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## HIDDEN STRUGGLES: SHEDDING LIGHT ON DEPRESSION AND ANXIETY IN ADULTS WITH AUTISM SPECTRUM CONDITION

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### **ABSTRACT**

*This quantitative survey was designed to investigate the symptoms of depression and the level of generalized anxiety in adults with Autism Spectrum Condition (ASC). For this purpose, 90 adults with ASC, aged 17 years and above with mild autistic symptoms, were selected through the convenient sampling method. The study findings, using the "Generalized Anxiety Disorder" (GAD-7) tool, indicated that adults with ASC experience mild to moderate levels of anxiety, with irritability and annoyance being the highest-scoring items. The study further utilized the "Patient Health Questionnaire" (PHQ-9), to assess depression, which revealed that the majority of adults with ASC experienced moderate levels of depression, with symptoms occurring on several days in their lives. These depression and anxiety symptoms in adults with ASC are most common and there could be multiple factors behind these symptoms which affects their quality of life. It is important that mental health teams assess adults with ASC to determine the reasons behind their mental health-related issues and provide appropriate support and treatment. Raising awareness about autism and other disabilities is also crucial to reduce stigma and promote acceptance in society.*

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**KEYWORDS**

*Anxiety, Depression, Mental Health, Adults, Autism Spectrum Condition*

**INTRODUCTION**

Autism Spectrum Condition (ASC) is a persistent neuro-developmental disorder that is characterized by repetitive behaviors, social communication challenges, restricted interests, and sensory sensitivities that typically emerge in early childhood (Rehman et al., 2022a; 2022b; Adamou et al., 2021; Kőlves et al., 2021). With these symptoms, individuals with autism do suffer mental health and related issues throughout their life span as compared to their non-autistic individuals (Mandy, 2022). It has been observed that adults with ASC are at high risk for their low mental health and well-being due to the high depression rate, ADHD, stress related to anxiety, social anxiety, phobia, behavioral disturbance, bipolar disorders, OCD, as well as other psychotic and with comorbid conditions that are generally lopsided to a potential menace, which directly or indirectly affect their quality of life (Mandy, 2022; Hull et al., 2020; 2017; Mason et al., 2019).

The level of generalized anxiety among adults with ASC in social gatherings can vary widely and is influenced by individual differences. Some adults with ASC may experience heightened anxiety in social gatherings due to challenges with social interaction, communication difficulties, sensory sensitivities, and difficulties with understanding social cues and norms. These challenges can result in increased anxiety, discomfort, and stress in social situations. On the other hand, some adults with ASC may have learned coping strategies or have developed skills to manage their anxiety in social gatherings, and may experience lower levels of generalized anxiety. It's important to note that individuals with ASC are a diverse group, and anxiety levels can differ greatly from person to person.

It's also worth mentioning that anxiety levels in social gatherings may also be influenced by the level of support and accommodation provided in those settings, as well as the individual's familiarity and comfort with the social environment. Some adults with ASC may thrive in social gatherings with appropriate support and accommodations, while others may still experience anxiety despite these measures that leads to depression.

**LITRATURE REVIEW**

The term "mental well-being" refers to a dynamic condition in which individuals accept themselves and are able to reach their maximum potential, expressively & artistically, and develop positive & strong interactions with others in society, but individuals with ASC detected low mental state in different areas of their life (see also Rehman et al., 2022a; 2022b; Hull et al., 2020; Mason et al., 2019) with negative

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outcome. There are multiple reasons for this low mental well-being in adults with ASC such as stigmatization by society, social isolation or discrimination, unacceptance by society or parents, unavailability of resources as well as camouflaging activities used by adults with ASC which leads to depression & anxiety (Perry et al., 2022; Hull et al., 2019).

