responses corresponds to one of the following grades (1-2-3) respectively. It was imperative to calculate the overall score by compiling the child's grades in each dimension and then the sum of the dimensions. The top score is an indication of the underperformance of the joint attention skills, and the small score is an indication of the high level of joint attention skills performance.

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10.2. The Measurement of shared attention skills in children with autism disorder

لا يحدث مطلقا	يحدث أحيانا	يحدث دائما	العبارة	
			أولاً: التواصل البصري وتقصد به الباحثة التقاء العيون الذي يحدث بين الطفل والشخص الآخر. يوجه الطفل نظرات عينية تجاه شخص آخر	١
			يلتفت الطفل إلى الشخص الذي يناديه	٢
			يستجيب الطفل لأمر انظر هنا	٣
			يتواصل الطفل بصريا مع أقرانه أو مع الكبار ممن يحيطون به	٤
			ينظر الطفل إلى وجه الشخص إذا رأى معه شيء يلفت نظره	٥
			ينظر الطفل إلى وجه الشخص الذي يحاول جذب انتباهه	٦
			ينظر الطفل إلى الآخرين ويستخدم إشارات وتفسيرات للوضع الذي لا يفهمه	٧
			يفحص الطفل وجه الشخص كرد فعل في المواقف الغامضة	٨
			ينظر الطفل وقتا (لا يقل عن ٥ ثوان) في اتجاه عيني أي شخص آخر	٩
			يتابع الطفل حديث الكبار باهتمام مع تنقل بصره بين القائمين بالحوار	١٠
			ينظر الطفل تجاه عيون الشخص الآخر عند الاحتياج لشيء ما	١١

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١	ثانيا: متابعة نظرات الآخرين (متابعة التوجه البصري للآخرين). ويقصد به تتبع الطفل لنظرات الشخص الآخر والنظر لنفس الشيء الذي ينظر إليه هذا الشخص. يتتبع الطفل نظرات الآخرين عندما ينظرون إلى شيء ما		
٢	يحرك الطفل رأسه في نفس اتجاه حركة رأس الشخص الآخر		
٣	يتتبع الطفل النظر في اتجاه عيني الراشد الذي ينظر إليه		
٤	ينظر الطفل إلى شيء معين عندما يسأله شخص عن هذا الشيء وذلك بدون استخدام الإشارة		
٥	يتابع الطفل حركة لعبة ما أينما توجهت		
٦	ينظر الطفل إلى الشخص ثم ينظر إلى الشيء الذي يشير إليه الشخص ثم يعاود النظر مرة أخرى إلى الشخص.		

11. Statistical method:

After collecting all the scale forms from educators and specialists at the center, we have unloaded and sorted the forms, this process is done by collecting the number of grades in each dimension and the total grades of dimensions for each child and placing them in table number....

11.1. Test T:T-test:: Statistically significant differences or not.

11.2. Believe and hold the scale:

We used the peripheral comparison on the survey sample of 15 children via the networking sites due to the distance and shortage of specialized centers in the state.

The test was performed and re-administered after 15 days. We got the following results:

Honesty coefficient	Constant Factor	Standard deviation	Arithmetic Average	Scale
0.99	0.99	34.863	108.6	Total Scale Grade

Table showing the sincerity and stability of the scale

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12. Analysis of table results:

After testing twice on the reconnaissance sample, we calculated the average calculation of 108.6 and standard deviation 34.863 we calculated the factor of honesty by calculating the coefficient of correlation between the two tests and found 0.99 which is a value close to 1. We calculated the stability that is the root of the honesty lab and found 0.99 which is a value close to 1.

According to the test certification law, whenever the test certification coefficient is close to the value of 1, the test is honest and the more the stability lab value is close to 1, the test is fixed.

And one of the top results is that the shared attention skills scale of children with autism disorder that we used is honest and consistent.

13. Discussion of hypotheses: Sample research 20 children

13.1. Generic hypothesis:

Yoga exercises influence the development of shared attention skills in children with autism disorder.

Degree of freedom	Table T	T calculated	Standard deviation	Mean	Samples	Test
18	2.101	5.025	23.458	93.091	Practitioners (11)	Shared attention skills measure as a whole
			22.028	144.667	Unpracticed (9)	

Table showing differences between yoga practitioners and non-yoga practitioners in the scale as a whole

13.1.1. Analysis:

Results obtained after the calculation of mean for practitioners (93,091) and non-practicing yoga (144,667), standard deviation for practitioners (23.458) and non-practicing yoga (22.028), and using T-test for two variables note that the calculated T is 5.0025 greater than the tabular T 2.101 at the significance level 18 in the overall attention scale.

13.1.2. Inference:

Since the calculated t 5.0025 is greater than the tabular t at the significance level 18, it is the statistical difference d. We reject the mere hypothesis that there are no

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distinctions of statistical significance and accept the alternative hypothesis that there are statistically significant differences between practitioners and non-practitioners in developing shared attention skills.

