# Classroom Behavior Problems for Students with Autism Spectrum Disorder and Treatment Techniques Using Applied Behavior Analysis from the Point of View of Teachers in Inclusion Schools

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## Abstract

The study aimed to identify the classroom behavioral problems of students with autism spectrum disorder and their treatment techniques using behavior analysis among teachers in light of the variables of gender and experience. The descriptive approach was followed in this study. The study sample consisted of (42) autism teachers in the inclusion schools in Riyadh, Saudi Arabia. A questionnaire of (28) technical items and (25) problem items was used to collect data from the study participants. The study reached the following results. The list of behavioral problems was moderate, the most noticeable was frequent movement, and the least noticeable problems were panic and anxiety attacks. As for the order of treatment techniques, the most used methods were methods of forming new behaviors, then methods of organizing post-stimuli to strengthen appropriate behavior, followed by methods of organizing post-stimuli to reduce disturbing behavior. Also, no statistically significant differences were shown due to the gender variable in all fields, except for methods of organizing post stimuli to reduce disturbing behavior and methods of forming new behaviors. The differences came in favor of females. In addition, no statistically significant differences were revealed due to the variable of years of experience in all fields, except for methods of forming new behaviors. The differences came in favor of more years of experience. The study recommended the necessity of designing training programs that meet the needs of teachers working with autistic children using techniques of applied behavior analysis.

**Keywords**: behavioral problems, applied behavior analysis techniques, teachers, autism spectrum disorder, inclusion schools.

## INTRODUCTION

In the past years, there has been a steady increase in the number of children diagnosed with autism spectrum disorder. According to figures from the National Institute of Mental Health and the Center for Disease Control, global statistics indicate that rates are now categorized as one case of autism spectrum disorder for (68) cases (Ruppert, 2018). According to the latest official estimate issued by the General Authority for Statistics in 2017 in the Kingdom of Saudi Arabia, there were (53.282) cases. Statistics also indicate that the prevalence of autism spectrum has increased by between 10% and 17% annually. This, therefore, requires an increase in the number of programs offered to them. Although teachers and those in charge of these programs have obtained the appropriate preparation before entering the field of work with students with autism spectrum disorder, it seems that large numbers of them face multiple difficulties in

how to deal with this group practically (Al-Qurashi, 2017).

The field of autism is relatively recent compared to other categories of special education. Therefore, it needs unremitting efforts and fruitful experiences to reach effective methods and techniques to help this category (Al-Khuffash, 2006). Officially, the Ministry of Education was interested in students with autism spectrum disorder in 1998. Specialized services were provided to children with autism spectrum disorder in the Kingdom's centers and schools after opening three programs in Riyadh, Jeddah and Dammam with the number currently increasing in all areas and cities of the Kingdom (Al-Khashrami, 2003). In the city of Riyadh, there are (30) institutes and programs for autism in public and private sectors.

Autistic individuals are considered a heterogeneous group in terms of characteristics and traits. The difference between one autistic child and another may be greater than the similarity between them. However, there are some general characteristics that all autistic individuals have in common. These characteristics help specialists in diagnosing autism, which is recognized through behavioral manifestations (Al-Qaryouti, 2013).

Behavioral problems have several causes and factors difficult to identify, but they improve as a result of treatment programs, training and effective educational methods provided to the child (Chetram, 2018). Especially, the motives of behavioral problems differ from one individual to another, and the variance between autistic individuals in behavioral problems is wide and greater. Also, the failure to train them in these skills results in several negative problems, which may affect their adaptation to others (Al-Khuffash, 2006).

Kazden (2001) and Halhan & Kauffman (2009) refer to the employment and use of behavioral analysis techniques and methods with autistic children. They exhibit forms of behavior such as repetitive, stereotyped movements such as hand flapping, spinning, rotating or tasting things abnormally, staring at lights, rocking the body, walking on toes and insisting on following a certain routine in daily life. This calls for the need to employ the techniques of behavior analysis with these forms of behavior to change and modify them while installing the desired forms of behavior or changing the undesirable forms of behavior (Al-Rousan, 2014).

Behavior analysis programs are based on gathering information. Targeted behaviors are also monitored and measured (i.e. behaviors to be eliminated or modified). Before launching any program, the target behavior is described in precise and behaviorally concrete terms. Data on the frequency of the target behavior are collected at least one week before the start of the program. The purpose of these data is to compare progress at a later date. Once a target behavior has been selected and approved, the most appropriate outcome (e.g., reinforcement and extinction) is determined. Then, the program is developed and implemented (Al-Sartawi & Al-Otaibi, 2013).

Behavioral problems for children with autism can be treated using applied behavior analysis procedures. These behavioral problems are modifiable and respond to specific and programmed interactions with the environment in which the individual lives (Lovass & Smith, 1989). Effective use of applied behavior analysis procedures requires special training that teachers should strive for. Also, it is important to have well-trained and qualified behavior analysts to work with children with autism (Eikeseth & Lovass, 1992).