Anxiety and depression are two separate mental health conditions, but they often coexist and can have a complex relationship with each other. While anxiety and depression share some similarities in symptoms and risk factors, they also have differences in their causes and manifestations (Kalin, 2020; Kanne et al., 2009). Anxiety is a mental health condition marked by heightened and excessive worry, fear, or apprehension about future events or situations. It can manifest in different forms, e.g., social related anxiety, panic attacks, generalized anxiety disorder (GAD), or other types of specific anxiety disorders. Symptoms of anxiety may include restlessness, irritability, difficulty concentrating, sleep disturbances, and physical manifestations like increased heart rate or sweating (Van Heijst et al., 2020). On the other hand, depression is a mental health disorder which is characterized by enduring feelings of uselessness, sadness, lack of interest or pleasure in once enjoyable activities, and hopelessness. Symptoms of depression may manifest as changes in appetite or sleep patterns, fatigue, and difficulties with concentration, feelings of guilt or worthlessness, and thoughts of death or suicide (Linden et al., 2023; Nah et al., 2018).

However, the overall prevalence of depression and anxiety among individuals with ASC found 40.2% and without any history of depression reported 31% by individuals with ASC (van Heijst et al., 2020). According to Hollocks et al. (2019), the occurrence anxiety rate among adults with ASC was found 27% & 42% with respect to phobia and OCD. Though, this ratio of anxiety and depression among adult individuals with ASC is increasing day by day, when society demands from them and they are unable to fulfill. While a strong association found between autistic traits and depression, more autistic traits means more depressive symptoms (Kanne et al., 2009), the correlation between these two, depression signs and autistic traits, are reported  $r = 0.27$  (Liew et al., 2015). Currently, approximately 50% of adults with ASC have symptoms of depression and almost 80% showed anxiety symptoms with other psychotic conditions (Linden et al., 2023). However, why this happens and what are the reasons behind this is still unknown.

Furthermore, research has found that young autistic people (40%) under the age of 18 have minimum one anxiety disorder including social related anxiety, phobias or fears, obsessive compulsive disorder (OCD) and so on (Van Steensel et al., 2011), though children with ASC have 10-24% depressive symptoms (Attwood, 2008). However, it was observed that mostly studies have focused on children, adolescents, and autistic

adults with intellectual disabilities (Mandy, 2022). Few conducted on autistic adults with normal intellectual ability, but the available research suggests that about 50% of them have experienced a mood related disorder at certain point in their lives (Hofvander et al., 2009). It is critical to accurately identify the depressive symptoms and level of anxiety in autistic adults so that appropriate management can be recommended and other related symptoms can be addressed (Nah et al., 2018). Furthermore, studies based on adults seeking treatment have shown that depression is communal in individuals with ASC, with investigated rates ranging from 20% - 35% (van Heijst et al., 2020; Hollocks et al., 2019). Meanwhile, Kessler et al. (2012) reported that among the general population the depression and anxiety rates are much lower as related to adults with ASC, with depression prevalence at around 7% and anxiety prevalence ranging from 1% to 12%, depending on the specific diagnosis.

Similarly, a meta-analysis conducted by Hoolocks et al. (2019) found that in seven studies, for the prevalence of Generalized Anxiety Disorder (GAD) was stated to be 18% for current cases and 26% for lifetime cases. However, with regards to depression, the unique features related with ASC, such as neutral facial expression, social withdrawal, and other behaviors such as self-injurious, may mask depressive symptoms and make them harder to identify (Hillier et al., 2011). Van Steensel et al. (2011) and Attwood (2008) have suggested that among high intellectual individuals with ASC, depression may result from increased consciousness, awareness, realization, and insight into their own behavior, difficulties, as well as challenges. Additionally, feelings of incompetence and low self-esteem may be intensified by observing their peers forming positive relationships. According to researchers, adults with ASC who perceived themselves as having low social competence reported high depression rates, and those who felt unlike to others also reported high depression rates (see also Mazurek et al., 2023; Nah et al., 2018; Hillier et al., 2011).

In latest years, a greater emphasis been given on better understanding the needs of social & mental health of individuals with ASC across the lifespan and these needs are mostly emphasized for adults with ASC (Hollocks et al., 2019). Because, these adults with ASC have a higher probability of experiencing multiple mental health conditions simultaneously, with depression & anxiety being the most prevalent disorders (Hollocks et al., 2019; Lai et al., 2019). Prevalence rate of these co-occurring conditions estimated 70%, including depression and anxiety (Charlot et al., 2008). It has been observed that adults with ASC experience mental health issues more frequently and proportion of autistic individuals with diagnosable anxiety disorders is almost twice as equated to overall population (Hollocks et al., 2019; Kessler et al., 2012; van Steensel et al., 2011), and they have a fourfold higher lifetime threat of developing depressive illnesses (Hudson et al., 2019). However, these disparities in diagnosis rates between groups are also present at the symptom level for depression.

