

Employment Outcomes for Young Adults With Autism Spectrum Disorders
Ashleigh Hillier, PhD
& Monica Galizzi, PhD
University of Massachusetts, USA

Abstract: This study investigated employment outcomes among young adults on the autism spectrum. Questionnaire responses indicated high job satisfaction and job retention. However, the majority were in low paid, part-time positions. Most found their job through a personal contact, and received a range of informal supports and accommodations on the job.

Keywords: autism, employment supports, adulthood

Literature Review

Autism Spectrum Disorders

Individuals with autism spectrum disorders (ASD: autism, Asperger's syndrome, pervasive developmental disorder – not otherwise specified: PDD-NOS) experience various challenges including difficulties with social interactions, impaired communication, and restricted activities and interests (American Psychiatric Association, 1995). Individuals can be affected mildly, as with high functioning autism and Asperger's syndrome, or more severely as with "classic autism". While symptoms tend to improve during childhood, adult outcome has been shown to be poor with regards to achieving independence in daily life, employment, and independent living (Billstedt, Gillberg & Gillberg, 2005). Rates of autism spectrum disorders continue to increase, and there is now a huge influx of individuals with ASD approaching their adult years (VanBergeijk, Klin, & Volkmar, 2008). This has recently led to increased attention being focused on the adult years, but there is still a dearth of information available to help understand how to support those with ASD in adulthood, and in particular how to ensure positive employment experiences.

The current study represents exploratory work to assess employment outcomes among those with ASD through questionnaires completed by individuals with ASD and questionnaires completed by parents/guardians of those with ASD. This work is unique in that few previous studies have directly questioned those with ASD and their families about their employment experiences. We were particularly interested in the earnings of those with ASD, whether they were more likely to work part-time or full-time, whether they received fringe benefits, how they found their jobs, what supports they received in the work place, their job satisfaction, and costs of family support such as lost parental income, time in helping with job applications, transporting their child to work, and providing emotional support.

Individuals with Disability and Employment

Research has shown that individuals with disabilities are frequently unemployed or underemployed (they want or are available to work full-time or longer hours than the ones they settle for). For example, The National Organization on Disability (2010) survey showed that 21% of Americans with disabilities were employed part-time or full-time compared to 59% of

those without disabilities. People with disabilities make up only 3% of most companies' workforces, despite the fact that employers report that employees with disabilities are similar to those without disabilities in job skills and workplace behavior. Data collected from the Center of Disease Control and Prevention (CDC) show that among disabled men unemployment (defined in this data as not being employed for wages or not self-employed) was 45.3%, four times the rate for non-disabled male individuals. Unemployment was 55.1% for disabled women, twice the rate for non-disabled females (Smith, Randolph & Andresen, 2004). Those with disabilities are three times more likely to live in poverty and have an annual household income below \$15,000 (National Organization on Disability, 2004).

In the specific case of adults with ASD employment outcomes are disappointing and the majority of these individuals are unemployed (National Organization on Disability, 2004). Even those with qualifications are frequently underemployed (Taylor & Seltzer, 2011). Often, the job interview itself is a significant obstacle given the challenges experienced by those with ASD. Many potential employers are unfamiliar with terms such as Asperger's syndrome, or know very little about autism or Asperger's syndrome. The new version of the DSM-V will now merge the Asperger's Disorder category in to a broader "Autism Spectrum Disorder" category (American Psychiatric Association, 2013), which may reduce confusion among potential employers. Muller, Schuler, Burton & Yates (2003) interviewed 18 participants with ASD and found them employed in a broad range of occupations. However, most reported long periods of unemployment and / or underemployment and lack of opportunities for advancement. Several of the participants reported frustration at being placed in entry-level positions for which they were over-qualified. Many had patchy job histories with periods of unemployment and termination from positions making it more difficult for them to find new employment. Hurlbutt & Chalmers (2004) interviewed six adults with Asperger's syndrome regarding their employment experiences and also found dissatisfaction with finding work that matched their skills and abilities. Poor communication, social skills and sensory issues made job retention the biggest challenge for their participants. Howlin, Goode, Hutton, and Rutter (2004) showed that among adults with autism less than one-third were in some form of employment and this tended to be low paid leaving the individual unable to afford to live independently. Among their 68 participants the majority remained highly dependent on others for support. Those with ASD have social and communication deficits that can make successful employment particularly challenging and result in a need for services and support, particularly for those without intellectual disability who often don't qualify for state and federally funded programs (Taylor & Seltzer, 2011).