The treatment intervention for the autistic child depends on the specifics of his condition. This means that no program or treatment method can be applied to all children with autism (Abdullah et al., 2009). Behavioral intervention resorts to employing techniques of behavior analysis according to the type of problematic behavior in terms of its severity and the conditions and circumstances of its occurrence. Behavior analysis programs depend on bringing about a change in the conditions of behavior in the individual's environment by controlling his pre-stimuli (discriminatory stimuli) or post-stimulus (behavior outcomes) or controlling

both the pre and post conditions by employing the appropriate technique and method that guarantees them the minimum level of success. Knowing that overcoming these behavioral problems in a child with autism is more complex and takes longer (Al-Zogoul, 2006).

It is worth noting that choosing the appropriate behavioral intervention method is the sixth strategy in the hierarchical order of steps for designing and implementing behavioral analysis programs. After defining the target behavior, procedurally defining it, measuring it, and then performing a functional analysis of the behavior, then defining the objectives of the behavior analysis program, and collecting data or information about each of them, the important method is to decide on the design of a plan or program of behavior analysis. Is the positive reinforcement method, negative reinforcement, modeling method, behavior formation method, or self-control method chosen, or does the supervisor resort to the behavior analysis program to choose a method such as punishment or erasure... If the methods were not effective, it is necessary in this case to reconsider some of them and to work on employing other methods to reach the desired final result, which is to modify the target behavior of the individual (Al-Zogoul, 2006). The methods used to control the pre-stimuli and the techniques used to control the post stimuli are chosen (Al-Khatib, 2017; Al-Rousan, 2014).

Autistic individuals have several traits and characteristics that may pose challenges for educators (Copina et al., 2002). The disparity between them in these features and characteristics is very large. Therefore, teachers must have the tools and experiences to overcome these negative features and characteristics and to choose effective treatment interventions and educational tasks for students with autism spectrum disorder to obtain positive educational outcomes (Scoot, 2000).

Good classroom management requires the ability to select appropriate techniques from a range of alternatives. It is also concerned with paying attention to the types of problems that require attention. When working with students who suffer from behavioral disorders, teachers and other specialists usually work to detect and identify behavioral problems (Al-Sartawi & Al-Otaibi, 2013).

Behavioral intervention methods are easy to apply in the classroom. Most of these methods require the teacher to organize the environment, monitor students' behavior and provide performance information. These procedures are appropriate for the role of the teacher and can be practiced with a little training. These methods focus on everyday problems that students present in the classroom and are also useful in severe cases (Al-Qaryouti, 2013).

Behavioral problems among autistic individuals are among the most difficult and pressures facing teachers' efforts to provide them with appropriate educational services. The behavioral problems displayed by autistic individuals lead to exclusion and isolation from educational and community activities. These are behavioral problems, difficulties and challenges facing teachers. Some scientists have interpreted these behavioral problems as how a child with autism may respond to unpleasant sensations or to deliver a message to others (Al-Khuffash, 2007; Al-Sheikh, 2018).

The teacher is one of the most important persons in the process of measuring and evaluating behavioral problems in children with autism. Numerous studies have indicated that teacher assessments are the truest and most objective. Usually, teachers' judgment is relied upon to assess behavioral problems. These estimations are made through checklists, grade scales, or questionnaires (Bahrawi, 2013). For the process of measuring and diagnosing behavioral problems effectively, there must be cooperation between parents and teachers in collecting information accurately and objectively. The type of behavior, its frequency, its severity and the duration of its occurrence at home or school should be taken into consideration (Al-Qaryouti et al., 2013). The teacher of autistic students has a vital role in the educational process. Whatever his scientific and cognitive degree, he remains in constant need to check the latest scientific and

technological means to deal with autistic individuals and his need for continuous training courses (Al-Khuffash, 2006).

Teachers use more than one method to deal with the behavioral problems of autistic students. This is due to no specific method can be indicated as being better than the other for the large and varied individual differences between the members of this category.

The standards of the Council for Exceptional Children (CEC) included a set of knowledge and skills that teachers of children with autism spectrum disorder (ADD) must have. They include the philosophy used in their education, knowledge of their behavior patterns, providing an appropriate environment for their learning, developing their behaviors, employing special educational strategies for them and modifying those strategies to suit their characteristics. They also include additional manifestations of understanding, skills and personal traits. Usually, preparing special education teachers accompanies the process of preparing them for the requirements of specialization in special classes. It also requires an understanding of educational environments, their knowledge of the aspects of the child's cognitive, physical and social development and the regular curricula, and what is expected of students according to their grade and age levels (Al-Hawsawi, 2009; Al-Hussein, 2015; Al-Sartawi, 2011).