In a similar vein, adults with ASC experienced more mental health issues than those with other conditions including; ADHD (Nah et al., 2018; van Steensel et al., 2011) and further conduct disorders (Hollocks et al., 2019).

Mental health has been highlighted as one of these requirements that is of particular very important for the quality of life (Mazurek et al., 2023; Rehman et al., 2022a; Benevides et al., 2020). However, the likelihood of adults with ASC having concurrent mental health conditions is significantly greater than the general population (Lai et al., 2019; Croen et al., 2015). Based on different meta-analytic studies show that around 54% of autistic adults match the criteria for a co-occurring mental disease (Lugo-Marín et al., 2019), with high prevalence rate 42% & 37% respectively of depression & anxiety (Mazurek et al., 2023; Hollocks et al., 2019).

### **RESEARCH OBJECTIVES**

1. What is the level of anxiety disorder among adults with Autism Spectrum Condition?
2. What is the rate of depression exhibit in adults with Autism Spectrum Condition?
3. Is there any relationship between anxiety & depression among adults with Autism Spectrum Condition?

### **RESEARCH HYPOTHESES**

1. Majority of adults with Autism Spectrum Condition experience anxiety disorder.
2. Adults with Autism Spectrum Condition often exhibit higher rates of depression.
3. There is a strong correlation exist between anxiety & depression among adults with Autism Spectrum Condition.

### **RESEARCH METHODOLOGY**

The purpose of employing an explanatory research design with a quantitative approach in this study was to investigate the symptoms of depression and level of anxiety among adults with ASC, in social gatherings. The research data, collected through online survey forms, was analyzed using a validating quantitative data model to provide a clear and comprehensive understanding. The target population of this study comprised adults with ASC in Pakistan, specifically those with mild to high intellectual severity level (Asperger's), which is not well known in Pakistan (Rehman et al., 2022a; Furrukh & Anjum, 2020). A convenience sampling method was applied to select 90 samples as adults with ASC who were 17 years of age or older and exhibited mild autistic symptoms or Asperger. The study utilized a structured questionnaire that was adapted from the Generalized Anxiety Disorder Scale (GAD-7) and the Patient Health Questionnaire (PHQ-9) for measuring anxiety and depression. The reliability of GAD-7 was estimated to be 0.90 based on a study by Gong et al. (2021), while the PHQ-9 demonstrated a reliability of Cronbach's Alpha 0.79 as reported by Lotrakul et al. (2008). These tools were combined into a single

survey instrument and administered to adults with ASC, with assistance from guardians/therapists as needed. For analyzing data, descriptive statistics, chi-square test, and correlation method were used to test hypotheses and discover the association between variables.

## FINDINGS

**Table 1: Demographic Features of Adults with ASC (N=90)**

		N	%	M	SD
<b>Gender</b>	Female	41	45.6		
	Male	49	54.4		
	<b>Total</b>	90		1.46	.501
<b>Age</b>	18 – 21	35	38.9		
	22 – 25	26	28.9		
	26 – 29	17	18.9		
	30 or above	12	13.3		
	<b>Total</b>	90		2.07	1.058

Table 1 provides an overview of the demographic characteristics of the sample size 90, including age and gender. Out of 90 participants, 49 participants were male (54.4%) and 41 were identified as female (45.6%). Majority of the participants (38.9%) were from the age range from 18 to 21 years.

### Question 1: What is the level of anxiety disorder among adults with Autism Spectrum Condition?

The results presented in Table 2 based on the GAD scale, which includes 7 items, indicate that adults with ASC experienced mild-moderate level of anxiety. The calculation of scores according to the GAD categorizes mild range as scores between 10% - 25%, whereas moderate range as scores between 26 to 55%, and severe range as scores between 56 to 75%, respectively. However, the results show that the mostly adults with ASC (56%) reported moderate level of anxiety, they faced on several days. Approximately 29% of adults with ASC reported experiencing mild to moderate levels of anxiety for more than half of the day. The item with the highest mean score was 'easily being annoyed or irritable' (mean = 2.27, standard deviation = 0.667), while the lowest scores were observed for the item 'too much worry about multiple things' (mean = 2.08, standard deviation = 0.640).

