Psychological loneliness and its relationship with depression among children with Asperger's disorder in Riyadh, Saudi Arabia

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Abstract

The study aimed to evaluate the relationship between psychological isolation and depression in children with Asperger syndrome and healthy children. Asperger's syndrome is a later-onset form of autism. The most distinguishing symptom of a youngster with Asperger's syndrome is a marked deficiency in social skills. The study comprised one hundred twenty-eight elementary school-aged children with and without Asperger syndrome. Children with Asperger syndrome or autism, as well as those with intellectual disability, hyperactivity, and dispersion, can benefit tremendously from early detection and early intervention measures, according to this study. The outcomes of this study are original in the academic literature since a new conceptual framework has been proposed. Moreover, the findings of this study contribute significantly to our understanding of psychological isolation. The practical consequences of this study are suitable for enhancing children's living standards by eliminating the negative aspects of their lives. In addition, the limits of the research findings stem from the research design, and this study also indicates prospects.

Keywords: Asperger's disorder, depression, loneliness, anxiety, health

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Introduction

Asperger's syndrome is a later-onset form of autism. For this condition to be identified, a considerable decline in nonverbal behaviors such as eye contact, facial expressions, and gestures is required. A deterioration in interpersonal skills and the emergence of rigid patterns of thought and behavior. The significant breakdown in their communication and behavior affects their activities. They tend to withdraw from social situations and acquire a lack of empathy and social engagement due to their inability to express themselves with sufficient depth or significance (Kwan, Gitimoghaddam, & Collet, 2020). Psychological loneliness is characterized by a lack of contentment and pervasive feelings of loneliness and isolation and is often regarded as unpleasant, uncomfortable, and depressing. According to the National Institute of Mental Health in the United States of America, around ten million Americans experience major depressive episodes annually, and another ten million endure mild-to-moderate depressive episodes. Depression is undoubtedly one of the most complicated illnesses that a person may endure (Örüm et al., 2018). It might be either the primary or secondary cause of symptoms or mental or physical illness. It may have minor to severe short- or long-term effects on a person's quality of life.

Researchers were curious why certain children with Asperger's syndrome felt lonely, discouraged, isolated, and introverted and did not want to engage in activities with others. They saw some of these children in centers designed just for them and observed that they did not want to interact with others. Asperger's syndrome is a disorder that impairs the growth and development of a person. It is present from birth, but its early phases are difficult to detect. Intelligence ratings range from standard to above average (Foulkes, 2021). However, the most distinguishing trait of a child with Asperger's syndrome is an evident qualitative loss in the ability to socialize, manifested by limited and unique behaviors and interests (Balter et al., 2019). According to Campbell, Asperger syndrome is "a developmental disorder characterized by a lack of social interaction and restricted patterns of activity and interest, even though the child's language development and intellectual aptitude are typical for his or her age" (Davies et al., 2022). The Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-5) combined high-functioning autism and Asperger's syndrome in 2013. He placed the term in a category for autism disorders with high-functioning performance and the lowest level of severity on the autism spectrum regarding support needs and symptom onset, regardless of how severe the disorder is (Chang et al., 2019).

Autism is a developmental disease characterized by difficulties with language, social communication, sensory perception, cognitive development, withdrawal and introversion, emotional rigidity, and long stretches of repetitive, aimless, and stereotypical motions. Autism is a developmental disease that affects how a child learns to speak, interacts with others, and acquires other crucial cognitive skills during the first three years of life. This is something that the youngster will always have (Stice & Lavner, 2019). It has been observed that children with Asperger's syndrome experience more excellent emotional isolation than their typically developing classmates (Lee, Whittingham, & Mitchell, 2022). Previous research has demonstrated that autistic individuals are more socially isolated and have more interpersonal difficulties than their typically developing peers. Capriola-Hall et al. (2021) also discovered that BAP is associated with verbal communication difficulties. Autism spectrum individuals are also more likely to experience anxiety, despair, and feelings of isolation (Hassrick et al., 2021). Asperger syndrome and autism are associated with increased social disengagement and sadness in youngsters, according to research (Uljarević et al., 2018).

