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Evaluation the Level of Services Provided to ASD Students Spectrum Disorder in Special Education Centre's in Saudi Arabia

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Abstract: The objectives of the research were to determine the special education services level provided in Saudi Arabia for students with ASD from the perspective of the service providers and to find out if there are substantial discrepancies in the services offered level attributed to gender, academic qualification, and educational experience. To collect data, a questionnaire was created, and the study sample consisted of special education center's in Asir governorate, which provides ASD students with educational services, (12) centers were chosen randomly. The results showed that the means score ranged between (2.61-3.59), the educational environment was rated first with a mean of (3.59), followed by programs and services with a mean of (3.57), and evaluation with a mean of (3.49). The educational environment was placed last with a mean of (3.59). (2.61). The overall mean score of the instrument was (3.31), indicating that the services level offered to ASD students in Saudi Arabia's Special Education Centre's was moderate. Furthermore, the findings showed that no differences with statistical significance were found in the degree of services provided by service providers to ASD students based on the variable (gender, experience, and educational qualification).

Keywords: Level of services provided; autism spectrum disorder; Special education center's; Saudi Arabia.

1 Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized primarily by impairments in communication and social interaction, few and limited activities and interests, or repetitive, stereotyped behaviors (Rojahn & Matson, 2010). Other issues, such as demanding conduct and comorbidity with other psychological diseases, have been discovered in addition to the main symptoms (Horovitz, Matson, & Sipes, 2011). Previously, Asperger's disorder, childhood disintegrative disorder, Rett's disorder and widespread developmental disorders not otherwise described (including atypical autism) were all-inclusive in this spectrum (CDC, 2009). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) has been updated. There are no longer any distinct autism diagnoses in the new DSM-5; Instead, they're all classified as ASD, which has varying degrees of severity that define what assistance are required (APA, 2013).

Performance at higher levels GAD (Generalized Anxiety Disorder) is usually linked to ASD, while nonverbal ASD is linked to poor performance, it is also linked to oppositional defiant disorder (Rojahn & Matson, 2010). ASD usually manifests itself in one of two ways: Early onset refers to symptoms that appear in the first year of life without a strong sign of functional deterioration and follows a period of relatively normal growth, and regressive onset, when previously acquired abilities are lost (Shumway et al., 2011). A pattern of symptom onset appears to be the acquisition of early skills. However, inability to move to higher developmental milestones such as gesture use, joint attention participation and language development (Shumway et al., 2011). Two-year-old children can be diagnosed with ASD; this is also the age when parents start to have worries about their behavior child (Newshaffer, Falb, & Gurney, 2005). A lack of verbal and nonverbal communication, hostility, tantrums, and disobedience are among the issues that parents are concerned about (Horovitz et al., 2011). Early indications of ASD are frequently matched by parental worries, which aids in early identification and treatment.

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Over the last 20 years, estimates of ASD prevalence have risen (Baio et al., 2018). While earlier discovery, more widespread public awareness, social service modifications, expansions and regulations may all be factors, real changes and increases are unlikely (Christensen et al., 2019). However, every time a new report is published and modification in the criterion for diagnosis prevalence statistics shift; According to the most current CDC report, ASD prevalence can reach 1 in 68 people (CDC, 2014). Between 2006 and 2015, the percentage of children aged 6 to 21 who were serviced under the IDEA Part B autism category climbed from 0.3% to 0.8%, based on the congress Annual Report No. 39 regard to the individuals with disabilities education act (IDEA) of 2017, students categorized as autistic under IDEA made up 9.5 percent of the entire student population in the autumn of 2015 (Hahler & Elsabbagh, 2015).

As the frequency of ASD rises, particularly in public schools, it is evident that more assistance including school-based care will be required (Abrahamson et al., 2021). IDEA's definition of autism is a developmental condition that has a substantial impact on social interaction and verbal and nonverbal communication that has a negative impact on a child's educational achievement and is usually apparent before the age of three (Department of Education, United States, 2004, 2004). Due to ASD is covered by IDEA, all schools are required by law to offer educational services to kids with ASD (Hess, Morrier, Heflin, & Ivey, 2008).

