Graduates with High-Functioning Autism: Perceptions of Academic and Labor Market Adjustment

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Abstract

This study explores the perceptions of academic and labor market adaptation among graduates with high-functioning Autism Spectrum Disorder (ASD), in comparison to neurotypical counterparts. Contrary to the expected significant differences attributed to the unique challenges associated with ASD, the findings did not indicate major disparities in perceptions of adaptation to both academic settings and labor market entry. The investigation encompassed 134 participants, divided between individuals diagnosed with high-functioning ASD and a control group from the general population, employing self-administered questionnaires to evaluate adaptability perceptions. The absence of anticipated differences suggests that the existing supports within educational and employment contexts may be effectively facilitating the transition for graduates with ASD. The study highlights the importance of inclusive career guidance and job placement services, demonstrating a positive correlation between academic adaptation and labor market preparedness. These results challenge pre-existing notions regarding the ASD experience during critical transitions from higher education to employment, advocating for enhanced policies and practices that accommodate the diverse needs of all graduates.

Keywords: Autism Spectrum Disorder (ASD), high-functioning autism, academic adaptation, labor market adaptation

1. Introduction

Autism encompasses a range of neurodevelopmental disabilities manifesting in early childhood (Faroy et al., 2016). Autism Spectrum Disorder (ASD) includes varying levels of functioning and symptoms. Over the past five decades, numerous studies have evolved alongside changing diagnostic definitions of ASD. Autism has increasingly become a subject of academic and labour market research (Ponomariova et al., 2020).

The labour market, where workers and employers interact, undergoes continuous changes in employment requirements. Currently, job seekers are often expected to hold bachelor's degrees or professional training. Social awareness has promoted the integration of diverse populations, including those with special needs, into the workforce. Laws such as the "Commission for Equality of Rights for People with Disabilities," established in 2000, aim to facilitate this integration. However, despite legal efforts, data reveals persistent discrimination in hiring practices, resulting in higher unemployment rates among people with disabilities compared to their non-disabled peers. One group facing significant employment discrimination is those with high-functioning ASD. Employers often hesitate to hire individuals on the high-functioning autistic spectrum due to fears about job performance and productivity (Griffiths et al., 2020). Societal stereotypes, propagated through social media, perpetuate biases against the autistic population (Solomon, 2020). Consequently, individuals with ASD face significant discrimination and social exclusion, hindering their integration into public, economic, and social spheres.

Employment for individuals with high-functioning autism presents unique challenges and opportunities. Adults with ASD possess skills beneficial for certain roles, such as systematic processing and attention to detail, yet they often encounter significant barriers to employment, including lower employment rates and underemployment (Scott et al., 2019). Employment outcomes vary due to personal factors like IQ and language abilities and environmental factors such as family support and targeted interventions.

Scott et al. (2019) emphasizes leveraging the strengths of individuals with ASD in the workplace and addressing the mismatch between their abilities and job opportunities. Traditional employment practices and employer concerns about perceived barriers can hinder job prospects. Employment services often fall short in providing the individualized support needed for successful employment outcomes. This calls for a nuanced understanding of the support requirements for adults with ASD and the importance of environmental factors in enhancing their employment success.

Societal prejudices and misconceptions contribute to the difficulties autistic individuals face in integrating into society, including social, educational, and occupational integration (Davidovitch et al., 2019). A study by Davidovitch et al. (2019) on the attitudes of instructors towards the integration of students with high-functioning ASD in Israeli academia found that familiarity with High-Functioning Autism (HFA) positively impacts students' perceptions of integration, alongside academic integration, organizational support, and feelings towards these students.

Despite extensive research on employers' and students' perceptions towards employing individuals with disabilities, including ASD, there is a gap in research investigating the perceptions of graduates with high-functioning ASD regarding their skills and readiness for the labor market after completing their education..

This study examines the perceptions of graduates and students nearing degree completion who have high-functioning ASD, regarding their intent to integrate into the labour market. These perceptions are compared with those of students from the general population. A sample study involved 134 participants, divided into two groups: the study group comprised individuals on the high-functioning autistic spectrum who had completed or were in their final year of a bachelor's degree, and the control group consisted of students from the general population in their second year of undergraduate studies. All participants pursued bachelor's degrees in social sciences and humanities, engineering, or education.

1.1 Autism in a Research Context

Autism, also referred to as Autism Spectrum Disorder (ASD), constitutes a diverse group of neurodevelopmental conditions persisting throughout an individual's lifetime. These conditions range in severity and include sub-definitions such as Asperger's syndrome and Pervasive Developmental Disorder Not Otherwise Specified (PDD NOS), previously recognized in DSM-IV-TR, but now unified under ASD in DSM-5 (Lord et al., 2018).