Teachers play an important role in organizing the classroom environment in line with the characteristics and needs of this category and work to control unwanted behavioral problems that hinder the educational process. Therefore, they must work to provide a stable and organized classroom environment with clear objectives and define specific corners for activities, educational tasks, sports and others (Lock, 2005). It also requires designing daily, weekly and monthly schedules for each child and providing students with the necessary instructions (when to start implementing activities and when to finish them, define the tasks of completing the activity, and re-arrange activities and games as they were before after completing them). In addition, the teachers'

role includes organizing activities in the way that individuals understand, gaining independence and self-confidence, teaching them how to move from one activity to another using cards (activity tables), and reminding them to move from one activity to another. Further, teachers must give the student the freedom to choose what he likes such as the freedom to choose the pen with which he wants to write, what to write and what notebook he chooses to write in etc. Furthermore, teachers need to create the appropriate environment and the necessary tools to deal with those characteristics and behavioral problems of autistic students in an orderly and sequential manner that ultimately leads to achieving the desired goals and allows autistic individuals to grow, develop and improve in a better level of performance (Lock, 2005).

## Theoretical background

In 1943, the American physician Leo Kanner published a prominent research paper entitled "Autistic Disorders of Affective Contact". In this paper, Kanner described the results of his work with eight boys and three girls, none of whom reached the age of eleven. These children shared several characteristics, the most prominent of which was the inability to relate to people and situations in a normal way from a very early age in their personal lives (Al-Shakhas & Al-Sartawi, 2011, p. 242). All of these children came from families with a high level of intelligence. They were subjected to severe disorders since birth without going through any normal growth period. They are considered among those who have "Early Infantile Autism". After that, several studies were launched based on the description provided by Kanner of his study sample. This has led to significant changes in the methods of defining and diagnosing this disorder so that the current descriptions are no longer similar to those provided by Kanner (Al-Shakhs & Al-Sartawi, 2011).

From the point of view of the behavioral school, autism is a syndrome and a dread of deficits and behavioral deficiencies. They are

due to biological causes but are subject to change due to carefully organized constructive interactions in the natural environment and the social environment. Since autism is defined and diagnosed behaviorally, the method of treatment using applied behavior analysis is the most successful treatment, which has been proven effective in improving autistic individuals (Morris et al., 1995).

Autism spectrum disorder is a lifelong developmental disability that affects how a person communicates and relates to others, and how he views the world around him. Autism spectrum disorder and autism are general terms that describe a group of complex disorders of brain development. Each person with autism has unique strengths and needs (Authority for Persons with Disabilities, 2017). Applied behavior analysis is based on the results of the work of Skinner and his colleagues, which is often called behavioral analysis or experimental analysis of behavior and applies them to humans in various environments successfully with multiple methods (Al-Otaibi, 2012, p.30).

The International Society for Behavioral Analysis, which began in the United States, has been operating as the Midwest Society for Behavioral Analysis since 1974. The first issue of the Journal of Applied Behavior Analysis appeared in 1968. The society currently includes more than 20 diverse groups of interests and fields that apply the principles of applied behavior analysis including the autism group. Some argue that Ulman and Krasner were the first to use the term applied behavior analysis in their book "Studies in the Case of Behavioral Modification" in 1968. Others argue that Montrose and Wolf, one of the founders and first editor of the Journal of Applied Behavior Analysis, may have been the first to use the term (Al-Otaibi, 2012).

Applied behavior analysis is based on empirical evidence. It can be used with any problem of any kind. If one method did not work, it is discarded and replaced with another method. The interventions on which it is based are more individualized and less mechanical than other approaches. It enables tailoring treatment procedures to suit a particular student's

learning style and needs, rather than targeting everyone in the same way, thus ignoring individual differences.

Setting objective, measurable and observable behavioral goals helps us easily see if what were are doing is working. Specialists practice all these behavioral measures in one way or another all the time so that they can be easily applied when working with children (Al-Otaibi, 2016).

The types of Applied Behavior Analysis (ABA) are divided into ABA Type 1: which refers to narrowly targeted interventions for appropriate problem behaviors. ABA Type 2 refers to broader behavioral interventions that target a broad range of building activity skills. The Basic Applied Behavior Analysis (ABC) model is simpler and used to understand and analyze the problem behavior through basic elements: What happens immediately before the behavior? This is called the Antecedent Factor. What happens during the behavior? This is called Behavior. What happens immediately after the behavior? These are called Consequence Factors (Al-Sheikh, 2018).

Applied behavior analysis aims at methods of organizing post stimuli to strengthen appropriate behavior. It includes (positive reinforcement, (food, physical, social, activity, symbolic, industrial) negative reinforcement, symbolic economy, behavioral contracting, direct instructions, discrimination, generalization, feedback, Primak's Law, role-playing and programmed learning (Al-Khatib, 2016; Abdel Moati et al., 2013; Al-Rousan, 2013; Al-Shakhs & Al-Sartawi, 2011; Bandar, 2016; Al-Othman, 2013; Wargi & Al-Zaqawi, 2016).

-Methods of organizing post stimuli to reduce disturbing behavior include (punishment, extinction (eradication), differential reinforcement (differential reinforcement for gradual decrease in low rates of behavior, differential reinforcement for another behavior, differential reinforcement for high rates of behavior, differential reinforcement for low rates of behavior), response cost, overcorrection, overcorrection with positive

practice, overcorrection by correcting the situation to a better condition elimination of positive reinforcement (time-out). It also includes repeated stimulation, role play, change of stimulus, reprimand, overflow, immersion, reverse gratification, gratification, aversion, negative practice, attention, and modeling to stop the behavior (Al-Khatib, 2016; Abdel Moati, 2013; Al-Rousan, 2013; Al-Shakhs & Al-Sartawi, 2011; Al-Othman, 2013; Kamel & Ahmad, 2014).