1.1 Problem Statement

ASD students who attend public schools get a variety of services. Odom, Collet-Klingenberg, Rogers, and Hatton (2010) compiled a list of current services accessible to ASD students both in schools and in their communities. Despite the fact that these services are essential, Odom et al. (2010) found that paraprofessionals and professionals in schools have insufficient training and preparedness to provide these educational services.

Because it's unclear what services schools give, it's crucial to figure out which interventions and therapies are being used and keep track of them. Speech-language therapies and social skills development are two of the most extensively used services for ASD students in schools; more services are required for children with more severe disabilities than for children with less severe impairments (Bilaver, Cushling & Cutler, 2016).

Based on the above, the process of developing standards for services provided to ASD students is one of the most important priorities for educators with the aim of ensuring that all ASD students, without exception, have access to an appropriate and qualitative education. The importance of this matter increases when talking about people ASD, whose need for educational services with specifications no less than the educational services provided to their peers of children without disabilities, based on the importance of finding educational and educational strategies with high specifications and quality that lead to outputs represented by helping these children to achieve an acceptable level of independence skills, motivation, and self-esteem. Hence, this study comes to identify the educational services level provided in special education centres in Saudi Arabia.

1.2 Research Objectives

Based on what was mentioned in the problem statement, the current study aims to achieve the following objectives:

- Determining the educational services level offered from the perspective of service providers in Saudi Arabia to ASD children at special education centers.
- Determining the influence of the variables (gender, experience, and academic qualification) on the degree of evaluation of educational services level offered from the perspective of service providers in Saudi Arabia to ASD children at special education centers.

1.3 Research Questions

The current research aims to respond to the following primary question:

- What is the educational services level offered from the perspective of service providers in Saudi Arabia to ASD children at special education center's?

- Is there the influence of the variables (gender, experience, and academic qualification) on the degree of evaluation of educational services level offered from the perspective of service providers in Saudi Arabia to ASD children at special education centers?

1.4 Importance of the Study

The importance of the study is that it focuses on studying the services provided to ASD students in order to increase their prevalence, by presenting some suggestions through the results of this study in order to develop provided educational services for ASD students in light of international standards, and it can also open up horizons for researchers to advance the level of Services provided to this category in the Kingdom. In addition, the current study provides an integrated assessment of educational services provided to ASD students, to identify the problems that impede providing them with the best care, and can identify weaknesses and needs in the services provided to reach those services to the ideal.

1.5 Limitations of the Study

The current study is limited to:

- 1) Assessing the educational services level provided in governmental and private education centres for ASD students, in Asir governorate from the perspective of service providers.
- 2) The results of the study are determined by the time period during which the study instruments were applied, which is the academic year (2021-2022).

1.6 Definition of Operational Terms

Autistic disorder: it is a behaviourally defined disorder or syndrome, and the basic manifestations must appear before the child reaches the age of (30) months of age, it includes disturbances in speech and language, cognitive capacity, disturbances in attachment and belonging to things, objects, people, and events (Autism Society of American, 2003).

For the objectives of this investigation ASD students are defined procedurally as autistic children who are enrolled in special education centres in Jeddah.

Services evaluation: an objective, organized process of collecting information related to various services and activities in order to ensure the ability of those services to achieve the goals and objectives for which they were established (Gargiulo & Kilgo, 2018).

2 Literature Review

Autism is one of the most severe developmental diseases in terms of the influence it has on the individual's behaviour, because its impact is not limited to only one aspect of his personality, but extends to include different aspects, including the cognitive aspect, the social aspect, the linguistic aspect and the emotional aspect, which naturally leads to a general delay in the developmental process entirely (Khalil, 2009). Coleman (2003) defined autism as a general developmental disorder characterized by a clear deficiency in the ability to social interaction and the ability to communicate, as it is characterized by a set of activities, interests and stereotyped behavioural patterns with the presence of disorders in language and speech and begins before the age of three years. APA (2013) defines ASD as a behaviourally defined disorder or syndrome, and that the basic manifestations must appear before the child reaches the age of (30) months of age, and includes disturbances in speech and language, cognitive ability, and disturbances in attachment and belonging to objects, objects, people and events.