ASD is characterized by persistent impairments in communication and interpersonal interaction, including deficits in social reciprocity, understanding subtexts, and maintaining relationships. Additionally, individuals with ASD often display restricted interests and repetitive behaviors (Gomot & Wicker, 2012). While there is substantial variation among individuals with ASD in terms of social and verbal functioning, certain core characteristics are shared, categorized into social communication and sensory, motor, and repetitive behaviors. These traits are consistent across demographics, including race, gender, religion, ethnicity, and socioeconomic status (Lord et al., 2018).

The prevalence of ASD is rising globally, with significant variation in diagnosis rates across countries. For example, the United States reports a diagnosis rate of 1 in 68 children (2%), whereas Israel reports 1 in 200 children (0.05%). Diagnosis rates for boys are nearly five times higher than for girls worldwide, although this gender ratio varies among countries due to methodological differences in case identification and the growing prevalence of ASD (Faroy et al., 2016).

1.2 Adaptation Challenges

Adaptation to different environments poses challenges for adults with Autism Spectrum Disorder (ASD), stemming from difficulties in social, emotional, and educational domains. Research by Lindsay et al. (2013) indicates that individuals with ASD experience challenges in social, sensory, and cognitive processing from childhood, leading to limited understanding and misuse of social interactions. Trevisan et al. (2017) suggest that these individuals make less eye contact, acquiring less information about others' emotions.

Rubin et al.'s (2004) research highlights the enduring communication challenges faced by individuals with ASD due to social difficulties originating in childhood. Van Steensel et al. (2011) corroborate this, indicating that emotional exposure to school environments without diagnosis and anxiety treatment can result in social isolation and long-term psychological problems, affecting academic adaptation.

Emotional difficulties play a significant role in adjustment challenges. Rogers et al. (2018) found a wide range of anxiety symptoms and environmental factors, such as sensory overload, fear of separation from parents, and disruptions to daily routines, among children with ASD. In higher education, these fears may manifest as anxiety about answering questions incorrectly and test anxiety.

Reyes et al. (2020) revealed that children with autism exhibit reduced emotional control, indicating a lag in social skills and interpersonal interactions. This is often related to difficulties in perceiving emotions due to reduced visual attention to key facial features or impaired processing of rapidly changing stimuli. A comparative study by Golan (2015) showed that over 78% of children on the autism spectrum performed below average in identifying and recognizing complex emotions in social contexts.

Bos et al. (2018) examined the relationship between social problems and the internalization and externalization of emotions among children with ASD from an early age. They found that factors like levels of reflection and worry significantly predict externalization problems and low self-concept among boys on the spectrum in adulthood. The development of social skills, communication, and social interaction in children with autism is often delayed, necessitating the acquisition of executive function skills and social experience.

In addition to social and emotional challenges, adjustment difficulties in academic settings significantly impact individuals with ASD. Polo-Blanco et al. (2024) indicate that children with autism frequently face challenges in mathematical concepts and numerical calculations and show weaker phonemic abilities in verbal tasks. They also experience a decline in perceptual abilities in various academic fields, particularly reading comprehension, as they transition into adulthood. Perosanz et al. (2024) found that in emotional tasks involving false beliefs, children with autism face difficulties due to limited executive cognitive abilities, including working memory, attention, flexibility, and inhibitory control.

Considering these challenges, there is a pressing need for diverse social intervention programs. These programs aim to enhance cognitive abilities, foster responsibility, and promote self-awareness among learners with ASD. They also provide essential tools for emotional coping and facilitate rapid adaptation in academic settings (Shogren et al., 2021). For instance, using musical stimuli for therapeutic purposes can develop social interaction skills among children with ASD (Ghasemtabar et al., 2015). Early intervention prepares diagnosed individuals to better integrate into academic and professional environments as adults.

Rapid adaptation at the social-emotional level encompasses skills such as knowledge, attitudes, empathy towards others, and the ability to establish and maintain positive relationships (Mahoney et al., 2021). Mahoney et al. (2021) underscore the importance of elements like expectations for success, encouragement, and the involvement of teachers, staff, and biological parents in promoting rapid adaptation. These factors are closely linked to the academic success of adults with ASD during their university studies. Future academic performance is influenced by active social interactions and support received from early childhood.

Guo et al. (2023) emphasize the interconnectedness between an individual's social-emotional well-being during childhood and their self-perception of academic abilities at the university level. Bergland et al. (2014) highlight the crucial role of mental and social health in adaptation for individuals with ASD, particularly as they age, influencing their success in academic studies and workforce integration. Pallant (2020) demonstrates a link between rapid adaptation and tolerance developed in childhood and the formation of personality traits that contribute to academic success and future job market integration. Positive psychological consequences include improved mental health, a sense of control, adaptability, high self-efficacy, and greater mental coping resources.