**Table 2: GAD-7 item analysis (N=90)**

S. No	GAD Items	None at all sure	Several Days	Over half of the days	Every day	M	SD
1	Feeling anxious,	13	54	21	2	2.13	.674

	nervous, or on edge	(14.4 %)	(60 %)	(23.3 %)	(2.2 %)		
2	Cannot control and/or stop worry	15 (16.7 %)	47 (52.2 %)	26 (28.9 %)	2 (2.2 %)	2.17	.723
3	Worrying for many different things	15 (16.7 %)	53 (58.9 %)	22 (24.4 %)	0	2.08	.640
4	Trouble relaxing	11 (12.2 %)	51 (56.7 %)	27 (30 %)	1 (1.1 %)	2.20	.657
5	Fidgety behavior, restlessness, hard to stay still	10 (11.1 %)	57 (63.3 %)	22 (24.4 %)	1 (1.1 %)	2.16	.616
6	Easily irritable or annoyed by others	11 (12.2 %)	44 (48.9 %)	35 (38.9 %)	0	2.27	.667
7	Easily afraid if something unpleasant happened	12 (13.3 %)	47 (52.2 %)	31 (34.4 %)	0	2.21	.662
	<b>Total</b>	72 (13.8%)	306 (56.1%)	158 (29.2%)	4 (.95%)	15.2	1.946

**Research Hypothesis 1 (H<sub>1</sub>):** Majority of adults with Autism Spectrum Condition experience anxiety disorder.

**Null Hypothesis (H<sub>0</sub>):** Majority of adults with Autism Spectrum Condition do not experience anxiety disorder.

The results from the chi-square test (see table 3) for generalized anxiety disorder among adults with ASC revealed that the calculated chi-square value of 24.113 is found to be significant because the p-value of 0.004 is less than 0.05. Consequently, the research hypothesis is accepted, which suggest that the majority adults with ASC experience generalized anxiety disorder in their social gatherings.

**Table 3: Chi-Square test for the Generalized Anxiety Disorder (GAD -7-item)**

	Pearson Chi-Square	Likelihood Ratio	Linear-by-Linear Association	N of Valid Cases
Value	24.113 <sup>a</sup>	28.068	13.401	90
Df	9	9	1	
Asymptotic Significance (2-sided)	.004	.001	.000	

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .46.

**Question 2: What is the rate of depression exhibit in adults with Autism Spectrum Condition?**

The findings revealed that the mostly adults with ASC (47%) reported a moderate depression level based on experiencing symptoms on several days (see table 4). Additionally, 25% of the participants reported mild levels of depression for over half of the day, while 22% were uncertain about the items, and only 4.7% reported experiencing depression symptoms nearly every day. However, the mean score was observed for PHQ-9 was (M=15.21) with a standard deviation of 1.946, indicating the overall level of depression among the participants.

**Table 4: Depression (PHQ-9) Descriptive Analysis (N=90)**

PHQ Items	None at all sure	Several Days	Over half day	Every day	M	SD
No concentration in activities, task or interest in different things or very little pleasure	22 (24.4 %)	43 (47.8 %)	24 (26.7 %)	1 (1.1 %)	2.04	.748
Feeling hopelessness & down	15 (16.7 %)	44 (48.9 %)	28 (31.1 %)	3 (3.3 %)	2.21	.757
Sleeping too much, or having trouble in sleep	19 (21.1 %)	39 (43.3 %)	25 (27.8 %)	7 (7.8 %)	2.22	.871
Fortune telling having no or little energy	25 (27.8 %)	40 (44.4 %)	22 (24.4 %)	3 (3.3 %)	2.03	.814
Eating too much or very poor appetite	22 (24.4 %)	45 (50 %)	18 (20 %)	5 (5.6 %)	2.07	.818
Feeling of failure, loser, feeling bad about self, or have let yourself down	16 (17.8 %)	43 (47.8 %)	27 (30 %)	4 (4.4 %)	2.21	.786
Trouble in making concentration to any things, e.g., television watching, or newspaper reading	13 (14.4 %)	41 (45.6 %)	28 (31.1 %)	8 (8.9 %)	2.34	.837
Moving too slowly or speaking low that noticed by others. Or restless or fidgety	18 (20 %)	41 (45.6 %)	25 (27.8 %)	6 (6.7 %)	2.21	.841
Thoughts regarding hurting self or that you	30 (33.3 %)	47 (52.2%)	12 (13.3 %)	1 (1.1 %)	1.82	.696



would be better off dead	180 (22.2 %)	383 (47.3%)	209 (25.8 %)	38 (4.7 %)	15.21	1.94
<b>Total</b>						6