13.2. Partial hypothesis 1:

The hypothesis states that: There are statistically significant differences between the average score of practitioners and non-yoga averages in the distance of visual contact.

Degree of freedom	T table	T calculated	Standard deviation	Mean	Samples	Test
18	2.101	5.804	3.139	15.364	Practitioners (11)	After eye contact
			4.693	25.556	Unpracticed (9)	

A table showing the differences in the scores of eye contact between practitioners and non-yoga practitioners.

13.2.1. Analysis:

The results obtained after the calculation of mean for practitioners (15.364) and non-practicing yoga (25,556), standard deviation for practitioners (3.139) and non-practicing yoga (4.693), and using T-test for others, note that the calculated T is 5.804 greater than the tabular T at the significance level of 18 in the distance of visual contact.

13.2.2. Inference:

Since the calculated T 5.0025 is greater than the tabular T 2.101 at the level of significance 18, it is the statistical difference of D. We reject the zero hypothesis that there are no distinctions of statistical significance and accept the alternative hypothesis that there are statistically significant differences between practitioners and non-practitioners in the distance of visual contact.

13.3. Partial hypothesis 2:

The hypothesis states that there are statistically significant differences between the average scores of practitioners and non-yoga practitioners after following the visual orientation of others.

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Degree of freedom	T table	T calculated	Standard deviation	Mean	Samples	Test
18	2.101	4.289	2.284	8.727	Practitioners (11)	After following the visual orientation of others
			2.261	13.111	Unpracticed (9)	

A table showing the differences between yoga practitioners and non-yoga practitioners in scores after the visual orientation of others.

13.3.1. Analysis:

Results obtained after the calculation of mean for practitioners (8,727), non-practicing yoga (13,111), standard deviation for practitioners (2,284) and non-practicing yoga (2,261), and using T-test for others, note that the calculated T 4,289 is greater than the tabular T 2.101 at the significance level of 18 in the visual contact.

13.3.2. Inference:

Since the calculated t 4,289 is greater than the tabular t 2.101 at the level of significance 18, it is the statistically significant difference d. We reject the zero hypothesis that there are no distinctions of statistical significance and accept the alternative hypothesis that there are statistically significant differences between practitioners and non-practitioners after following the visual orientation of others.

13.4. Discussion of hypotheses:

13.4.1. Discussion of the general premise:

According to the results obtained after studying the differences between practitioners and non-yoga practitioners in joint attention skills in people with autism disorder, we found that yoga helps and affects the development of joint attention skills significantly, as we observed that a child practitioner of yoga can pay attention during the exercise and can imitate your movements and when he or she does that movement or exercise without ordering him or the specialist. This was agreed by the Anne Claude study, where results show a significant increase in the frequency of joint attention behaviors of students with autism after participating in the yoga session.

13.4.2. Discussion of partial hypothesis 1:

According to the results obtained after studying the differences between practitioners and non-yoga practitioners in joint attention skills in people with autism disorder after eye contact, we noticed that yoga helps to meet the eyes with the trainer and responds

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to his call. When the trainer sees coming with him, something or a tool of yoga training keeps following him with his eyes.

13.4.3. Discussion of partial hypothesis 2:

According to the findings obtained after studying the differences between practitioners and non-yoga practitioners in the shared attention skills of people with autism disorder after following the visual orientation of others, we observed that yoga helps to track the child with the other person's gaze and to look at the same thing that is perceived and traces the views of others when they look at something and a yoga ", when the child asks for something to look at without mentioning it and this has proved that yoga has helped to develop this dimension.

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14. Conclusion:

The current study is part of scientific research interested in training programmes that contribute to modifying a behaviour or developing the joint attention skills of a child with autism spectrum disorder. In the absence of a definitive solution to this disorder, we can nevertheless alleviate its various symptoms, Approaches and therapeutic methods differ depending on the severity of the disorder as well as the purpose of applying a specific treatment method Those who have been behaviours such as mitigating self-harm, aggression and undesirable behaviors, These include those who are social, allowing the child to coexist in the middle of his or her environment, such as independence, self-care, friendship and cooperation with others. There are also programmes that touched verbal and non-verbal communication, including yoga, which is an old sport but a new type of sport used to alleviate and treat this disorder, and through what we presented in this study, and following the results obtained, we finally found that yoga is a successful way and contributes in a large way to the development of the joint attention skills of the child with autism disorder largely in most of the cases we studied. The principles of this sport should be respected so as not to be harmful to the child either psychologically or physically Care must therefore be taken during the preparation of the training programme, under the supervision of yoga specialists and specialists in the treatment of autism, as well as the diversification of training exercises so that the child is not bored and gains the principle of inclusiveness, as well as the need to involve parents in training classes. Attention to such recent studies as new ways of mitigating and treating autistic patients is an enrichment of the scientific aspect and draw the attention of society in general, educators and specialists especially to innovative new ways of treating this disease, especially for children to give them opportunities to contribute to society and enjoy a normal life.

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