Beneficial Effects of Employment

Employment provides important psychological, mental health, quality of life and financial benefits. Unemployed persons exhibit poorer mental health and well being outcomes. Garcia-Villamizar, Wehman and Navarro (2002) found that adults with autism in supported employment improved their quality of life, defined by categories of environmental control, community involvement, and perception of personal change. It is known that those with ASD can be successfully employed (e.g. Keel, Mesibov, & Woods, 1997). For example, those with autism have been found to outperform those without autism when engaged in non-verbal tasks that require visual-spatial abilities (Mottron, 2011), or in tasks that require them to process information in a short amount of time (Remington, Swettenham & Lavie, 2012). Employers can

also benefit from hiring someone with ASD who are more likely to arrive to work on time, return from break on time, take few sick days, or waste time chatting with co-workers (Hurlbutt & Chalmers, 2004). Hillier et al. (2007) found that employers rated the performance of those with ASD very positively on a range of important job skills, including being punctual, knowing the job, being dependable, following directions, and beginning a task when requested to do so. Some challenges remained such as transitioning to a new task independently, asking for help when needed, and social integration in to the work place. However, if the work environment is supportive the chance of success is greatly improved for those with ASD.

Costs to Society of Unemployment Among Those With ASD

An increase in employment rates among those with ASD would result not only in individual benefits but also in decreased costs to society. The total annual cost to society of caring for someone with autism has been estimated at \$3.2 million per capita (Ganz, 2007). Jarbrink, McCrone, Fombonne, Zanden & Knapp (2007) evaluated the cost-impact to society of ASD by interviewing 19 young adults on the high functioning end of the autism spectrum. They found that half of the overall costs to society of supporting individuals with ASD were due to lost productivity. They also argued that if more individuals with ASD were employed it is possible that fewer would receive psychiatric care, there would be a reduced need for day programs and other community resources, and less burden on informal carers. There would also be a larger tax base and less financial dependence on the state and federal government. There are many costs to families themselves in raising a child with autism including costs of service provision, health care, as well as indirect costs. Often parents may have to work fewer hours, or not work at all in order to support their child (Jarbrink et al., 2007). School systems also carry the costs of supporting these individuals through special education and vocational programs. Given the need to reduce these combined individual and societal costs, more research is required on the employment experiences of those with ASD and what supports are necessary to ensure success. Success, as it pertains to this study, includes being employed, working the number of hours desired for the amount of pay desired, and experiencing high job satisfaction within a supportive work environment.

The goal of this study was to conduct an initial investigation of the employment outcomes and experiences of young adults on the autism spectrum. We particularly wanted to gain more detailed information than currently seen in the literature by gathering quantitative and qualitative information directly from young adults with ASD and their parents.

Method

Participants

Nineteen parents/guardians of adolescents and young adults on the autism spectrum completed a questionnaire reporting on their child's employment situation. Seventeen adolescents and young adults with ASD completed a questionnaire about their employment experiences. For 10 families both the parent and the young adult completed a questionnaire, but nine parents completed one without their child doing so, and seven young adults completed one without a parent doing so.

Among parents/guardians 17 mothers completed the questionnaire, one father and one grandmother. The majority of the parents (n=13) reported a mean total household income before taxes of \$100,000 or more with the rest responding in categories from \$50,000 up. Fourteen parents reported their child had a diagnosis of Asperger's syndrome, four autism, and one Pervasive Developmental Disorder – not otherwise specified (PDD-NOS). Seventeen parents were reporting on a son, and two on a daughter. The average age of their children was 21 years.