The study aimed to examine the relationship between psychological loneliness and depression in children with Asperger syndrome and typical Riyadh primary school pupils. The outcomes of this study are original in the academic literature since a new conceptual framework has been proposed. Moreover, the findings of this study contribute significantly to our understanding of psychological isolation. The practical consequences of this study are suitable for enhancing children's living standards by eliminating the negative aspects of their lives. In addition, the limits of the research findings stem from the research design, and this study also indicates prospects.

Review of Literature

The study's author defined Asperger syndrome as "a developmental disorder with deficits in social interaction, nonverbal communication, restricted activities and interests, and some sensory and motor problems, with at least average intelligence and age-appropriate language development," and the present study adopted this definition. Asperger syndrome is characterized by deficits in verbal and nonverbal communication, social bonding, reciprocal interests and behaviors, and mental and cognitive ability. Children with Asperger syndrome typically see a decline in their social skills between the ages of three and fifteen. They avoid making phone calls and social interaction (Kwan et al., 2020). Psychological isolation differs from social isolation in that the individual feels unfulfilled and has a depressed disposition (Örüm et al., 2018).

Some individuals may not experience loneliness, but it is an all-encompassing, subjective, and universal human emotion for the rest of us. More than ever, individuals of all ages and levels of education experience loneliness at some point in their lives (Foulkes, 2021). According to the World Health Organization, more than 500 million individuals suffer from depression (Uljarević et al., 2018). According to some surveys, depression affects between 7 and 10 percent of the global population. Previous research has demonstrated that children and adolescents on the autism spectrum are more likely to experience feelings of loneliness than their neurotypical counterparts (Hassrick et al., 2021). Therefore, studies comparing individuals in the study variables, such as the gender variable (male/female) and the developmental disorder variable, should be conducted on the topic of psychological loneliness and depression in children with Asperger syndrome, particularly among elementary school students.

Communication is the process of communicating information, including ideas, opinions, and emotions, from one person to another using nonverbal means such as gestures, facial expressions, hand movements, and words. The instrument's creator defines depression as "A symptom, a clinical condition, a maladaptive behavior, an aberrant stress response, and a manifestation of cognitive dysfunction" (Wheeler et al., 2018). Methodologically, the word is distinguished by the subject's performance on the employed scale. Developmental issues include Asperger's syndrome. This disease is characterized by extreme difficulty interacting with people and having specific actions and interests. Asperger's syndrome is characterized by severe difficulty in social interactions and the manifestation of inflexible, repeating patterns of behavior, interests, and hobbies (Melbye et al., 2020). The umbrella word "autism" encompasses classic autism, Asperger syndrome, disintegrative childhood, and nonspecific general developmental abnormalities. Autism spectrum disorder is a neurodevelopmental disorder with early onset (ages 2-8). This disease is characterized by a lack of communication and social interaction, rigid behavioral patterns, and difficulties forming and maintaining social relationships (Au-Yeung et al., 2019). Moreover, it has been demonstrated that children with Asperger's syndrome exhibit significant levels of social anxiety and violent and antisocial tendencies (Cai et al., 2019).

Anxiety and feelings of alienation are two adverse outcomes of social isolation (Accardo, Pontes, & Pontes, 2022). Cai et al. (2018) found evidence that both male and female elementary school children suffer from loneliness to various degrees.

This is congruent with the results of Jordan, Marczak, and Knibbs's (2021) research on the social abilities of children with Asperger syndrome, which relied on the children's and their mothers' and teachers' reports. Twenty-one (21) children with Asperger syndrome and twenty-one (21) typically developing youngsters comprised the study population. It was discovered that children with Asperger's syndrome lacked empathy and had aggressive and antisocial tendencies. High degrees of emotional isolation and social anxiety have also been observed in children with Asperger syndrome. They had less self-confidence than their classmates with typical development.