Lackaye (2006) discusses the significant effort required from early childhood to academic pursuits, involving a balance between acquiring knowledge, developing cognitive abilities, and honing adaptive and social skills. Research establishes a link between rapid adaptation and tolerance during childhood and subsequent educational and occupational success in adulthood.

As individuals with autism transition into adulthood, they face developmental challenges. Graduates and their families often describe a gap between the support received in the education system and uncertainties in adulthood. New hurdles include understanding available services, accessing them, and navigating bureaucratic processes, leading to idleness, isolation, and depression. Adults with autism often face a gap between their chronological age and emotional and functional maturity (Kenny et al., 2019).

To promote productivity in the employment sector for individuals with disabilities, relevant legislation must be enforced. In Israel, the Ministry of Welfare and the Ministry of Health facilitate the integration of individuals with disabilities into the labour market. In 2018, 66% of applicants to the Mental Health Division of the Ministry of Health received employment assistance.

1.3 Integrating People with Disabilities Including Autism in Academia

In Israel, a special education law enacted in 1988 emphasized placing individuals with special needs, including autism, in regular educational settings (Special Education Law, 1988; Avissar, 2016). This law reflects a philosophical-humanistic perspective that asserts the right of every individual with special needs to receive an

education and live in a normative environment. The concept of "combination" aims to foster social and cognitive skills among all students, particularly those with Autism Spectrum Disorder (ASD) (Avissar, 2016). This inclusion law aligns with global policies supporting equal educational opportunities for individuals with disabilities.

Initially, the integration policy was simplistic, assuming that mere inclusion would lead to acceptance and improved quality of life for individuals with special needs. However, this often led to rejection and neglect, highlighting the gap between expectations and reality (Rimmerman et al., 2005). Wang (2009) emphasized the need for a comprehensive approach to genuine inclusion, advocating for an inclusive and accepting school culture.

Individuals with autism are classified as having disabilities. The "Special Education Law 5748-1988" applies to children with significant disabilities that substantially limit their adaptive behaviour, necessitating special education. Disabilities may include physical, mental, emotional-behavioural, sensory, cognitive, or developmental challenges.

Historically, individuals with special needs, including autism, faced discrimination and marginalization due to societal stigmas. The Equal Rights Law enacted in 1998 mandates integrating individuals with disabilities into all aspects of life by removing barriers (Soffer et al., 2011). Subsequent reforms and new regulations, such as the "sub minimum wage," encourage the employment integration of individuals with disabilities.

As of 2013, approximately 1,603,500 people in Israel had disabilities, about 20% of the population. Despite legal efforts, significant progress in labour market integration remains limited. Employment is crucial for integrating individuals with special needs into mainstream society, contributing to a healthy economy (Rimmerman et al., 2015).

The Equal Rights Commission of Persons with Disabilities, established under the Ministry of Justice, combats discrimination and facilitates the integration of individuals with disabilities into the job market and society. Data reveal higher unemployment rates among people with disabilities than neurotypical individuals. For example, employment rates among people with severe disabilities are 30.9%, while those with mild disabilities stand at 70.3% (Davidovitch et al., 2012).

Contemporary definitions of integration involve changing the school environment rather than altering the child. Research by Avissar et al. (2016) highlights the need for collaboration within the educational team and with parents, as well as between special and regular education systems. Social awareness and laws encourage workforce participation for people with special needs (Shik Har Tov, 2019).

The "Commission of Equality of Rights for Persons with Disabilities," established in 2000, aims to safeguard the rights of individuals with disabilities in employment and society. However, discrimination in hiring persists, and unemployment rates remain high among this group. High-functioning individuals with ASD face particular employment discrimination, as employers fear they may struggle with job adaptation and productivity (Griffiths et al., 2020). Social stereotypes perpetuated through media further contribute to biases against the autistic population (Solomon, 2020).

There is a growing demand for employees with academic education. However, many graduates lack necessary practical skills, creating a mismatch between academic studies and labour market needs. Internships during degree programs are crucial for applying theoretical knowledge and gaining essential professional and social skills (More & Rosenbloom, 2022). This challenge is significant for graduates with ASD.

Research shows that familiarity with ASD and proximity to individuals on the spectrum foster positive attitudes towards the ASD population, improving acceptance and quality of life (Anthony et al., 2020). A study by Davidovitch and colleagues (2020) found that familiarity with high-functioning autism (HFA) positively impacts students' perceptions of integration in universities, surpassing other variables like academic integration and organizational support. Successful integration in higher education depends on patience and awareness of ASD among lecturers and students (Davidovitch et al., 2017).