Among the adolescent and young adult respondents the average age was 23 years (range 19-28 years). There were 14 males and 3 females. Thirteen reported a diagnosis of Asperger's syndrome, two with autism and two with PDD-NOS. Eleven lived at home with their parents and six lived independently. Three had completed a high school education, 10 had some college but had not completed a degree, one had an associate's degree, and three had their bachelor's degree. Young adults were not eligible to participate in the study if they had not previously held a job.

Participants were recruited via flyers describing the study sent to targeted referral sources such as organizations providing services to those with ASD and their families. Most participants completed their questionnaire by mail but some who were taking part in various programs offered at the university (social skills, exercise, or music program), completed theirs in person. Each person who requested a questionnaire returned it, yielding a 100% response rate. Informed consent was obtained from all participants and parents/guardians. All aspects of the study were performed in accordance with the Institutional Review Board of the university.

Materials

The questionnaires (both the parent and the young adult versions) took around 30 minutes to complete. The parent/guardian questionnaire asked participants to respond to some demographic questions and then separated in to those whose son/daughter was employed, unemployed (jobless, but looking for jobs, and available for work), or out of the labor force (neither employed or looking for a job). Questions then focused on aspects of their job or previous job such as job title, salary, benefits, number of hours worked, size of company, and job search experiences. An additional section asked about the costs of family support in caring for a young adult on the autism spectrum. As those with ASD may need extra care, support and supervision, this section asked how many hours were parents, other relatives and friends providing this kind of help in an average week.

The questionnaire for the adolescents and young adults also began with some demographic questions and then focused on their employment experiences such as what their current (or previous) job entailed, their job satisfaction and attitudes towards co-workers using a Likert scale (please contact the corresponding author for a copy of the questionnaires).

Results

Parent/Guardian Questionnaire

Seven parents/guardians had a son or daughter who was currently employed, six a child unemployed, and six a child out of the labor force. Those who were employed had been in their

current jobs for an average of 43 months (range 24 to 72), and worked for an average of 22 hours per week (range 6 to 40). Six were paid hourly and one was salaried. They worked in companies of varying sizes (three worked with 5-10 employees, two with 11-30 employees, and two with 100+ employees). They worked relatively close to home with an average length of commute of 15 minutes. Three worked in retail, three worked in administrative positions, and one was a software engineer. Only one of the seven employed participants found the job completely independently (he saw a sign on the door of a shop). Of the others, three were hired following a co-op opportunity, one was hired at a baseball club because the participant had previously attended camp there and was known to the employer, one worked for a friend of the family, and one worked at their parents' company. Participants took from one month to two years to find a job. Five of the seven employed participants received some sort of accommodations from the employer. These included increased flexibility with the job, flexibility with productivity, flexible scheduling, a place to go when feeling overwhelmed, job coaching, and additional general support including emotional support, and "extreme kindness and understanding". Five did not get any health care or dental benefits. Six of the seven were not offered any professional or on the job training. Regarding salary, in the twelve months prior to the study, before taxes two earned less than \$5,000, two earned between \$5,000-9,999, one earned between \$10,000-14,999, one between \$15,000-19,999, and one earned more than \$50,000. These results are summarized in Table 1.

Table 1

Summary of Employment Outcome Data from Parents/Guardians whose child was employed
N=7

	Category	N
Paid	Hourly	6
	Salaried	1
Prior 12 mths earnings	<\$5,000	2
	\$5-9,999	2
	\$10-14,999	1
	\$15-19,999	1
	\$50,000+	1
Size of company	Small (5-10 employees)	3
	Medium (11-30 employees)	2
	Large (100+ employees)	2

Type of job	Retail	3
	Administrative	3
	Engineering	1
Found job	Independently	1
	Hired after a co-op	3
	Friend of family	3
Health benefits	Yes	2
	No	5
Professional training	Yes	1
	No	6
Accommodations	Yes	5
	No	2

Of the six parents whose child was unemployed, four reported that their child had previously been employed and two had not. Of those children who had previously been employed, the length of time since that previous employment ranged from 1-9 years. All four had been working part time, one in food service, two in office administrative jobs, and one in retail. Those in this category had been looking for a job from six months to two years. They had applied for an average of 17 jobs and had an average of five interviews at the time of completing the questionnaire.