There are many studies on determining the prevalence of autism, and there is a lot of variances in determining these rates, based on the definition adopted in determining this disorder and the approved diagnostic criteria. The prevalence of autism disorder is estimated at about 60 cases per 10,000 births (Frith, 2002). Autistic children are characterized by a number of basic characteristics related to aspects of linguistic, behavioural, social, and cognitive development, which in aggregate distinguish them from others. Educational services are considered one of the most important intervention services in treating autistic children in light of the current era, which is characterized by the flow of human knowledge,

intellectual, scientific and cultural achievements have diversified, technological innovations and economic aspirations have grown, and the knowledge outcome of a society has become the standard and force that shapes its present and secures its future (Downs, 2011).

With the increasing interest in developing special education services, the need to present convincing evidence to parents and service recipients increases that the services provided to groups with disabilities are effective and of high quality that deserves support (Digitale, 2017). The conditions of special education in the Arab countries, including the Kingdom, are still not satisfactory, as efforts are scattered, not integrated, lack coordination and continuity, lack professional maturity, and absorb only a small percentage of the targeted disability groups, and are rarely subject to evaluation, accountability and documentation, which makes it very difficult (Hsu, 2018). Decision makers and those interested should analyse real qualitative and quantitative changes, and conscious future planning based on objective data, which requires the adoption of professional standards and effective work mechanisms to adopt teacher preparation programs and organize the practice of the profession of special education (Lindsay et al., 2013).

As the effective application of any international quality management system by any educational institution and obtaining a globally accredited certificate, leads to increased confidence in the quality of its activity and performance, but its continuation depends on the extent of its commitment to continuous improvement and development and fulfilling the requirements of the international quality system on which it was approved (Garbacz et al., 2016). Indicators and standards differ in their preparation, formulation, depth and breadth in different countries that apply them, but they all agree in content and orientations (Garbacz et al., 2016). Quality also works to eliminate the waste of money, effort and time by improving the use of resources and reducing costs, and seeks to continuously improve the processes, activities and services provided, avoiding errors before they occur and addressing them, improving the performance levels of the educational institution and creating an effective positive organizational climate that provides opportunities for success and empowerment (Thomas et al. 2016). From solving problems that hinder educational work by scientific methods and dealing with them through corrective and preventive measures to prevent their occurrence in the future and achieving coherence and integration among all workers in a team spirit manner (Barry et al., 2019).

The characteristics and standards that are used by international bodies in the field of special education in determining the degree of compatibility of the educational institution with the standards and its elements include:

- **The First Standard: Services and Programs:** The services provided are characterized by depth, comprehensiveness and integration, as well as the flexibility of programs by adapting them to suit the successive environmental changes. With regard to teaching methods, this depends on the integration of concepts, skills, practices and activities to contribute to the development of students' skills, knowledge and abilities, leading to independence through teaching strategies that are appropriate to the student's educational goals that contribute to the formation of his integrated personality (Thomas et al., 2016; Barry et al., 2019).
- **The Second Standard: The Evaluation:** Students' evaluation to determine the current level of performance and to identify strengths and weaknesses to start providing educational services. Providing appropriate psychological and educational assessment tools to determine child eligibility criteria, activating the family's role in the assessment process, and using assessment methods to determine students' levels and measure educational outcomes (Thomas et al., 2016; Barry et al., 2019).
- **The Third Standard: The Educational Environment:** The quality of the institutional building and its ability to achieve the goals and the extent to which students benefit from the facilities of the educational institution, as well as the provision of capabilities and material materials that help to finance education and implement programs and plans, and then achieve the planned goals (Thomas et al., 2016; Barry et al., 2019).
- **The Fourth Standard: Integration and Transitional Services:** It is the set of procedures that the institution concerned with ASD children must undertake to integrate through a pre-prepared plan for the child that the institution intends to integrate, choose the integration school, and the methods used to make the integration process successful through the transitional services plan, which is developed in coordination with the integration school to implement written objectives and recommendations (Thomas et al., 2016; Barry et al., 2019).

From the foregoing, observed that there is great importance for these aforementioned criteria; therefore, there is an urgent need to apply such international standards to institutions and centres of special education in the Saudi Arabia to ensure level of services quality provided by institutions that serve ASD students.