-Methods of forming (formation) new behaviors include (memorization and concealment, modeling, sequencing, forward chain, reverse chain, total skill presentation, skill analysis, and self-control (Al-Khatib, 2016; Abdel Moati et al., 2013; Al-Rousan, 2014).

The techniques of applied behavioral analysis or what is known as behavior modification are considered the most effective methods in the treatment and education of autistic children so far. This is due to the positive results of several scientific and experimental studies such as that of Miranda et al. (2002), whose results indicated the effectiveness of a program based on the techniques of applied behavioral science (reinforcement, extinguishing, exclusion, symbolic reinforcement, and cognitive-behavioral strategies such as education and self-evaluation) in reducing behavioral problems. The study also confirmed the possibility of achieving the desired educational and therapeutic goals by using these techniques.

It is worth noting that the use of behavior analysis procedures is not limited to strengthening acceptable behaviors and reducing unacceptable behaviors, but extends to other aspects of the autistic child such as language acquisition, self-care skills, in addition to Grendel's daily life skills (Grindle & Remington, 2002). Applied Behavior Analysis is distinguished by the continuous and accurate evaluation of the child's performance through data recording and the use of graphs (Al-Azali, 2018).

Al-Zari's (2012) study aimed to identify the level of knowledge of teachers of children with autism in methods of behavior modification in light of some variables: gender, educational qualification, and years of experience in a sample of 58 male and female teachers in Jeddah. The results showed that the means order of the behavior analysis methods used was: methods of strengthening the desired behavior, methods of weakening the undesirable behavior and the principles of behavior modification. The results of the study also showed that there were statistically significant differences due to the effect of gender in favor of females. Also, no significant differences were due to the effect of educational qualification as well as experience.

Melhem's (2013) study aimed to explore the level of educational competencies for teachers of autistic students and the effectiveness of an in-service training program in developing them in a sample of 108 male and female teachers in Jordan. The results showed that the competencies of classroom management, teaching planning and teaching implementation came high. As for the adequacy of the evaluation, it came medium. There were no statistically significant differences between the mean performance of teachers on the scale and gender. Also, there were differences in favor of teachers with more years of experience. There were statistically significant differences on the whole scale related to their educational adequacy in favor of the experimental group to which the training program was applied.

The study of Al-Otaibi (2015) aimed to know and use the strategies of applied behavior analysis among teachers of autism in Saudi Arabia and the obstacles that prevent using them. The study consisted of 158 male and female teachers in public schools. The results showed that female teachers had a higher level of knowledge and higher frequency of using ABA strategies than male teachers. The study indicated that teachers who received ABA skills training had higher levels of knowledge and frequent use of ABA strategies compared to their peers not receiving the ABA training.

Al-Hussein (2015) assessed the level of student-teacher knowledge of the techniques of applied behavior analysis by applying them to 123 students. The results showed that the percentage of knowledge of student teachers in the techniques of behavior analysis was low. The results also indicated that there were statistically significant differences in the level of technical knowledge in favor of female students, specialists in special education and students of applied behavior analysis techniques. In addition, the results showed a correlation between the participants' level of knowledge of these techniques and their enthusiasm to use them.

Hamdan (2018) identified the training needs of teachers of children with autism spectrum disorder in in-service programs and their relationship to some variables. The sample consisted of (73) male and female teachers. The results showed that the degree of their theoretical and practical training needs was moderate. Also, there were no statistically significant differences in estimating theoretical and practical training needs due to experience and qualification.

Al-Sheikh (2018) assessed the level of knowledge and use of teachers of programs for integrating autism and behavioral disorders of ABA techniques and their relationship to educational qualification and experience variables on a sample of 40 female teachers in primary schools in Riyadh. The results showed that the teachers' use of the techniques to increase the desirable behavior appeared to a medium degree. Also, and the teachers had a high degree of the techniques of increasing the desirable behavior and a medium degree of the techniques of reducing the undesirable behavior.

Khaleel (2019) assessed the level of knowledge of teachers of autistic children about the importance of ABA strategies in the Jordanian city of Zarqa. It also explored whether the level of knowledge varied according to gender, years of experience, qualifications and specialized training. The sample consisted of 60 male and female teachers. A questionnaire consisting of 27 items was applied. There were no statistically significant differences in the total degree of importance of ABA strategies due to gender or educational qualification. There were also statistically significant differences in the total scores due to training on applied behavior analysis strategies. In addition, statistically significant differences were shown in the degrees of total importance, and no statistically significant differences in the total scores of using ABA strategies due to the number of years of experience.