Sefotho et al. (2021) provide recommendations for managing the transition from high school to higher education. These include acquainting students with institutional structures, establishing gradual schedules, and employing supportive teaching methods. Learning and testing adjustments, such as extra time and individual submissions, are also recommended.

Personal guidance from a tutor or mentor facilitates smooth transitions and adaptive behaviours. Sefotho et al. (2007) identify factors fostering inclusive atmospheres and individualized teaching methods, including lecturer engagement and familiarity with HFA. Davidovitch's research emphasizes integrating students with HFA into

higher education to reduce isolation, enhance social and independent living skills, and improve academic success (Davidovitch et al., 2017).

On an individual level, integration reduces feelings of isolation and promotes social and independent living skills. It also decreases a sense of exclusion and alienation, leading to knowledge acquisition and degree completion. Societal prejudices and misconceptions often hinder the integration of autistic students into social, educational, and occupational contexts (Davidovitch et al., 2017).

1.4 Integration of People with Disabilities, Including Autism, in the Labor Market

Work is a crucial part of our lives, providing meaning and shaping our existence (Gorny, 2018). Integration into the labour market is vital for reducing unemployment, a subject extensively studied across various disciplines. Unemployment causes socio-economic challenges, lowering living conditions, reducing purchasing power, and harming the economy. It also triggers psychological issues like low self-esteem and guilt, leading to social problems such as marital conflicts and increased crime rates. Thus, labour market integration garners significant research attention (Gorny, 2018).

Graduates with autism possess unique characteristics beneficial for employment, such as systematic thinking, attention to detail, and perseverance in repetitive tasks. These strengths are harnessed in fields like software testing, as seen with Specialisterne in Denmark, where many employees are on the autistic spectrum specializing in software services (Krzeminska & Hawse, 2020). Similar training programs in Israel prepare individuals with Asperger's syndrome for high-tech jobs (Jarrar, 2014).

Tailored training programs and job search assistance help graduates with specific interests find successful employment. They often prefer roles that match their abilities without requiring independence in other life areas (Blackburn & Howlin, 2004). The tech sector increasingly integrates employees with autism, leveraging their skills (Wang, 2014). However, employment outcomes for individuals with ASD are often unsatisfactory, marked by low employment rates, part-time jobs, and low wages (Davidovitch et al., 2023). Barriers include social challenges at work, uncertainty about role suitability, lack of support, and negative perceptions (Hendricks, 2010).

There is often a mismatch between education and available positions for graduates with autism, posing challenges due to communication limitations and difficulties in understanding workplace norms and non-verbal cues. Additional obstacles include comprehension issues, heightened anxiety, emotional regulation challenges, and sensory sensitivities (Hendricks, 2010).

Support from external entities helps maintain job persistence and manage workplace challenges, such as preparing for changes like a new manager (Blackburn & Howlin, 2004). With technological advancements reducing routine tasks, there is an increased demand for creative problem-solving, high interpersonal skills, adaptability, continuous learning, and self-directed career management, posing significant challenges for the ASD population (Hirschi, 2018). Solutions must be devised to ensure economic security and occupational stability for individuals with ASD.

Programs tailored to individual needs improve workplace skills, such as resume writing, interview preparation, and life skills like independent shopping and cooking (Jarrar et al., 2014). A supportive framework is crucial for long-term success. Initial assessments of required tools upon employment and ongoing support help employees with ASD adapt better (Johnson et al., 2020). Increased awareness among neurotypical employees fosters positive relationships and job security for those on the spectrum (Dreaver et al., 2020).

Employers' ability to identify suitable roles and the significance of academic studies are critical for the employment success of individuals with ASD. Assessing abilities and task structures helps place employees in appropriate roles, increasing job satisfaction and growth (Dreaver et al., 2020). Criteria for identifying suitable roles include independent work, clear responsibilities, logical thinking, minimal sensory stimuli, and creativity (Jarrar et al., 2014).

Proactive preparations are necessary to accommodate job candidates' needs and educate employers about the benefits of hiring individuals with ASD. Individuals with high-functioning ASD offer significant advantages in a labor market valuing diversity. Their integration can promote innovative team thinking and productivity (Waisman-Nitzan et al., 2019).

Employing individuals on the high-functioning autistic continuum presents challenges but offers substantial benefits for both employees and employers. There is growing interest among employers in hiring individuals on the spectrum, recognizing their advantages. However, successful employment often requires prior preparation, workplace adjustments, and training for co-workers.