Of the six children who were reported to be out of the labor force, four were not seeking employment because they were attending school or training programs, one was waiting for a previous employer to rehire them, and one was in a psychiatric treatment program. Three had previously worked (all part-time) and three had never had a paid job. Of those who had previously worked, one did janitorial work, one worked at a school as an aide during recreation, and one helped with the kennels in a vet's office.

We were also interested in costs of family support in caring for a young adult on the autism spectrum. As those with ASD may need extra care, support and supervision, we asked how many hours were parents, other relatives and friends providing this kind of help in an average week. Responses combined across the three groups (employed, unemployed, and out of the labor force) showed that the average number of hours per week spent in providing Personal Care to the individual with ASD in preparation for their work (e.g. dressing, taking care of their personal hygiene, etc.) was 7.2 hours. Families averaged 8.3 hours a week in providing transportation to their child's job, 4 hours a week in job interview preparation and completing resumes, and 11.1 hours a week in supervision/emotional support related to their child's job. Eight out of nineteen parents (42%) reported that over the past six months they lost income (reduced number of paid working hours) because they provided care and support for the person with an autism spectrum disorder. Parents estimated that they lost an average of 23 working

hours a week due to providing support to their child and estimated this to result in an average loss in gross income of \$600 a week. These results are summarized in Table 2.

Table 2

Costs of Family Support in Caring for a Young Adult on the Autism Spectrum

N=19

Category	Average
Average no. of hours spent per week providing personal care	7.2
Average no. of hours spent per week providing transportation to job	8.3
Average no. of hours spent per week helping with job interview preparation and resumes	4
Average no. of hours spent per week providing supervision / emotional support related to job	11.1
Average estimate of lost working hours per week	23
Average estimated lost gross income per week	\$600
Lost income over past 6 months	Yes: 8 No: 11

Young Adult Questionnaire

Adolescents and young adults with an autism spectrum disorder and with employment experience completed a separate questionnaire (available from corresponding author). Of the seventeen young adults who completed the questionnaire, eight had received general career guidance in high school, five had received training in job seeking, five in interviewing, six in resume preparation, and six had received training for a specific job/career. The remainder of the questionnaire asked participants to rate various aspects of their job. Two respondents did not complete this portion of the questionnaire. Of the remaining 15 respondents, 10 either agreed or strongly agreed that their job was exciting and 11 reported being overall satisfied or very satisfied with their current job. However, 13 agreed or strongly agreed that their job involved a lot of repetitive work, 8 reported they were lacking opportunities for promotion and 10 said they would like more training in their job.

Twelve respondents either disagreed or strongly disagreed that their disability made it difficult for them to do their job, 10 reported that they were given freedom for making decisions in their jobs, and 14 either disagreed or strongly disagreed that they had been treated unfairly or harassed at work because of their disability.

Respondents indicated their co-workers were friendly (n=15), helpful (n=14), respectful (n=15) and that their supervisors were concerned about the employees (n=13). The majority of respondents did not report fear of losing their job (n=12).

Two participants reported receiving “extra help” on the job – one had a job coach and the other reported having extra time to learn new tasks, extra coaching, and reminders to complete things. Participants also rank ordered their priorities regarding employment from a list of 11 employment related factors. They assigned a number 1 to the factor they felt was most important through to 11 for the factor they felt was least important. These rankings were then averaged across participants (see Table 3).

Table 3

Average Rankings Given by Young Adults with ASD of Their Employment Priorities

Priority	Average Ranking
Income	3.43
Interesting job	3.5
Supportive environment	4.5
Opportunity for learning / skills	5.15
Interacting with others	5.2
Health benefits	5.62
Opportunity for promotion	5.9
Commuting time	6.21
Independence on the job	6.43
Involves challenging work	7.39
Vacation and sick pay	8.39

Note. Rankings are from 1-11 with 1 being most important.

Regarding overall job satisfaction, four participants reported being “very satisfied” with their job, seven reported being “satisfied”, two “unsatisfied”, and one “very unsatisfied”. Three participants did not answer this question. Eight said they would strongly recommend their job to a friend, five said they would have doubts recommending their job, and four participants did not answer this question.