Al-Ghamdi and Maajini (2020) explored the level of applying ABA strategies by female teachers with autism spectrum disorder in Jeddah on a sample of (133) female teachers. The results showed that the female teachers had knowledge and use of the planning steps of the ABA program and knowledge of ABA strategies. The results showed that the most used techniques were positive reinforcement, indoctrination, concealment, modeling and punishment in order. It was also found that there was a direct relationship between knowledge and the use of ABA techniques. In addition, the results showed that there were no statistically significant differences in the application of ABA techniques according to the center as well as the educational qualification. Further, there were statistically significant differences in applying the planning steps of the ABA program in favor of diploma and the years of experience 7 years or more. The focus on the theoretical aspect during university studies and the percentage of cases in the classroom were among the most prominent obstacles to the application of ABA techniques.

This study came to ease the work for therapists and those interested in using the appropriate applied behavior analysis for a specific behavioral problem within the classroom. The results of previous studies confirmed its proven effectiveness, especially when adhering to the steps of behavior analysis such as designing and evaluating the treatment plan.

Statement of problem

The problem of the study attempts to shed light on a category of special education groups, children with autism spectrum disorder. The

results of Orabi's (2007) study concluded that the means teachers' scores on the study instrument were low concerning knowledge of behavior modification methods. Accordingly, it is necessary to have a highly qualified professional and personal teacher who knows the techniques of behavior analysis. Also, he can effectively employ these techniques and can address the behavioral problems of students with autism as shown by Fennell& Dillenburger (2016), who concluded that teachers' knowledge of ABA was more theoretical than practical. Al-Doukhi and Jarrar (2015) indicated that the level of teachers' possession of theoretical knowledge and practical practices of behavior modification methods was low and their inability to deal with these cases, which may lead to their suffering from psychological burnout and feelings of frustration. Hamdan (2018) also indicated that the theoretical and practical training needs of teachers with autism were moderate given the need to identify the characteristics and behavioral problems of autistic children. Al-Khuffash (2005) and Jane et al. (2004) aimed to develop an appropriate educational remedial intervention to reduce these problems. Accordingly, this study aimed at knowing the level of autism spectrum disorder teachers' use of the techniques of behavior analysis. It aimed to collect objective scientific data on the most important behavioral problems of autistic children and know the extent to which teachers can reduce these problems. Specifically, the study attempted to answer the following research questions:

1. What are the common behavioral problems of students with autism from the point of view of their teachers?

2. What Applied Behavior Analysis techniques are used by autism spectrum disorder teachers?

3. Are there statistically significant differences at the level of (0.05) in the knowledge of teachers of autistic children about the techniques of behavioral analysis according to the variables of gender and experience?

Significance of the study

- Providing the Arabic library with a theoretical framework on the various techniques of applied behavior analysis. This will be useful in providing specialists to choose appropriate and effective techniques and methods to confront behavioral problems.

-Determining the teachers' knowledge of the techniques of behavior analysis. This can help in preparing and providing training programs during the service.

- Shedding light on the effectiveness of applied behavioral analysis techniques used in programs and services provided to children with autism.

- Reaching results that contribute to providing recommendations that the decision-maker can benefit from in developing programs and services provided to children with autism.

Methods

Based on the study problem, this study relies on the descriptive survey method. The study aims to know the classroom behavioral problems of children with autism spectrum disorder and the techniques of their treatment using applied behavior analysis from teachers' point of view.

Population of the study

The population of the current study included all (42) male and female teachers of autism programs in the inclusion schools in Riyadh region for the academic year 2020/2021.

Sample of the study

The study sample consisted of (42) male and female teachers who work in schools in the city of Riyadh, Kingdom of Saudi Arabia to survey behavioral problems. The study variables included gender (male, female) and years of experience (4 years or less, 5 years or more). Table 1 shows the study sample according to gender and experience.

Table 1. *Frequencies and percentages*
*according to the study variables*

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 16 | 38.1 |
| | Female | 26 | 61.9 |
| Years of expereince with autistic childern | Less than 5 years | 22 | 52.4 |
| | More than 5 years | 20 | 47.6 |
| | Total | 42 | 100.0 |

Instruments of the study

1. To build an instrument that identifies behavioral problems, the researcher prepared an instrument for problems and behavioral manifestations for children with autism by referring to previous studies such as Al-Khuffash et al. (2004). The final version consisted of (25) items on a four-Likert scale (happens often, happens sometimes, happens rarely, never happens) and the method of dealing with each behavioral problem. The questionnaire also induced an open question about any other behavioral issues not on the list.

Internal consistency

To extract the internal consistency of the scale, the correlation coefficients of the item with the total score of the scale were extracted in an exploratory sample of (20) teachers from outside the study sample. The item correlation coefficients with the total score of the scale ranged between (0.45-0.80), acceptable and statistically significant scores. Therefore, none of these items were deleted.

Reliability

To ensure the reliability of the study instrument, the test-retest method was used. The scale was applied and reapplied for two weeks to a group from outside the study sample (21). Then, the Pearson correlation coefficient was calculated between their responses at both times, and it reached (0.87). The reliability coefficient was also calculated using the internal consistency method according to Cronbach's alpha equation, and it reached (0.84). These values were considered appropriate for this study.