Additionally, Davis, Watts, and López (2021) investigated the correlation between children's social abilities and their experience of social isolation owing to Asperger's syndrome. The study comprised twenty-one (21) children with Asperger syndrome. The study discovered a negative correlation between social skills and loneliness in children with Asperger's syndrome and a high prevalence of loneliness and social anxiety in individuals with Asperger's syndrome. According to Gilmour, depression is characterized by sad, melancholy sensations that endure for at least two weeks and are accompanied by additional symptoms such as decreased energy, activity, hunger, sleep problems, difficulty focusing, and feelings of worthlessness (Brede et al., 2022).

Melancholia is "a mental disorder characterized by persistent feelings of sadness, hopelessness, and insignificance." Psychological signs include sluggish thinking and inattention, while physical indications include sadness, pessimism, and food and weight problems. It is treatable with psychosocial and medicinal methods (Jackson et al., 2018). Jackson et al. (2018) investigated the link between social relationships, feelings of isolation, and general mental health in persons with an autism spectrum disorder. A total of 108 individuals with autism spectrum disorders participated in the study. They all completed self-report questionnaires on issues such as depression, anxiety, life satisfaction and self-esteem, loneliness, and the amount and type of handouts received. One study discovered that autistics who were psychologically isolated also exhibited higher levels of anxiety and depression and poorer levels of life satisfaction and self-esteem. In people with autism spectrum disorders, loneliness was found to have a positive link with communication abilities and a negative correlation with social skills.

Stice and Lavner (2019) examined the issue of bullying among adolescents with autism. The study included sixty (60) individuals between the ages of 11 and 14 with autism spectrum disorder and anxiety. Various questionnaires were used to

assess their loneliness, anxiety, despair, and victimization by bullies. Parents filled out questionnaires regarding their child's emotional and behavioral issues. Peer-bullied children on the autistic spectrum experienced lower psychological adjustment than the remainder of the group. Children on the autistic spectrum who reported feeling lonely also indicated more significant anxiety and depression rates. To develop counseling programs suited to address specific negative psychological variables, it is necessary to investigate the correlation between psychological loneliness and the variables of interest, taking into account the gender variables (male/female) and the developmental disorder, i.e., normal children and those with Asperger syndrome.

Accordingly, Lee et al. (2022)'s research reveals that children with Asperger syndrome typically engage in violent and antisocial behavior due to their deficient social abilities. Additionally, adolescents with Asperger syndrome exhibited exceptionally high levels of social anxiety and emotional isolation. They lacked the self-assurance typical of children their age. Further, Capriola-Hall et al. (2021) study revealed that Asperger syndrome individuals lack social skills and engage in violent and antisocial behavior. Children with Asperger syndrome are more likely to experience psychological isolation and social anxiety, and this population has a negative correlation between psychological isolation and social skills. Indeed, research by Chang et al. (2019) reveal that male teenagers on the autistic spectrum are more likely to experience feelings of isolation. If adolescents on the autistic spectrum received less social support from their close friends, they were less likely to report feeling lonely. According to a study by Davies et al. (2022), teenagers with autism are more socially isolated than their typically developing peers, struggle to form friends, and have fewer low-quality friends. Compared to students of the same age, they had higher rates of social isolation. Negative correlations exist between feelings of isolation and social talents, the capacity for social contact, and effective communication. Consistent with previous research, Asperger syndrome patients report more excellent psychological isolation than their ordinarily developed peers. Balter et al. (2019) examined the prevalence of social isolation and anxiety in autistic and normally functioning children, considering gender variations. Figure 1 depicts the framework for the current study.