Discussion

The results from our questionnaires looking at the employment outcomes of young adults with autism spectrum disorders (ASD) (aged between 19-28 years) indicated overall, a negative employment outcome among our sample. There was a clear pattern of those with ASD being in entry level, low paid positions. These findings support previous research showing poor employment outcomes for those with disabilities (e.g. Baldwin & Johnson, 1994, 1995; Carter, Austin, and Trainor, 2012; DeLeire, 2000; Kidd, Sloan & Ferko 2000; National Organization on Disability, 2004). While parents' questionnaires permit us to cast light on the difficulty related to finding a "good" job, youth's responses give us insights about the quality of their everyday working experience.

Responses From Parents of Children With ASD

Parents in this group reported that employment levels were low among their children. Only around a third of the children were employed, mostly in hourly, part-time positions rather than salaried, full-time positions. Only one of those employed was in a skilled job (software engineer) with the remaining in unskilled entry level positions with no fringe benefits. Salaries were low, with only one participant earning over \$19,999 in the previous twelve months. Among those who were currently unemployed but who had previously worked (n=7), the pattern was similar. All had previously only worked part-time in entry level positions.

Participants Currently Employed

Only one parent reported that their child found their job independently, the others all had prior connections to their employers either as a friend or member of the family, through a co-op experience, or previously attending a camp. Five out of the seven currently employed received some sort of accommodation including increased flexibility with the job, flexibility with productivity, flexible scheduling, a place to go when feeling overwhelmed, job coaching, general additional support including emotional support, and "extreme kindness and understanding." Quotes taken from parent questionnaires gave more insight in to the sorts of accommodations received which are often informal. For example, "He doesn't drive, so his supervisor and I work out schedules that accommodate mine/my spouse's needs as well" or, "They know [son] very well and build in support because they understand who he is and he understands the culture of the place."

Participants Unemployed

Those who were currently seeking work appeared to have engaged in a relatively minimal job search process (e.g. they had applied for an average of 17 jobs and had an average of five interviews). Parents' open ended responses provided insight in to challenges with the job search, such as, "Rigidity in approaching the job search process and unwillingness to listen to advice from others; fear of making personal approaches; preference for solitary activities at home" or, "He has given up hope of finding employment and doesn't actively look unless we encourage him to apply for a particular position we find posted."

Less than half of the participants received any vocational training in high school which may partly account for some of the challenges parents described above. This result is consistent

with others studies that have also found an inadequate transition planning from high school to employment among those with ASD (Hetherington et al., 2010).

Participants Out of the Labor Force

The main reason for those who were not currently seeking employment (n=6) was that they were attending school or training programs. Three of these six had previously worked (all part-time), one in a janitorial position, one as a school aide during recreation, and one in a vet's office.

Factors Which Influence the Employment Outcomes for Those with ASD

Parents also describe a range of additional factors which influence the employment outcomes for those with ASD. The levels of stress and anxiety experienced by those with ASD have a significant impact on their employment experiences, as indicated here, "This was her first part-time job and she quit after about a month. She was going through medication changes, and she was also highly anxious about the job - she was doing the work very well but couldn't see that. She had trouble feeling comfortable with the staff. The cleaning duties were hard for her - she worried about germs. We suggested she quit because she was just too stressed and anxious."

Other parents reported problems with self-advocacy, motivation, and just a generally poor fit in terms of job match:

"The most repetitive and difficult times I have is trying to get him to understand how the 'working world' operates, and how his words and actions relate to that. Sometimes I feel unsure whether I'm dealing with Asperger's traits or just apathy/lack of motivation. He's basically high functioning but can't or won't self-advocate regarding issues at work. I explain steps he can take but he doesn't do it and then issues go unresolved."

"He did work at a bagel shop washing dishes. He could not keep up with the time-frame that the bagel shop wanted him to so he was asked to quit. He returned with us full-time."

"Left [food store] because he was tired of bagging and disliked fellow baggers. Not offered another position. Since graduating from college unable to find employment other than temp work."

"If we didn't own the company, I don't think he would have been able to hold the job here. The staff here is understanding and helpful to him.....He has come a long way since he started working here in terms of work and his behavior, however, he still has moments of inappropriateness."