2. To build an instrument for autism spectrum disorder teachers' knowledge and use of the techniques of applied behavior analysis, the researcher reviewed previous educational literature related to the techniques of applied behavior analysis in building the scale (Al-Khatib, 1993; Orabi, 2007; Al-Khuffash, 2006). Studies showing the techniques of behavior analysis used with autistic children were also reviewed (Al-Ayed, 2011; Al-Zari', 2012; Al-Sheikh, 2018; Al-Ghamdi & Maajini, 2020; Al-Doukhi & Jarar, 2015; Reeves, 2017; Al-Otaibi, 2015; Alhossein, 2021). In light of this, the concept of behavioral analysis techniques was defined.

The study instrument, which consisted of two parts, was prepared. The first part included general demographic information such as (gender, and years of experience). The second part contained the items of the scale in its initial version to amount to (30) items in multiple-choice in form of situations. Each field is followed by three alternatives (a, b, c) depending on the definition of the techniques of applied behavioral analysis. Thus, the scale in its final version consists of (28) items distributed into the dimensions (behavior measurement: 1-4, methods of organizing post stimuli to strengthen appropriate behavior: 5-11, methods of organizing post stimuli to reduce disordered behavior: 12-21, methods of formation new behaviors: 22-28.

Difficulty and discrimination for the instrument:

Using the (SPSS) program, the responses of the study sample were analyzed to calculate the difficulty and discrimination coefficients for the test items. The percentage of students who answered the item incorrectly was adopted as a difficulty coefficient for each item of the test, while the discrimination coefficient for each item was calculated as the coefficient of the corrected item's correlation with the total score. It was found that the items' difficulty coefficients ranged between (0.24-0.76) and the discrimination coefficients between (0.47-0.86). According to what was indicated by Odeh (2010) the acceptable range of difficulty of the item should range between (0.20-0.80).

Also, the discrimination of the item, the item is considered good if its discrimination coefficient is higher than (0.39), acceptable and recommended to improve it if its discrimination coefficient ranges between (0.20-0.39), and weak and advised to delete it if its discrimination coefficient ranges between (zero-0.19), and negative discrimination should be deleted. Accordingly, none of the items was deleted based on the coefficient of difficulty or the coefficient of discrimination.

Reliability

To ensure the reliability of the study instrument, the test-retest method was used. The test was applied and reapplied with a two-week difference in a group of (30) from outside the study sample. Then, Pearson's correlation coefficient was calculated between their estimates at both times, which amounted to (0.90). The reliability coefficient was also calculated using the internal consistency method, according to the Couder-Richardson equation -20, which amounted to (0.82). These

values were considered appropriate for this study.

## Results

Statistical criterion: The four-point Likert scale was adopted to correct the study instrument by giving each of its items one score out of its four degrees (happens often, happens sometimes, happens rarely, never happens) which represent the numbers (4, 3, 2, 1), respectively. The following scale was adopted to analyze the results: 1.00-2.00 low, 2.01-3.00 medium, and 3.01-4.00 large.

First research question: What are the common behavioral problems of students with autism from the point of view of their teachers?

To answer this question, the means and standard deviations of teachers' responses to common behavioral problems among students with autism disorder were extracted illustrated in Table 4.

Table 4. *Means and standard deviations of teachers' responses to common behavioral problems*

| Rank | No. | Domain | Means | Standard deviation | Level |
|------|-----|--------|-------|--------------------|-------|
| 1 | 1 | Moves a lot | 3.71 | .554 | High |
| 2 | 5 | Flaps hands | 3.29 | .774 | High |
| 3 | 21 | Failure to comply with orders and instructions given to him | 3.24 | .821 | High |
| 4 | 16 | Repetition | 3.19 | .740 | High |
| 5 | 10 | General eating problems | 3.10 | .759 | High |
| 6 | 11 | Excessive sensitivity to sound | 3.10 | .932 | High |
| 7 | 19 | Aggression: hitts and bites others, destroys things in the environment, causes chaos | 3.10 | .878 | High |
| 8 | 12 | Scatters things and makes a mess | 3.00 | .937 | High |
| 9 | 23 | Runs around the room | 3.00 | 1.036 | High |
| 10 | 14 | Repeatedly makes a tone, sound, or hum | 2.95 | .731 | Medium |
| 11 | 3 | Laughs or cries outbursts for no reason | 2.90 | 1.122 | Medium |
| 12 | 25 | Pours food on the floor | 2.90 | .983 | Medium |
| 13 | 2 | Moody | 2.86 | .899 | Medium |
| 14 | 24 | Throws things out of windows | 2.81 | 1.018 | Medium |
| 15 | 4 | Irritable and angry | 2.76 | .692 | Medium |
| 16 | 15 | Harms himself, sometimes severely | 2.71 | .891 | Medium |
| 17 | 7 | Applause | 2.70 | 1.067 | Medium |
| 18 | 17 | Unusual mechanical movements | 2.67 | .846 | Medium |
| 19 | 20 | Shreds  books or newspapers | 2.67 | 1.004 | Medium |
| 20 | 13 | Too quiet to the point of idle | 2.65 | .975 | Medium |
| 21 | 9 | Jump up and down | 2.57 | .914 | Medium |
| 22 | 6 | bad temper (not good) | 2.52 | .804 | Medium |
| 23 | 18 | Poor response to pain | 2.43 | .966 | Medium |
| 24 | 22 | A tendency to get obsessive in accumulating things | 2.43 | .966 | Medium |
| 25 | 8 | Panic attacks and anxiety | 2.33 | .721 | Medium |