Hypothesis 1 (H1): *The students' psychological loneliness positively impacts depression.*

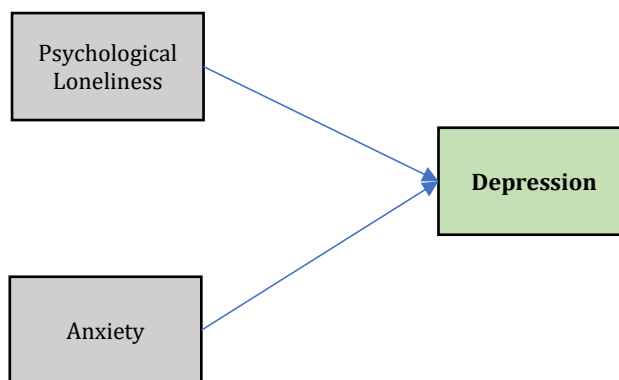**Hypothesis 2 (H2):** *Anxiety of the students positively impacts depression.*

Figure 1. Research Model

Research Methodology

The research is based on "primary data" directly collected from respondents using a "Likert scale" questionnaire. This approach was also utilized in the identified research to determine anxiety and depression. The results of this study are considered empirical evidence in the literature. The study collected data from Wu and Yao's work on a "measurement scale" for psychological loneliness (2008). Measurements from the study by Segool, Carlson, Goforth, Von Der Embse, and Barterian are also used to establish the impact of anxiety on depression (2013). E. Chang, Eddins-Folensbee, and Coverdale's study provide the definitive source for the depression scale's items (2012). These measures are incorporated into the questionnaires used for "data collection" in this study. This study uses "Smart PLS 3.0" for statistical data analysis to determine "reliability," "discriminant validity," and path discoveries.

Prior studies in the literature employed "SPSS" for data analysis and results. Hence this methodology is novel to this research. The "population" of this study is Saudi Arabian schoolchildren, while the "unit of analysis" is the individual. The study comprised one hundred twenty-eight elementary school-aged children with and without Asperger syndrome. Two groups of boys and two groups of girls were recruited from elementary schools in Riyadh, with six and eight schools representing each gender. The final sample consisted of two groups of 32 boys and two groups of 32 girls. Two groups of 32 girls were formed: one set of girls with typical development and the other group of girls with Asperger syndrome.

Findings

Smart PLS 3.0 was utilized for data analysis and findings in this study. According to Bai and Ng (2005), "skewness is a measure of symmetry, or more precisely the absence of symmetry, and kurtosis is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution." In addition,

according to Mardia (1974), "a general guideline for skewness is that if the number is greater than +1 or less than –1, this indicates a significantly skewed distribution, and for kurtosis if the number is greater than +1, the distribution is excessively peaked." The data in this study are typical, and the results are reported in Table 1.

Table 1

Data Normality

	Mean	**Standard Deviation**	**Excess Kurtosis**	**Skewness**
PL1	3.201	1.515	-0.573	0.098
PL2	3.228	1.797	-0.571	0.473
PL3	3.473	1.866	-0.762	0.345
PL4	3.496	1.89	-0.76	0.419
PL5	3.496	1.717	-0.469	0.322
PL6	3.469	1.805	-0.725	0.246
PL7	3.464	1.802	-0.887	0.137
AN1	3.643	1.868	-0.792	0.227
AN2	3.652	1.853	-0.726	0.337
AN3	3.643	1.947	-0.815	0.365
AN4	3.536	1.892	-0.719	0.408
AN5	3.545	1.882	-0.677	0.389
AN6	3.562	1.894	-0.779	0.34
AN7	3.451	1.805	-0.494	0.482
DP1	3.469	1.882	-0.894	0.225
DP2	3.429	1.786	-0.593	0.335
DP3	3.625	1.751	-0.562	0.3
DP4	3.027	1.482	-0.023	0.658
DP5	3.147	1.503	0.531	0.922
DP6	3.188	1.446	0.888	0.981
DP7	3.085	1.472	0.492	0.799
DP8	3.058	1.408	0.507	0.717