Another parent described problems caused by her child working because of financial trade-offs:

"...As a result of his income he has lost his food stamp benefits. Because there is no public transportation to his job, however, a relative must drive him every day and a taxi

picks him up at a cost of \$12 per day (\$240 per month). He lost about \$150 in food stamps because of his income and I was told that “everyone has transportation costs” – although I did point out that usually they do not amount to nearly 50% of net pay!”

Costs of Family Support

Data across the three groups (employed, unemployed, and out of the labor force) showed a variety of hidden costs families face when caring for young adults with ASD. The first cost component is in terms of time. Parents provide a high level of family support for the child with ASD in a range of areas including providing personal care in preparation for work, transporting their child to their job, helping with resumes and job interview preparation, and supervision / emotional support related to their child’s job. Clearly, supporting a child with ASD in employment and in seeking employment involves considerable sacrifice on the part of parents and caregivers. Quotes taken from the open ended questions on the parent questionnaire particularly highlight the support provided by families:

“One of parents must be available for transportation, meltdown periods, hygiene patrol, food prep and maid service.”

“The kind of support we provide to [son] isn’t always quantifiable. It is incorporated into our daily routine. [Son] did lose a job he had as a store clerk – he was fired because he had made mistakes. We felt that people coming into the store had taken advantage of [him]. The baseball club job is not supported, but because they have known him since he was 4 years old, they understand how to work with him, what kinds to jobs to give him, and what not to ask him to do.”

The more hidden costs are associated with parents’ lost income, loss of career opportunities and deprecation of working skills. Nearly half our sample reported losing income and working hours due to providing care and support to their child.

“Pick [son] up in middle of day which splits the work day, can’t work full time.”

“Accepted positions close to home which did not require a relocation (career advancement vs. stability); had a longer period where paid child care was needed; had no evening, travel or social events. I was able to balance for many years, but I did need to accept that top jobs in my field were out of the balance equation.”

“Mother left employment to provide care, support, and guidance when he was a child. Unable to return to field of training because credentials have expired and would need to return to school for re-training. My current income is therefore greatly reduced.”

This supports the findings of others who have also shown that employment is negatively impacted among parents of those on the autism spectrum (Baker & Drapela, 2010; Eskow, Pineles & Summers, 2011).

Responses From Adolescents and Young Adults With ASD

Adolescents and young adults on the autism spectrum responded to a separate questionnaire. After answering some demographic questions, participants were asked to rate various aspects of their job. Their answers give us unique insights about their perceptions of career opportunities, about the employment effects of their disability and about the work environments they face.

Job satisfaction was high among the respondents in this study. Most reported that overall they were satisfied or very satisfied with their current job and that their job was exciting. However, they also reported that their job involved a lot of repetitive work, that they were lacking opportunities for promotion and that they would like more training in their job. Given that 10 participants had some college experience and three had completed their Bachelor's degree, it was somewhat surprising that most of the participants were in entry level, low-paid positions. Migliore, Timmons, Butterworth and Lugas (2012) found that postsecondary education was a strong predictor of higher earnings among youth with autism. Some participants commented on the lack of challenges encountered on their jobs:

“As of now I am working part-time as a cashier at [large retail chain store]. I was laid off two years ago from my position as a job cost accountant for a construction company, and I have been looking for something in my field/equivalent to my capacity. [Large retail chain store] is a stopgap I tolerate (sometimes barely).”

“I enjoy it but I also find it monotonous at times.”

“It's a job, not a career.”

The majority of young adults did not report their disability to be an obstacle on their jobs or that they had been treated unfairly or harassed at work because of their disability. This is contradictory to some of the parent's comments, suggesting a potential discrepancy between parents and children understanding of desirable performance or stigma:

“Over the past three years I've had over 10 jobs. The majority of which let me go due to my disabilities. I love the field I chose but there are too many schedule changes and transitions, and they always got mad because I took too much time. The field is very competitive and I prefer not to be in a job like that. The last job I had was the longest, and I gave them a disability letter near when I started, but it turned out they weren't willing to support me anymore.”