**Research Hypothesis 2 ( $H_1$ ):** Adults with Autism Spectrum Condition often exhibit higher rates of depression.

**Null Hypothesis ( $H_0$ ):** Adults with Autism Spectrum Condition do not exhibit higher rates of depression.

The chi-square test was conducted to reconnoiter the relationship between the levels of depression among adults with ASC in their life (see table 5). The chi-square value of 26.354 is significant, as indicated by the p-value of .01, which is significance at .05. Therefore, the research hypothesis that adults with ASC often exhibit higher rates of depression in social settings is accepted based on the statistical significance of the chi-square test results.

**Table 5: Chi-Square Test for the Depression (PHQ-9)**

	Pearson Chi-Square	Likelihood Ratio	Linear-by- Linear Association	N of Valid Cases
Value	26.354 <sup>a</sup>	31.097	21.354	90
Df	12	12	1	
Asymptotic Significance (2-sided)	.010	.002	.000	

a. 18 cells (69.2%) have an expected count less than 5. The minimum expected count is .46.

**Question3: Is there any relationship between anxiety & depression among adults with Autism Spectrum Condition?**

**Research Hypothesis 3 ( $H_1$ ):** There is a strong correlation exists between anxiety & depression among adults with Autism Spectrum Condition.

**Null Hypothesis ( $H_0$ ):** There is no relation between anxiety and depression among adults with Autism Spectrum Condition.

Table 6 presents the findings of a Pearson Correlation analysis examining the association between anxiety and depression in adults with Autism Spectrum Condition (ASC). The results indicate a significant and robust positive relationship between these two variables, with a Pearson correlation coefficient of .250, significant at a two-tailed alpha level of .05, with a p-value of .017.

**Table 6: Correlation between Anxiety & Depression (N = 90)**

Anxiety Disorder (Scores)	Level of Depression (Scores)	
	Pearson Correlation	
	Sig. (2-tailed)	.250*
	N	.017
		90

\* Significant correlation is at the 0.05 level (2-tailed).

## DISCUSSION

The outcomes of the study propose that adults with ASC experience significant challenges related to anxiety and depression in social settings. The results indicate that a substantial proportion of adults with ASC face moderate anxiety level and depression, with some experiencing severe symptoms of depression. These mental health issues can have a direct or indirect impact on the quality of life of adults with ASC. Similar findings were observed in previous studies such as adults with ASD observed higher scores for their low mental health at PHQ-9 tool (e.g., Ee et al., 2019). This highlights the significance of addressing & supporting the mental well-being of adults with ASC, as these issues can significantly impact their daily lives and overall functioning in social settings.

A recent study of Mazurek et al. (2023) showed that the depression and anxiety have significantly negative impact on the life of adults with ASC, with regards to their day to day functioning, their mental health & well-being, as well as their quality of life. That may increase the risk of isolation and suicidal attempts in adults with ASC (see also Strauss et al., 2021; Jokiranta -Olkonemi et al., 2021). Furthermore, researcher Mazurek and his team (2023) found high prevalence rate of depression (48%) and anxiety (58%) in adults with ASC. Furthermore, the literature supports the idea that adults with ASC who have average to high IQ levels may still face high levels of general anxiety and symptoms of depression. This may be attributed to various factors such as stigma, isolation, unacceptance by society, and camouflaging strategies used in social settings (see Rehman et al., 2022a; 2022b; Hull et al., 2021; Hollocks et al., 2019; Nah et al., 2018). Anxiety and depression can also have a causal relationship, where one condition may contribute to the development or exacerbation of the other. For example, chronic anxiety may lead to chronic stress, which can increase the risk of developing depression over time. Means individuals who experience one condition are at increased risk of also experiencing the other. Studies have shown that about 50% of individuals who diagnosed with the depression symptoms may also meet the criteria for an anxiety-related disorder at some point during their lifetime (see also Conner et al., 2023; Kalin, 2020; Jacobson et al., 2017). Anxiety and depression can have overlapping symptoms, such as sleep disturbances, irritability, and difficulty concentrating. This can make it challenging to differentiate between the two conditions, and individuals may be diagnosed with both anxiety and depression

simultaneously.