The significance of this study lies in exploring the perceptions of graduates on the autistic continuum regarding their adaptation to academia and the labour market, an area previously unexplored in research.

1.5 Research Objectives

The aim of this study is to investigate the relationship between adaptation to undergraduate studies and adaptation in the labor market among individuals on and off the autistic continuum. To achieve this overarching goal, the study has the following specific objectives:

- to assess the influence of being on the autistic continuum on adaptation to undergraduate studies and in the labor market
- to examine how the supportive work environment can facilitate the integration of employees with Autism Spectrum Disorder (ASD).

1.6 Research Question

The central research question of this study is: "Is there a difference in the adaptation to undergraduate studies and in the labor market between individuals on the autistic continuum and those who are not on the spectrum?"

1.7 Hypotheses

H1: Graduates on the autistic continuum will perceive their adaptation to undergraduate studies as less favorable compared to graduates who are not on the spectrum.

H2: Graduates on the autistic continuum will perceive their adjustment in the labor market as less favorable compared to graduates who are not on the continuum.

H3: There will be a significant connection between adaptation to academic studies and adaptation in the labor market.

2. Methodology

2.1 Population

The study comprised a total of 134 participants, with 50 individuals (37.3%) falling within the autistic spectrum, and 84 individuals (62%) from the general population. Most participants (74%) were aged 20-29, with 2% aged 40-49, and 1% over the age of 50. All participants were students, with 62.6% attending universities and 37.4% attending colleges in Israel. Among the participants, 56.7% were male, and 43.3% were female. In terms of geographic distribution, 15.9% resided in the north, 75% in the central region, and 9.1% in the south. These participants represented three different academic departments: social sciences and humanities (44.3%), engineering (29.6%), and education (14.8%).

Information about participants	Response Options	Ν	%
Carden	Women	58	43.3
Gender	Men	76	56.7
Have very been discussed with ention before?	Yes	56	42.1
Have you been diagnosed with autism before?	No	77	57.9
	Single	89	68.5
Marital Status	Married	33	25.4
Marital Status	Divorced	3	2.3
	Other	5	3.8
	Yes	30	22.7
Did you study in an integrated class within the framework of special education?	No	102	77.3
	Israel	104	80
Country of birth	Ethiopia	21	16.2
	Other	5	3.8
	High School	48	36.1
Education	BA	69	51.9
	Master's degree	16	12.0

Table 1. Participant demographics and educational background

	Not working currently	40	29.9
Employment status	Part time	54	40.3
	Full-time	40	29.9
	High school	43	32.1
Parental education	Professional	32	23.9
	Academic	59	44.0
	Social Sciences	51	44.3
	Education	17	14.8
Study course at the academy	Engineering	34	29.6
	Other	32	11.3

2.2 Research Instruments

We collected data using self-administered questionnaires to address the research questions. Three specific tools were employed for this purpose.

The first tool utilized was the Student Adaptation to College Questionnaire (SACQ) originally developed by Baker and Siryk in 1989. This self-report questionnaire, originally in English, comprises 67 statements and employs a Likert scale ranging from 1 ("I strongly disagree with this statement") to 9 ("I strongly agree with this statement"). Higher scores on the questionnaire indicate better adaptation. SACQ assesses adaptation in four distinct subcategories:

- Academic adaptation measures the extent of the participants' adaptation to academic challenges in the learning environment (e.g., "Recently, I have doubts about the value of university studies").

- Personal-emotional adaptation assesses general psychological distress (e.g., "I feel tense or nervous lately").

- Social adaptation evaluates students' coping in social interactions within the higher education setting (e.g., "I feel that I have sufficient social skills to manage well within the university/college").

- Institutional adaptation focuses on students' commitment to meeting academic goals (e.g., "Now I am satisfied with my decision to study at the university/college I'm learning").

The second tool employed was the "Attitudes towards the Integration of Students on the Autistic Spectrum in an Academic Institution" questionnaire. This questionnaire consists of 15 statements with responses rated on a Likert scale from 1 ("definitely not") to 5 ("strongly agree"). Example statements include "People with high-functioning autism can provide work output similar to their neurotypical colleagues" and "I believe that studying alongside these students can prepare me to work with individuals on the autistic spectrum." The reliability level for this questionnaire was calculated to be 0.775.

The third tool employed was a demographic questionnaire consisting of 19 items. This questionnaire collected information on participants' personal details, including gender, age, place of residence, level of religiosity, country of origin, parents' education, etc.

2.3 Research Procedure

The research design employed for this study is correlational and involves between-subjects analysis. Convenience sampling was utilized as the sampling method.