“I am making the best of a difficult situation. I do not see myself succeeding at any job without more support for my AS symptoms. Because I currently receive SSDI I have a small amount of flexibility pertaining to being forced into a job I would struggle with. I am working an unskilled job uncompensated on behalf of a charity.”

Most participants appeared to have been employed in environments that were supportive to them. They were happy with their co-workers and rated them as friendly, helpful, and respectful, and indicated that their supervisors were concerned about the employees. One participant comments:

“I thoroughly enjoy my job. Love talking to people, like doing the physical work cause I could never do a desk job, and I have a very supportive environment.”

These results contradict those found by Muller et al. (2003) whose participants expressed more negativity regarding their employment experiences, although did also report some isolated instances of vocational success, mostly in relation to finding the right job match or to having accommodating supervisors and co-workers. This discrepancy of results supports the idea that the relatively high job satisfaction reported by participants in this study is likely to be closely related to the substantial support received in their workplace. Indeed both our young adult participants and their parents reported very high levels of support in the children’s work environments.

Finally, in open ended responses, participants confirm what is already known about the beneficial effects of employment. They said:

“It's a simple and easy job but it gives me a paycheck and a schedule which has improved my self-esteem.”

“My last job was enjoyable, as I was able to be productive with a number of tasks to perform.”

In the future, a comparison group of typically developing adolescents and young adults would be useful especially to examine the question of whether the high number of job applications and interviews completed by those with ASD is related to their disability or the current economic situation. Across these two groups we could compare job search processes, job titles, status (full or part-time), salaries, benefits, training, career opportunities, and employment goals. This would permit us to identify factors that might be particularly unique among those with ASD.

Overall, these findings support other work in the disability studies field conducted with more varied populations including the work by The National Organization on Disability (2010) and the CDC both indicating disappointing employment outcomes for those with disabilities, particularly women and those in minority groups. When those with disabilities are employed they typically have fewer hours and are paid less, resulting in those with disabilities being significantly disadvantaged economically within our society (Shriner, 2001). Our results add to this literature and provide a unique focus on the rapidly growing population of those with ASDs. We hope this work will encourage further research focused on outcomes in adulthood such as transition and increasing financial independence. As more individuals benefit from early intervention and options for empirically validated service provision increase, more members of the disability community will be in a position to enter the competitive workforce. Greater understanding of the challenges faced, how to create successful placements, and improving employment outcomes will continue to be a significant concern within the disability studies field.

Conclusion

As a preliminary investigation our findings demonstrate that those with ASD have difficulty finding employment, typically find employment through people they know (perhaps more than would be expected in a typically developing population), are low paid workers, and are likely to work in part-time, entry level positions. Generally, however, they comment favorably about their work environment but also receive considerable support from their families who are subsequently impacted economically in terms of long term earning growth. Given the costs associated with caring and educating those with ASD (Ganz, 2007), as well as the proven abilities of those on the autism spectrum to be successful in the work place (Hurlbutt & Chalmers, 2004), our findings reflect the dire need for additional employment supports for those with ASD. It is clear that features of ASD can be highly desirable for employers such as reliability, attention to detail, preciseness, commitment, and honesty (Hillier et al., 2007). Given the right training both in school and on the job, and then supports in the workplace, the current employment situation for many individuals on the autism spectrum could be improved.

Ashleigh Hillier, PhD is an associate professor at the University of Massachusetts, Lowell. Her research interests include implementing and evaluating social and vocational skills interventions among adolescents and young adults on the autism spectrum.

Monica Galizzi, PhD is a professor of economics at the University of Massachusetts, Lowell. Her field of specialization is labor economics. She also has interests in the area of health economics, economics of disabilities, and behavioral economics.

Acknowledgements

We wish to thank Emily Makrez for help with preparing the questionnaires and collecting data. We thank Daniela Caruso who offered useful insights and comments on this study.