So, it's important to consider diagnostic overshadowing, which can affect the accuracy of diagnoses for conditions like social phobia and OCD in adults with ASC. This is because some symptoms of ASC, such as social difficulties and repetitive behaviors, can resemble symptoms of these other disorders. Additionally, the wide range of intellectual and adaptive functioning in people with ASC can impact the prevalence rates of depression and anxiety (see Strauss et al., 2021; Hollocks et al., 2019; Jacobson et al., 2017). While the exact reasons for the high comorbid disorders rates in adults with ASC remain unclear, researches has suggested that genetic, neurobiological, developmental, and other environmental risk factors may play a role (Conner et al., 2023; Rehman et al., 2022a; 2022b). However, it is evident that coexisting psychiatric conditions can significantly impact the long-term outcomes and quality of life of adults with ASC. Therefore, it is crucial to design interventions that based on improving different skills e.g., social skills, particularly during young adulthood & adolescence time when social interactions become gradually more complex (see Linden et al., 2023; Rehman et al., 2022a; Lugo-Marín et al., 2019). By addressing social skills deficits early on and providing tailored interventions, it may be possible to enhance the social functioning and overall well-being of individuals with ASC. It is important to adopt a multidisciplinary approach that incorporates various therapeutic modalities, such as psycho-education, trainings regarding social skills, and cognitive-behavioral therapy, to effectively address the comorbid psychiatric conditions in individuals with ASC.

Further research is needed to better understand the underlying mechanisms and risk factors for comorbid psychiatric conditions in individuals with ASC and develop evidence-based interventions to support their mental health needs and improve their long-term outcomes. Prioritizing the mental health and their well-being is essential, and providing them with appropriate support and interventions can help them lead fulfilling and meaningful lives. Interventions that focus on different social skills development in adults with ASD may have a broader impact by addressing anxiety & depression with social challenges, as these conditions are often interconnected. However, there is a limited availability of proven program interventions for adults with ASC, and there is a lack of empirical evaluations of these interventions, despite the growing demand for evidence-based practices. As the demand for programs to support adults with ASC increases, there will be higher expectations for these programs to demonstrate their effectiveness through rigorous evaluation.

It is essential to demeanor rigorous study and evaluation of interventions targeting social skills, depression, and related anxiety in adults with ASC to establish evidence-based practices and improve outcomes for this population. By providing effective and well-evaluated interventions, it is possible to address the unique challenges faced by

adults with ASC and enhance their mental health and overall well-being. The study's findings highlight the need for understanding the unique experiences and challenges experienced by most adults with ASC in social settings, and the importance of addressing their mental well-being. It is important to consider the individual differences and subjective experiences of adults with ASC, and to promote acceptance, understanding, and inclusivity in society. The study emphasizes the importance of collaboration between parents, physicians, student health care centers, and educators to recover the mental well-being and physical health of adults with ASC, who often report experiencing anxiety and depression. To effectively address mental health concerns in this population, a nationwide integrated approach that utilizes the public health model of disability is essential to address both the population-level issues and individual needs. To reduce disparities for autistic populations and set them up for success in adulthood, healthcare providers and researchers should invest in accessible mental and physical health services.

It is crucial to consider the unique challenges and needs of adults with ASC in social situations and provide appropriate support and interventions to address their mental health concerns. Further research and interventions aimed at improving the mental health outcomes of adults with ASC may contribute to enhancing their overall well-being and quality of life.

## RECOMMENDATIONS

There is a need to create awareness among society regarding autism and other disabilities, so as the stigma related disabilities will be acceptable by the society without any labeling and bullying. Awareness programs can be initiated by the help of media and social web pages, through advertisement and lectures. Mental health teams should assess adults with ASC to find out the main causes of their mental health related problems such as depression and anxiety.

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