Ethical approval for the study was obtained from the education ethics committee. The research procedure consisted of three key steps:

First step: An online questionnaire was constructed using the Google Forms platform and was subsequently reviewed by the primary researcher and the ethics committee. The questionnaire link was shared through various social networks. Participants were recruited from academic institutions, including colleges and universities, with no restrictions on gender, age, year of study, or department. Data collection took place during the academic year 2022. Students and instructors were informed that the collected data would be used solely for research purposes.

Second step: The research proceeded through two questionnaires tailored to the study's requirements. Each questionnaire comprised three sections: the first section included 19 demographic questions, while the second and third sections required respondents to rate their agreement with statements on a scale from 1 ("I strongly disagree with this statement ") to 5 ("I strongly agree with this statement "). The first questionnaire contained 10 questions related to the participants' experiences of adaptation within the academic context, covering educational, social, and emotional aspects. The second questionnaire included 15 questions focusing on

adaptation to the labor market. Data analysis was performed using SPSS version 25. Descriptive statistics was initially employed to describe the means and standard deviations of the key variables in the study. Cronbach's alpha reliability tests were conducted to assess the internal consistency of statements, and items with alpha values below 0.05 were excluded. The research hypotheses were empirically tested by comparing the perceptions of adaptation of graduates with ASD to those of neurotypical students concerning their integration into academic and labor market settings. Statistical analyses were conducted in SPSS, including Pearson correlation to examine relationships between research variables and two linear regression tests to explore factors influencing perceptions of adaptation to academia and the labor market. Variance tests, such as T-tests and one-way ANOVA tests, were employed to assess differences between the ASD and non-ASD groups. Data analysis was further supported by the Hayes Process plugin (2017).

Third step: A comprehensive discussion was conducted to interpret the statistical findings and provide insights into their implications.

3. Findings

From the demographic data, it becomes evident that there is a majority of male participants compared to female ones. Furthermore, most of the participants are single. Regarding their education, the most common level among the participants is a bachelor's degree, followed by a high school education. Similarly, a significant percentage of their parents have academic education, though at a lower rate (approximately 43.6% compared to 52.3%). The participants' ages span a wide range, with an average age of 29.04 years.

3.1 Cronbach's Alpha Reliability Test

To assess the research hypotheses, a Cronbach's Alpha reliability test was conducted for the research questionnaires. This test was performed for both the questionnaire related to adaptation to higher education studies, which comprised 34 different statements, and the questionnaire related to adaptation to employment in the labor market, which included 15 different statements. In both questionnaires, participants were asked to rate the extent to which each statement applied to them on a scale of 1 to 5, with 5 indicating "strongly agree" and 1 indicating "strongly disagree."

For the questionnaire measuring adaptation to higher education studies, four questions (11, 12, 19, 20) were excluded to enhance the reliability of the test. Specifically, question 11, "Recently, I don't have a high motivation to study," question 12, "I'm thinking about asking for help from the psychological services," question 19, "Lately, I've been contemplating permanently discontinuing my university/college studies," and question 20, "I am thinking a lot about stopping studies and postponing graduation," were omitted.

For the questionnaire assessing adaptation to employment in the labor market, question 14 was also removed to improve the reliability level of the test. Question 14, "I dream of a managerial career that will allow me to be independent," was excluded.

Variable	The number of questions in the analysis	Cronbach's alpha indicator
Adaptation to higher education studies	34	0.822
Adaptation to employment in the labor market	15	0.775

Table 2. Cronbach's alpha reliability

3.2 Analysis of Research Hypotheses

Hypothesis 1: Graduates diagnosed on the autistic spectrum will perceive their adaptation to higher education studies as less favorable compared to graduates who were not diagnosed.

To test this hypothesis, a t-test analysis was conducted for two independent samples based on the autistic spectrum variable. The academic adjustment questionnaire was computed using only the 30 selected questions.

Table 3. Independent samples t-test to examine differences in perceptions of adaptation to higher education studies between graduates on the autistic spectrum and graduates who are not on the autistic spectrum

Variable	Ν	М	SD	t	Р
Graduates diagnosed on the autistic spectrum	56	3.156	0.700	0.076	0.94
Graduates not diagnosed on the autistic spectrum	77	3.164	0.459		

From the table above, it is evident that there is no significant difference between graduates diagnosed on the autistic spectrum and graduates without such a diagnosis in terms of their perception of adaptation to higher education studies (p > 0.05). Further t-tests were conducted on specific items.

Hypothesis 2: Graduates diagnosed on the autistic spectrum will perceive their adaptation in the labor market as less favorable compared to graduates who were not diagnosed on the autistic continuum.

To test this hypothesis, a t-test analysis was conducted for two independent samples.