2.1 Previous Studies

Qawasmeh (2016) aimed to assess educational programs and services for children ASD at special education institutions in Saudi Arabia to international standards. The study sample comprised ten randomly chosen special education institutions in the Jeddah Governorate that provide educational programs and services for children ASD. An instrument of (58) indicators was designed to evaluate the level of educational programs and services given by special education centres in Saudi Arabia to children ASD due to collect data regarding the standard of such services. The results showed that the means varied from (2.33-3.26), with the educational environment ranking first with the greatest mean. While, transitional services placed last, and the mean score of the instrument as a whole was (2.33).

McIntyre and Zemantic (2017) examined the services provided to a group of young ASD students, what distinguishes predicted service employment, and satisfaction with services by parents. The research included 60 children (2–7 years old) from the western USA with their families. According to the findings, each week, children received approximately thirteen hours of therapeutic and educational services, fewer services are provided to younger children than to older youngsters. The number of service hours received was predicted by the child's age, abnormal conduct, and family income. Service hours were not predicted by children's adaptive behaviour or autism symptoms. Despite the fact that the services provided were modest and far below best practice guidelines, parents expressed great satisfaction, especially with their pre-schoolers and toddlers.

Talafha and Salah (2018) aimed to evaluate the special education level services offered to ASD students from perspective of service providers at Jordan's Zaatari refugee camp and determine whether there were disparities in the services offered level based on gender, experience, or academic qualifications. A total of 41 service providers who worked for organizations that helped ASD students were included in the study. The researcher created a questionnaire with eighty-two items separated into seven dimensions to collect data. According to the data, educational services level provided for ASD students in Jordan's Zaatari refugee camp ranged from moderate to poor, with an overall mean of 0. (2.27). Furthermore, the data demonstrated that there were no disparities in special education services level provided to ASD students in the Zaatari refugee camp in Jordan based on criteria such as gender, experience, or academic qualification from the perspective of service providers.

McPherson (2018) aimed to know what the most important services are typically given in public schools to students with ASD, whether they are evidence-based and how involved parents and family are in the service delivery process. There were 334 participants in this study; all of them were actively working School Psychologists. According to the findings, 17 of the top 25 most often utilized procedures are backed and suggested by research, three are regarded to have some research support, one is not considered to have research support, and four are undecided. While most parents are aware of the services offered to their ASD children, they are not always aware of the services provided to them.

Moussa and Samia (2021) aimed at determining the satisfaction of families with the services their children get in special education facilities, and to reveal differences with statistical significance in family satisfaction with these services by gender and parental educational level. Fifty-seven (57) parents were randomly chosen from special education centres in Tizi Ouzou state and a medical facility in Draa el Mizan in order to data collect. Parents, according to the findings are quite satisfied with the services their children get in special education programs. In addition, there are no statistically significant variations in parental satisfaction with their children's sex-related services. Furthermore, there are statistically significant variances in parental satisfaction with their children's educational services (for the benefit of those with higher education level).

3 Methodologies

The quantitative method was used in this study since it was most appropriate for the study. The capacity of the quantitative method sets to delve into the complex interplay of many variables and explain cause and effect resulting in a precise prediction of the phenomenon being studied (saunders, Llewellyn & Thornhill, 2016).

3.1 Population and Sample

The study population included all the special education centres in Asir governorate, which are represented in the special education centres that offer educational services for ASD children, which are (22) institutions and centres that serve all different categories of disabilities according to the directory of institutions dealing with people with disabilities in the Asir governorate was issued by the Ministry of Social Development and the Ministry of Education. The study sample

consisted of (12) out of (22) centres that provide services for ASD children, by applying the study instrument to representatives of the centres, through a question on managers, technical supervisors and teachers, which are numbered 35.

3.2 Research Instrument

To collect data on the reality of the level of educational programs and services provided to ASD students in special education centres in the Kingdom, a tool was prepared for the purposes of the study, which is: A tool to assess the level of effectiveness of programs for ASD students. It was developed based on educational literature related to the topic, translating international standards, and then defining the specific dimensions of the tool in light of the goal for which it was developed and according to the study questions. The indicators for each dimension were formulated, after referring to the approved global standards. The paragraphs of the tool were formulated in the form of statements, to be answered (strongly disagree= 1, disagree= 2, sometimes= 3, agree= 4, strongly agree= 5) to determine the degree of applicability of each indicator to educational services provided to ASD student.