"PLS Algorithm" calculations are used to examine "factor loadings." According to Peterson (2000), "factor loading indicates how accurately an item represents the underlying construct, and it must be greater than 0.70." The results of "factor loadings" are given in Table 2 and are accepted with high probability.
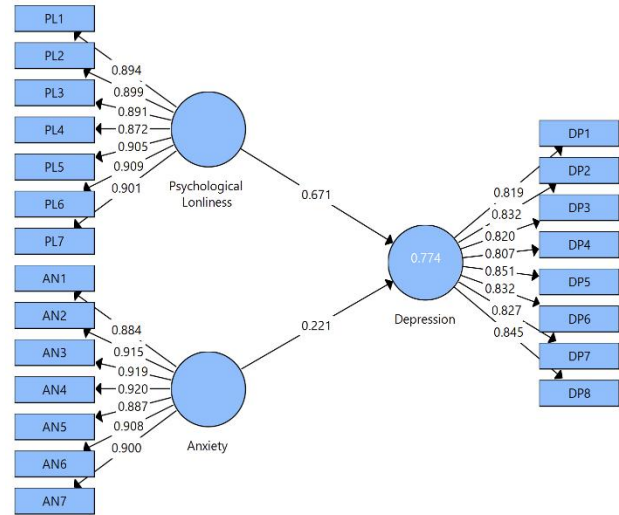

Figure 2. Measurement Model

Table 2

Factor Loadings

	Anxiety	**Depression**	**Psychological Loneliness**
AN1	0.884		
AN2	0.915		
AN3	0.919		
AN4	0.920		
AN5	0.887		
AN6	0.908		
AN7	0.900		
DP1		0.819	
DP2		0.832	
DP3		0.820	
DP4		0.807	
DP5		0.851	
DP6		0.832	
DP7		0.827	
DP8		0.845	
PL1			0.894
PL2			0.899
PL3			0.891
PL4			0.872
PL5			0.905
PL6			0.909
PL7			0.901

The research has relied on "Cronbach's alpha (α)," "composite reliability (CR)," "and average variance extracted (AVE)" for validity and reliability. According to Taber (2018), "Cronbach's alpha (α > 0.70) is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability." Similarly, as reported by Alarcón, Sánchez, and De Olavide (2015), "composite reliability (CR > 0.70) is

a measure of internal consistency in scale items, much like Cronbach's alpha." On the other hand, Alarcón et al. (2015) asserted, "average variance extracted (AVE > 0.50) is a measure of the amount of variance that is captured by a construct about the amount of variance due to measurement error." The "measurement model" results are reported in Table 3 and are significantly accepted.

Table 3

Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Anxiety	0.963	0.969	0.818
Depression	0.936	0.946	0.688
Psychological Loneliness	0.959	0.966	0.803

In addition to "PLS Algorithm" findings, "cross-loadings" and "AVE square root" are employed to examine the "discriminant validity" of this research. First, for the AVE approach, "the constructed value must be greater than the correlated results." Similarly, "cross-loading to establish discriminant validity at the item level" indicates a high correlation between items of the same construct and a very weak correlation between items of a different construct. According to the published results of AVE in Table 4 and the results of "cross-loadings" in Table 5, the research has significant "discriminant validity."

Table 4

Discriminant Validity – AVE

	Anxiety	Depression	Psychological Loneliness
Anxiety	**0.905**		
Depression	0.845	**0.848**	
Psychological Loneliness	0.930	0.876	**0.896**

Table 5

Discriminant Validity – Cross Loadings

	Anxiety	Depression	Psychological Loneliness
AN1	**0.884**	0.770	0.851
AN2	**0.915**	0.786	0.846
AN3	**0.919**	0.79	0.875
AN4	**0.920**	0.776	0.851
AN5	**0.887**	0.751	0.814
AN6	**0.908**	0.738	0.825
AN7	**0.900**	0.733	0.824
DP1	0.875	**0.919**	0.869
DP2	0.841	**0.849**	0.837
DP3	0.815	**0.820**	0.808
DP4	0.562	**0.807**	0.599
DP5	0.594	**0.851**	0.655
DP6	0.568	**0.832**	0.620
DP7	0.560	**0.827**	0.627
DP8	0.625	**0.845**	0.667
PL1	0.830	0.827	**0.894**
PL2	0.830	0.755	**0.899**
PL3	0.842	0.747	**0.891**
PL4	0.846	0.785	**0.872**
PL5	0.833	0.803	**0.905**
PL6	0.837	0.783	**0.909**
PL7	0.815	0.789	**0.901**