Table 4. T-test for independent samples to examine differences in the perception of adapting to the labor market between graduates on the autistic spectrum and graduates who are not on the autistic spectrum

Variable	Ν	М	SD	t	Р
Adults diagnosed on the autistic continuum	51	3.594	0.564	1.656	0.100
Adults who have not been diagnosed on the autistic spectrum	73	3.443	0.453		

The analysis revealed that the level of perceived adaptation to the labor market does not significantly differ between graduates diagnosed on the autistic continuum and those without such a diagnosis (p > 0.05).

Hypothesis 3: There is a positive correlation between adaptation to higher education and adaptation to the labor market, suggesting that better adaptation to higher education leads to better adaptation to the labor market.

To examine this hypothesis, a Pearson correlation test (r) was conducted.

Table 5. Pearson correlation analysis to explore the relationship between adaptation to higher education and adaptation to the labor market (N=125)

Adaptation to the	he labor market	
r	р	
0.433	0.000	Adaptation to higher education studies

The data presented in the table indicates a positive correlation between adaptation to higher education studies and adaptation to the labor market, thereby confirming Hypothesis 3.

To determine if a relationship exists between adaptation to higher education studies and adaptation to the labor market within each group, Pearson correlation analyses were performed separately for each group.

Table 6. Pearson correlation analysis to assess the relationship between adaptation to higher education studies and adaptation to the labor market, conducted separately for graduates diagnosed on the autistic spectrum and typical graduates

Adaptation to the	he labor market	
r	р	
0.455	0.001	Adaptation to higher education studies among graduates diagnosed with ASD (N=51)
0.409	0.000	Adaptation to higher education studies among graduates not on the autistic continuum (N=73)

The data from the table reveals a clear positive correlation between adaptation to higher education studies and adaptation to the labor market for both groups – the graduates on the autistic spectrum and the typical graduates. Notably, this correlation is marginally weaker in the typical graduate group. Among both graduates diagnosed on the autistic spectrum and typical graduates, a higher perceived level of adaptation to higher education studies correlates with a higher perceived level of adaptation to the labor market. Therefore, Hypothesis 3 is validated independently for each group.

4. Discussion

The present study explored how graduates with Autism Spectrum Disorder (ASD) perceive their adaptation to academic and labor market environments compared to their neurotypical peers. The study comprised two distinct groups: one of 50 graduates with ASD and another of 84 individuals from the general population, all from various educational institutions.

The initial hypothesis anticipated observable differences in academic adaptation perceptions between the group diagnosed with ASD and the control group. However, the analysis did not reveal any significant disparities. Both groups – students on the autism spectrum and their second-year peers from the general population – reported similar levels of academic adaptation. This finding suggests that the academic experience, as perceived by both groups towards the latter part of their studies, is not markedly different. Such an outcome challenges the expectation that ASD diagnoses correlate with a distinct academic experience and underscores the importance of considering other factors that might influence students' perceptions of their educational journey.

This observation aligns with Jarrar et al. (2014) findings, suggesting that individuals on the autism spectrum report improvements in various aspects of life as they progress through their academic careers. It could be that graduates with ASD have a more positively consolidated subjective experience and have received sufficient support and individual assistance, thereby feeling more emotionally equipped and competent. This comprehensive support network may be bolstered by legislative measures such as the Equal Rights Law of Persons with Disabilities, 1998 and the Integration Law, which advocate for the rights of individuals with special needs to receive education in the most normative environment possible.

In our study, we found that there were no significant differences in perceptions of academic and labor market adaptation between graduates with high-functioning Autism Spectrum Disorder (ASD) and their neurotypical peers. This finding is particularly noteworthy as it challenges common assumptions about the distinctiveness of the ASD experience in these contexts.

One possible explanation for this lack of difference is the increased awareness and support for individuals with ASD within educational and employment settings. Over recent years, there has been a significant push towards inclusive practices and policies designed to support individuals with disabilities, including those with ASD. These efforts may have effectively leveled the playing field, providing graduates with ASD with similar opportunities and experiences as their neurotypical counterparts.

Moreover, the existing supports within educational and employment contexts, such as targeted interventions, accommodations, and specialized career guidance, might be contributing to a more balanced perception of adaptation among graduates with ASD. These supports can include individualized learning plans, mentorship programs, and workplace accommodations that address the specific needs of individuals with ASD.

However, the absence of perceived differences does not necessarily imply the absence of discriminatory practices or challenges faced by graduates with ASD. It is crucial to delve deeper into the nuanced experiences of these individuals, particularly in identifying subtle forms of discrimination that may not be immediately apparent through self-reported data. Future research should focus on exploring these potential disparities by employing qualitative methods and gathering perspectives from various stakeholders, including academic instructors, faculty, and recruiters.