3.2.1 The Instrument Validity

The instrument was presented to a selection of arbitrators to express their opinion on the validity of the content, their number reached (10) arbitrators from university professors and professionals in the field of special education to express their opinion on the validity and suitability of the indicator to its dimension and about its linguistic clarity and to provide the appropriate comments. After the arbitration, some indicators were transferred to other relevant dimensions and some indicators of importance were added, and some indicators were excluded from the instrument. As items agreed upon by (9) of the arbitrators were retained, with a unanimous percentage of (90%) among the arbitrators (nine out of ten arbitrators). Some items on the scale have also been reformulated. The number of main dimensions reached (4) dimensions and the number of main items (43 items).

3.2.2 Instrument Reliability

The reliability of the instrument means the possibility of obtaining the same data when re-studying by using the same study instrument on the same individuals under one and similar conditions (Sekaran, 2003), and the researcher made it for each dimension separately, and the instrument was used by using the internal consistency measure Cronbach Alpha. For the answers of the study sample obtained, and the statistically acceptable value of this scale is (60%) or more (saunders et al., 2016), Table (1) shows this.

Table 1: Test of Cronbach Alpha.

Variable	Value
Educational Environment	0.841
Evaluation	0.719
Services and Programs	0.899
Integration and Transitional Services	0.785
All items	0.802

It is clear from the data in Table (1) that the values of the internal consistency coefficient of Cronbach's alpha for the study dimensions were high and ranged between (0.719 - 0.889). In addition, the alpha value of the tool as a whole was (0.802), and therefore all values are greater than the recognized measure of the reliability of (60%), and this indicates high stability of the resolution.

3.3 Data Analysis

Means, an independent t-test to examine the results related to the gender variable, as it compares only two means, and One Way ANOVA to examine the results related to the experience and academic qualification variable, as it compares only three means (Cuevas, Febrero & Fraiman, 2004). As stated in the table below, the results were explained using means.

Table 2: Explanation of Respondents' Means.

Means	Decision
1.0- 2.33	Disagree (DA)

2.34- 3.67	Moderate Agree (MA)
3.68- 5.00	Agree (A)

Source: (Bryman & Bell, 2011)

4 Findings and Discussion

4.1 Respondents Profile

In terms of "gender, experience, and academic qualification," Managers, technical supervisors, and teachers who work in institutions that assist people with disabilities were profiled using descriptive analysis. As indicated in Table 3, the respondents' majority Males made up 60.0 % of the population, while females made up 40%. The vast majority of respondents (57.1%) have 6-10 years of experience, (22.9%) have more than 10 years of experience, and (20%) have 1-5 years of experience, according to Table 3. Academic qualifications include a bachelor's degree (88.6%), master's degree (8.6%), and doctoral degree (2.9%).

Table 3: The respondents Profile (N=35).

Variable	Category	N	%
Gender	Male	21	60.0
	Female	14	40.0
Experience	1-5 years	7	20.0
	6 - 10 years	20	57.1
	More than 10 years	8	22.9
Academic Qualification	BS	31	88.6
	Ms	3	8.6
	PhD	1	2.9

4.2 Research Question One

The mean score and standard deviations are used to answer this question that regards to the educational services level provided to students ASD in special education centres in Saudi Arabia, and Table below illustrates this.

Table 4: The level of effectiveness of services provided to students ASD.

N	Item	Mean	St.de v	Result
1	Educational Environment	2.61	0.66	MA
2	Evaluation	3.49	0.70	MA
3	Services and Programs	3.57	0.84	MA
4	Integration and Transitional Services	3.59	0.79	MA
	Total	3.31	0.37	MA

Table (4) shows that the means score ranged between (2.61-3.59), where the educational environment placed first with the highest mean of (3.59), followed by programs and services with a mean of (3.57), while the evaluation was placed third with a mean of (3.49), the educational environment came in the last rank with a mean of (2.61). The mean score of the instrument as a whole was (3.31), which means that the services provided level to ASD students at Saudi Arabia's Special Education Centres was moderate. It is clear from this result that the current situation represented around the services provided is low. However, it creates the idea that there is something reasonable that could be improved and development from the responsible authorities.