The findings of paths are checked with "PLS Bootstrapping" calculations, and the researchers investigated that both developed paths are significantly accepted. The threshold for these significant findings was "t > 1.96" and "p < 0.50," reported by the research (Hair et al., 2012). On the one hand, the H1 findings demonstrated that psychological loneliness positively impacts depression "original sample = 0.671, t = 6.375, and p = 0". On the other hand, the outcomes of H2 reported that anxiety has a positive impact on depression "original sample = 0.221, t = 2.128, and p = 0.034". The results of the "structural model" are reported in Figure 3, and the findings of the paths are presented in Table 6.
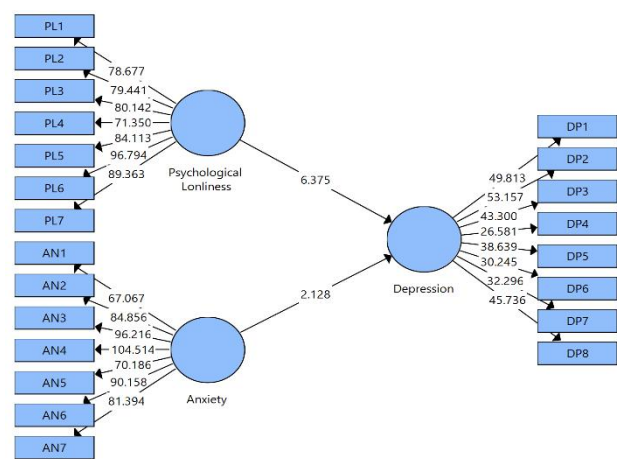

Figure 3. Structural Model

Table 6

Path Results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
Psychological loneliness -> Depression	0.671	0.672	0.105	6.375	0
Anxiety -> Depression	0.221	0.220	0.104	2.128	0.034

Discussion

The research outcomes demonstrated that both hypotheses are supported by substantial evidence. The findings of Hypothesis 1 indicated that psychological isolation has a favorable effect on depression. Similarly, according to the results of Hypothesis 2, anxiety has a clear impact on depression. The findings are compared to those of past studies. This finding is consistent with White et al. (2018)'s research on the association between social anxiety, psychological isolation, and social impairments in

high-functioning teenage autistics (ages 7-14). The findings demonstrated that adolescent anxiety is related to more excellent psychological isolation and a substantial correlation between anxiety and depression. Due to their lack of social skills, Maloret and Scott (2018) have demonstrated that children with Asperger syndrome frequently exhibit violent and antisocial behavior.

Additionally, adolescents with Asperger syndrome exhibited acute emotional isolation and social anxiety. They lacked the self-assurance of typically-aged children. In addition, Cutting (2020) found that children with Asperger syndrome lack social skills and demonstrate aggressive and antisocial conduct. Children with Asperger syndrome had a negative association between psychological isolation and social abilities. Participants with Asperger syndrome reported higher degrees of psychological isolation and social anxiety. According to studies conducted by Hymas, Badcock, and Milne (2022), autistic male adolescents are disproportionately affected by emotions of loneliness.