It is evident from Table 4 that the means ranged between (2.33-3.71). The problem of "moves a lot" came in the first place with the highest means (3.71), while the problem of "panic attacks and anxiety" came in the last place with a means of (2.33).

Second research question: What Applied Behavior Analysis techniques are used by autism spectrum disorder teachers?

To answer this question, the means and standard deviations of the responses of teachers of students with autism to the treatment techniques used were extracted. Table 5 shows the results.

Table 5. *Means and standard deviations of autism spectrum disorder teachers' responses to the treatment techniques used in descending order according to the mean*

| Rank | No. | Domain | Means | Standard deviation |
|------|-----|--------|-------|--------------------|
| 1 | 4 | Techniques for forming new behaviors | .68 | .256 |
| 2 | 2 | Methods of organizing post stimuli to reinforce appropriate | .56 | .137 |
| | | behavior | | |
| 3 | 3 | Methods of regulating post stimuli to reduce disruptive behavior | .55 | .176 |
| 4 | 1 | Behavior measurement | .51 | .165 |

Table 5 shows that the means ranged between (0.51-0.68). The techniques of "forming new behaviors" came in the first place with the highest mean (0.68), while "behavior measurement" came in the last place with a mean of (0.51).

Third research question: Are there statistically significant differences at the level of (0.05) in the knowledge of teachers of autistic children about the techniques of behavioral analysis according to the variables of gender and experience?

To answer this question, the means and standard deviations of the responses of teachers of children with autism in knowing the techniques of behavior analysis were extracted according to the gender variable. To indicate the statistical differences between these means, a t-test was used as illustrated in Table 6.

Table 6. *Means, standard deviations, and the results of the "t" test for the effect of gender on the responses of teachers of children with autism and their knowledge of the techniques of behavior analysis*

| | Gender | No. | Means | Standard deviation | T value | df | Sig. (2-tailed) |
|---|--------|-----|-------|--------------------|---------|----|-----------------|
| Behavior measurement | Male | 16 | .47 | .085 | -1.341 | 40 | .188 |
| | Female | 26 | .54 | .196 | | | |
| Methods of organizing post stimuli to reinforce appropriate behavior | Male | 16 | .54 | .122 | -1.072 | 40 | .290 |
| | Female | 26 | .58 | .145 | | | |
| Methods of regulating post stimuli to reduce disruptive behavior | Male | 16 | .43 | .191 | -4.455 | 40 | .000 |
| | Female | 26 | .63 | .109 | | | |
| Techniques for forming new behaviors | Male | 16 | .45 | .214 | -6.665 | 40 | .000 |
| | Female | 26 | .82 | .153 | | | |

Table 6 shows that there were no statistically significant differences ($\alpha = 0.05$) attributable to the gender variable in all domains except for the methods of "organizing post-stimuli to reduce disturbing behavior", and methods of "forming new behaviors". The differences came in favor of females.

Also, the means and standard deviations of the responses of teachers of children with autism in knowing the techniques of behavior analysis were extracted according to years of experience. To indicate the statistical differences between these means, a t-test was used as illustrated in Table 7.

Table 7. *Means, standard deviations, and the results of the "t" test for the effect of years of experience on the responses of teachers of children with autism and their knowledge of the techniques of behavior analysis*

| | Gender | No. | Means | Standard deviation | T value | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| Behavior measurement | Less than 5 years | 22 | .55 | .213 | 1.396 | 40 | .170 |
| | More than 5 years | 20 | .48 | .077 | | | |
| Methods of organizing post stimuli to reinforce appropriate behavior | Less than 5 years | 22 | .56 | .132 | -.303 | 40 | .764 |
| | More than 5 years | 20 | .57 | .147 | | | |
| Methods of regulating post stimuli to reduce disruptive behavior | Less than 5 years | 22 | .55 | .192 | .083 | 40 | .934 |
| | More than 5 years | 20 | .55 | .161 | | | |
| Techniques for forming new behaviors | Less than 5 years | 22 | .60 | .256 | -2.315 | 40 | .026 |
| | More than 5 years | 20 | .77 | .229 | | | |

Table (8) shows that there were no statistically significant differences ($\alpha = 0.05$) due to the effect of the number of years of experience with autistic children in all domains except for the methods of "forming new behaviors". The differences came in favor of more than 5 years of experience.