This result can be explained based on the fact that there is a decline and weakness that the centres suffer from due to the lack of space because they are ready and were not built on scientific foundations commensurate with the needs of the children. Also, some owners do not allow tenants to make adjustments and adaptations to the educational environment and the financial costs involved in doing so. In addition to the lack of educational environments to organize in the form of educational pillars and the lack of sufficient spaces for the existence of places to store the items and supplies of each child. Also, the use of observation and interviews in diagnosing and evaluating autism cases is due to the scarcity of standardized measures in the Saudi environment. The high result may be due to the diagnosis process that is carried out in official specialized centres affiliated with the Ministry of Social Affairs, or to specialized medical institutions,

through a multidisciplinary team. Thus, the curriculum focuses on achieving the goals written in the individual educational program, which includes behavioral goals, learning methods, teaching aids and assessment, and the necessary adaptations to achieve the goals, so that it meets the needs of all children of all abilities and ages, taking into account the differences between children. This is consistent with the study of Qawasmeh (2016), McIntyre and Zemantic (2017), Talafha and Salah (2018), McPherson (2018), Moussa and Samia (2021).

4.3 Research Question Two

The independent sample t-test was performed to discover variations in responses depending on gender due to answer this question; One Way Anova was used to look for variances in responses depending on experience and academic degrees.

Table 5: Independent Sample t- test.

Variable	N	Mean	St.dev	df	t	Sig
Male	21	3.44	0.36	33	2.590	0.872
Female	14	3.13	0.31			

Table (5) shows that the mean replies of the respondents have no statistically significant differences, attributed to the gender variable, with regard to the effectiveness of the services provided to ASD students. The researcher attributes the absence of differences in the degree of assessment of educational services level provided from the perspective of service provider for ASD students due to the gender variable, based on the fact that the duties and tasks that must be provided for people with ASD are governed by many foundations and standards to be adhered to, male and female service providers They have the same roles that must be played by providing all the skills and areas that must be worked into the fullest extent are among the basics of the profession for both parties, and therefore the previous variables may not make differences in the assessment of service providers about the level of evaluation of services for ASD students. This is consistent with the study of Talafha and Salah (2018), McPherson (2018), Moussa and Samia (2021).

Table 6: Anova test.

Variable	Gropus	Sum of Squares	df	Mean Square	F	Sig
Experience	Between groups	0.184	2	0.092	0.664	0.522
	Within groups	4.443	32	0.139		
	Total	4.628	34			
Academic qualification	Between groups	0.038	2	0.019	0.131	0.878
	Within groups	4.590	32	0.143		
	Total	4.628	34			

The results of Table (6) refer to the results of the analysis of triple variance for the significance of the differences in the degree of assessment of educational services level provided for ASD students from perspective of service providers according to the variable of experience and educational qualification. By reviewing the values of the significance level (f), it turns out that it reached (0.664) in the experience variable and reached (0.131) in the experience variable, as the calculated significance level values were greater than 0.05, which indicates that there are no statistically significant differences in the degree of assessment of educational services level provided for ASD students from perspective of service providers according to For variables of experience and educational qualification.

It is possible to explain the absence of differences in the degree of evaluation of educational services level provided for ASD students from perspective of service providers according to the variable of experience; Because the interaction of service providers with the problems facing ASD students at its different levels provides them with a broad experience and a common background among them, given the nature of the work of specialists in the spirit of one team. With regard to the absence of differences in the degree of assessment of educational services level provided for ASD students from perspective of service providers according to the educational qualification variable, the researcher believes that this is due to the fact that if the scientific level of the services provided increases, it will have a lower level due to the nature of the disease, and the difficulties and problems it poses not in the answers of the service providers, and the level of the educational qualification, but in the conditions of the patient and the deficiencies he suffers in all respects. This is consistent with the study of Talafha and Salah (2018).

5 Conclusion and Recommendations

The study has provided insights into the educational services level offered to ASD students in special education centres in Saudi Arabia from perspective of service providers. According to the study results, the services provided level to ASD students in the Special Education Centres in Saudi Arabia was moderate. This highlights the improving the quality of educational services provided to ASD students in autism programs. Also, adopting quality control indicators in educational programs for children with disabilities and autism when creating new programs. In addition, improving the level of educational environments for ASD students, and creating new buildings that are designed according to building codes for people with disabilities. Finally, conduct specialized studies on each of the main dimensions of the programs and services provided to people with mental disabilities and ASDs.

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Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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