Less likely to suffer loneliness were adolescents on the autism spectrum who reported feeling less socially supported by peers, parents, and close friends. According to a study by Capp, Mason, Colvert, Agnew-Blais, and Happé, adolescents with autism are more socially isolated than their typically developing peers, have a more challenging time forming friends, and have a smaller set of low-quality friends (2022). They had higher rates of social isolation compared to students of comparable ages. Social skills, the ability to interact with others, and good communication are negatively associated with emotions of isolation. Consistent with previous studies, boys and females with Asperger syndrome report higher levels of psychological isolation compared to their peers with typical development. Dow et al. (2021) evaluated gender differences in the incidence of social isolation and anxiety in children with autism and typically developing children. Male and female children with Asperger syndrome are more prone than their neurotypical peers to experience emotions of loneliness, anxiety, and isolation. In a group of people with autism spectrum disorders, Hedley, Uljarevi, Wilmot, Richdale, and Dissanayake found that psychological loneliness increased the likelihood of anxiety and depression and decreased life satisfaction and self-esteem (2018). There was also a statistically significant inverse link between the quantity and quality of friends and feelings of loneliness. Schiltz et al. (2021) discovered that anxiety and depressive symptoms were positively associated with feelings of psychological isolation in all sample members with autism spectrum disorder, while peer bullying of children with autism spectrum disorder was negatively related to psychological adjustment. In addition, Jackson et al. (2018)'s findings are congruent with those of the present investigation.

Conclusion

This study found that children with Asperger syndrome or autism, as well as those with intellectual disability, hyperactivity, and dispersion, can benefit significantly from early detection and early intervention strategies that focus on identifying the symptoms of a disorder as early as possible to administer the appropriate treatment. Additionally, counseling programs are developed for parents of children with special needs to alleviate psychological pressure and stress and achieve a proper level of psychological adjustment. Training courses are provided to teach parents how to effectively care for their mentally disabled child, taking into account the specific form of the child's disability and any additional factors. A psychologist or social worker should be present at all levels of education to assist pupils with emotional or social issues.

Theoretical and Practical Implications

The outcomes of this study are original in the academic literature since a new conceptual framework has been proposed. Moreover, the findings of this study contribute significantly to our understanding of psychological isolation. The association established by this study is novel and has never been mentioned in prior research. The study found that psychological loneliness has a favorable effect on the depression of students, and this link is a new addition to our understanding of psychological depression in students. Similarly, the study found that their anxiety favorably influences student depression; this relationship is a novel contribution to our understanding of psychological depression in students. In this regard, both links uncovered by this research constitute a substantial addition to the body of knowledge and expand it.

Using the study's findings and recommendations, teachers and professionals can design policies and programs to help children with Asperger syndrome better integrate into a society based on the practical implications of this research. In addition, these research results can help families of children with Asperger syndrome better understand and assist their children. In light of these findings, it is possible to design training programs that reduce the intensity of psychological isolation and despondency in children with Asperger syndrome. In addition, children with Asperger syndrome or autism, as well as those with learning disabilities, impulsivity, and distribution, can benefit significantly from early diagnosis and primary prevention techniques, which focus on attempting to identify the signs of disease as quickly as possible so that effective treatments can be initiated. Specifically, counseling programs for parents of children with special needs are intended to alleviate psychological stress and strain and facilitate mental adaption. In addition, training sessions are provided for parents to teach them how to manage their mentally disabled child as effectively as possible, taking into account the child's specific impairment and other characteristics.

Future Directions

This study found that children with Asperger syndrome or autism, as well as those with intellectual disability, hyperactivity, and dispersion, can benefit significantly from early screening and early intervention measures. In addition, the outcomes of this study are unusual in the academic literature because a new theoretical framework is proposed. Moreover, the findings of this study contribute significantly to our understanding of psychological isolation. Without a doubt, the practical consequences of this research are suitable for enhancing children's standard of living by preventing the bad parts of their life. Nonetheless, the research design's findings are limited, and this study also suggests future directions. Future research is required to evaluate the efficacy of cognitive behavioral therapy in reducing feelings of isolation in children with developmental problems. Second, the researchers may examine the favorable impacts of spiritual counseling on the psychological health of parents of children with autism and Asperger syndrome. In future studies, the sample should be comprised of both male and female children with Asperger syndrome and autism, as depression, aggression, and anxiety occur with equal frequency in these populations.

Acknowledgment

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