## Discussion

The current study aimed to find out the class behavior problems of students with autism spectrum disorder. The results of the first question showed that the most frequent behavioral problems among autistic children from the point of view of their teachers according to the study sample were frequent movement, moody, outbursts of laughing or crying, anger and rapid irritability, hand flapping and applause. The least frequent behavioral problems included panic and anxiety attacks, pouring food on the floor, throwing things out of windows, and running around the room. It also showed that the rate of appearance of all behavioral problems was medium among the study sample. This result indicates that students enrolled in inclusion programs with autism showed the behavioral problems mentioned in the study instrument. This confirms its consistency with the criteria of the Diagnostic and Statistical Manual of Mental Disorders, the fifth edition (DSM-5) as well as with the criteria of the International Classification of Mental Disorders, the tenth edition. According to which criteria for diagnosing autism were defined from other pervasive developmental disorders. These results agree with most of the definitions provided in the literature and addressed the need to develop training programs for teachers to help them treat behavioral problems in children with autism.

The results of the current study are in agreement with the results of several studies and literature on the topic that dealt with behavioral problems among students with autism. Several studies have shown the presence of behavioral problems including Al-Khuffash'a (2006) study, which indicated that 57% of autistic individuals had excessive motor activity and mood instability. Also, 49% had laugh and cry outbursts without reason, irritability and anger, and 50% of them disobeyed orders and instructions. They are also in line with the results of the study of Jane et al. (2004), which showed that the most common behavior manifestations among autistic children were tantrums, aggression, stereotyped behavior, stubbornness, difficulty in communication and social skills. Accordingly, it can be said that the apparent behavioral problems of students with autism affect their academic achievement and cause their poor performance of academic tasks. This result accords with the results of Hendricks (2011) and Al-Ghamdi et al. (2018). The results recommended taking into account the individual differences between autistic children who have excessive activity while designing educational activities to suit their privacy.

The results of the second question showed the techniques of treating behavioral problems by teachers of autism students were for the methods of "forming new behaviors" followed by the methods of "organizing post stimuli to strengthen appropriate behavior" and then methods of "organizing post stimuli to reduce disordered behavior." This can be explained by the fact that no particular method is better than the other due to the varying differences between the members of this category. This result is in agreement with those of Al-Zari' (2012), Al-Ghamdi and Maajini (2020). They indicated that the female teachers of autistic children had knowledge and use of ABA strategies, which work to increase the desired behavior, and strategies to reduce undesirable behavior sufficiently. Also, the female teachers used "increasing desirable behavior" techniques more than techniques to reduce unacceptable behavior. The results of the Sheikh's (2018) study stated that the teachers had a high degree in the techniques of increasing the desirable behavior and a medium degree in the techniques of reducing undesirable behavior. On the contrary, the result did not agree with those of Al-Doukhi and Jarrar (2015), which showed a decrease in the level of teachers' possession of theoretical knowledge and practical practices of behavior analysis methods.

As for the gender variable, the results of the study showed that there were no statistically significant differences in the total score due to the gender variable in all domains as a whole in the knowledge of teachers of children with autism in the techniques of behavior analysis. This result agrees with that of Khaleel (2019), Al-Doukhi and Jarrar (2015), Melhem (2013) and Al-Zari' (2012). This is an indication of the convergence of views between male and female teachers in their level of knowledge of the techniques of behavior analysis. Concerning the methods of organizing dimensional stimuli to reduce disturbing behavior and the methods of forming new behaviors, the differences came in favor of females. This result agrees with that of Al-Otaibi (2015) and Alhossein (2021). Maybe, the reason for this is because the female teachers are generally more accurate in

their work. This is due to their developmental formation compared to males as well as they can highlight the emotion of motherhood and deal with children and the ability to understand their emotions and motives when they behave in a certain way. On the contrary, the result of the current study differs from that of Orabi (2007), which showed that teachers had more knowledge of behavior analysis methods than female teachers.

Concerning the variable of years of experience, the results of the study showed that there were no statistically significant differences due to years of experience in all domains. This result is consistent with the results of Al-Sheikh (2018), Hamdan (2018), Al-Doukhi and Al-Najjar (2015), and Al-Zari' (2012), except for the methods of forming new behaviors. The differences came in favor of those who had more years of experience. Also, the result is in line with those of Al-Ghamdi (2020), Melhem (2013), and Haimour and Obaidat (2013). The results of this study differ from the results of Khaleel (2019), whose results showed that there were statistically significant differences in the use of behavior analysis strategies due to years of experience. This may explain the apparent decrease in the basic information, knowledge and skills of the techniques of behavior analysis and the insufficient training of teachers to deal with students with autism due to insufficient practical experience.

## Recommendations

In light of the previous results, the study recommended the need to design and implement training programs that meet the needs of workers to acquire and implement the techniques of applied behavior analysis in the field of children with disabilities in general. Also, there is a need to assess the reality of special education teachers' knowledge and use of the techniques of applied behavior analysis in inclusion programs. The Ministry of Education should be directed toward finding methods to enhance the use of special education teachers of the techniques of applied behavior analysis in the inclusion programs.

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