The practical implications of these findings are significant for faculty and researchers at higher education institutions. Understanding that graduates with ASD perceive their academic and labour market adaptation similarly to their neurotypical peers suggests that inclusive practices and policies are having a positive impact. Faculty development programs should incorporate training on inclusive teaching strategies, recognizing the diverse needs of students with ASD, and providing appropriate accommodations. Researchers should consider these findings when designing studies and developing interventions aimed at supporting students with disabilities. This approach can enhance educational practices, improve support systems, and ultimately contribute to the academic success and employment readiness of all students.

Academic institutions have a responsibility to address the unique requirements of students with disabilities, including providing emotional, social, and academic support, as indicated by (Adreon & Durocher, 2007). Such support networks appear to have contributed to the ASD group's more positive perception of their academic adjustment.

The second hypothesis suggested that there would be perceptual differences in labor market adaptation between graduates with ASD and the control group. However, the data did not support this hypothesis, as no significant differences were found between the two groups' perceptions of labor market adaptation. These findings suggest that the support systems, including vocational guidance for students with disabilities, may equally influence both groups' confidence in their ability to adapt to the workplace. This aligns with findings from Dreaver et al. (2020), which emphasize the role of supportive work environments in the successful employment of individuals on the autistic spectrum. Moreover, it indicates that a supportive framework, crucial for initial employment success, may need to be consistently applied across all employee groups to ensure long-term job retention and satisfaction.

The third hypothesis, which proposed a positive relationship between adaptation to academia and the labor market, was confirmed. This suggests that the skills and professional training acquired during their education shape individuals' perceptions and readiness for the labor market (Davidovitch, 2023).

5. Limitations

While our study provides valuable insights into the perceptions of academic and labor market adaptation among graduates with high-functioning Autism Spectrum Disorder (ASD) and their neurotypical peers, several limitations must be acknowledged.

First, the sample size of 134 participants, with 50 individuals diagnosed with ASD and 84 from the general population, may limit the generalizability of the findings. A larger sample size would enhance the robustness of the results and allow for more detailed subgroup analyses.

Second, the demographic diversity of the participants was limited. Most participants were aged 20-29 and resided in central regions of Israel, with fewer participants from northern and southern regions. Increasing demographic diversity in future studies, including a wider age range and participants from various geographical locations, would improve the representativeness of the sample.

Third, the study relied on self-reported data, which can introduce bias as participants' responses may be influenced by their personal experiences, expectations, and subjective perceptions. Future research should incorporate objective measures, such as observational data, third-party evaluations, and performance assessments, to complement self-reported information and provide a more comprehensive understanding of adaptation processes.

Finally, the study did not consider potential differences in the support systems available to graduates with ASD compared to their neurotypical peers. Support systems, including family support, institutional resources, and community services, play a crucial role in shaping adaptation experiences. Future research should investigate the impact of these support systems to identify specific factors that facilitate or hinder successful adaptation.

By addressing these limitations, future studies can provide a more nuanced and generalizable understanding of the adaptation processes of graduates with ASD, ultimately leading to more effective support strategies and interventions.

6. Conclusions

The findings of this study provide a nuanced view of how individuals with and without ASD perceive their adaptations to both academic environments and the labor market after graduation. Notably, the anticipated differences in perceptions between the two groups were not evident in the results. This outcome underscores a potentially converging experience in higher education and professional settings for graduates irrespective of ASD status, challenging prior assumptions about the distinctiveness of the ASD experience in these domains.

The absence of significant perceptual differences suggests that supportive measures in academic and employment contexts may be benefiting all students. These results invite a broader consideration of how inclusive policies and practices contribute to the academic and vocational experiences of graduates, highlighting the universal benefits of support systems initially designed for individuals with disabilities.

The observed consistency in adaptation perceptions among graduates, regardless of ASD status, prompts a critical evaluation of the effectiveness of existing support structures in education and employment. This study highlights the need for continued research to pinpoint the factors that most significantly impact graduates' preparedness for the labor market, including practical training elements such as internships, mentorship programs, and applied learning opportunities. Understanding and enhancing these factors could bridge the gap between academic achievement and employment success, leading to more targeted and efficacious support for all graduates. Moreover, by exploring the long-term career paths of graduates with ASD, we can gain a deeper understanding of the sustained impact of support systems and inform policies that bolster workforce integration and enable all individuals to contribute effectively to their chosen professions.

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Prof. Nitza Davidovitch was responsible for conceptualization, data analysis, review and editing and project administration

Dr. Aleksandra Gerkerova was responsible for methodology, data collection and analysis and writing the first draft

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