References

- American Psychiatric Association. (1995). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association (2013). *DSM-V Autism Spectrum Disorder Factsheet*. Retrieved February 1, 2013, from <http://www.psychiatry.org/practice/dsm/dsm5>
- Baker, D.L., & Drapela, L.A. (2010). Mostly the mother: Concentration of adverse employment effects on mothers of children with autism. *The Social Science Journal, 47*, 578–592
- Baldwin, M. L., & Johnson, W. G. (1994). Labor market discrimination against men with disabilities. *Journal of Human Resources, 29*, 1-19.
- Baldwin, M. L., & Johnson, W. G. (1995). Labor market discrimination against women with disabilities. *Industrial Relations, 34*(4), 555-577.
- Billstedt, E., Gillberg, C., & Gillberg, C. (2005). Autism after adolescence: Population-based 13-

- to 22-year follow-up study of 120 individuals with autism diagnosed in childhood. *Journal of Autism and Developmental Disorders*, 35, 351–360.
- Carter, E.W., Austin, D., & Trainor, A.A. (2012). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies*, 23, 50-63.
- DeLeire, T. (2000). The wage and employment effects of the Americans with Disabilities Act. *Journal of Human Resources*, 35(4), 693-715.
- Eskow, K., Pineles, L., & Summers, J. (2011). Exploring the effect of autism waiver services on family outcomes. *Journal of Policy and Practice in Intellectual Disabilities*, 8, 28–35.
- Flatau, P., Galea, J., & Petridis, R. (2000). Mental health and wellbeing and unemployment. *The Australian Economic Review*, 33, 161-181.
- Ganz, M.L. (2007). The lifetime distribution of the incremental societal costs of autism. *Archives of Pediatrics and Adolescent Medicine*, 161, 343-349.
- Garcia-Villamizar, D., Wehman, P., & Navarro, M.D. (2002). Changes in the quality of autistic people's life that work in supported and sheltered employment. *Journal of Vocational Rehabilitation*, 17, 309-312.
- Graetz, J.E. (2010). Autism grows up: Opportunities for adults with autism. *Disability & Society*, 25, 33–47.
- Hetherington, S.A., Durant-Jones, L., Johnson, K., Nolan, K., Smith, E., Taylor-Brown, S., & Smith, E. (2010). The lived experiences of adolescents with disabilities and their parents in transition planning. *Focus on Autism and Other Developmental Disabilities*, 25, 163-172.
- Hillier, A., Campbell, H., Mastriani, K., Izzo, M. V., Kool-Tucker, A., Cherry, L., & Beversdorf, D.Q. (2007). Two-year evaluation of a vocational support program for adults on the autism spectrum. *Career Development for Exceptional Individuals*, 30, 35-47.
- Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 45, 212–229.
- Hurlbutt, K., & Chalmers, L. (2004). Employment and adults with Asperger Syndrome. *Focus on Autism and Other Developmental Disabilities*, 19, 215-222.
- Jarbrink, K., McCrone, P., Fombonne, E., Zanden, H., & Knapp, M. (2007). Cost-impact of young adults with high-functioning autistic spectrum disorder. *Research in Developmental Disabilities*, 28, 94-104.
- Keel, J.H., Mesibov, G. B., & Woods, A. (1997). TEACCH-supported employment program.

Journal of Autism and Developmental Disorders, 27, 3–9.

- Kidd, M. P., Sloane, P. J., & Ferko, I. (2000). Disability and the labour market: An analysis of British males. *Journal of Health Economics*, 19(6), 961-981.
- Levy, A., & Perry, A. (2011). Outcomes in adolescents and adults with autism: A review of the literature. *Research in Autism Spectrum Disorders*, 5, 1271-1282.
- Migliore, A., Timmons, J., Butterworth, J. & Lugas, J. (2012). Predictors of employment and post-secondary education of youth with autism. *Rehabilitation Counseling Bulletin*, 55, 176-184.
- Mottron, L. (2011). Changing perceptions: The power of autism. *Nature*, 479(7371), 33-35.
- Muller, E., Schuler, A., Burton, B., & Yates, G. (2003). Meeting the vocational support needs of individuals with Asperger syndrome and other autism spectrum disabilities. *Journal of Vocational Behavior*, 18, 163–175.
- National Organization on Disability, *N.O.D./Harris 2004 Survey of Americans with Disabilities*, Louis Harris & Associates, Washington, DC, 2004.
- National Organization on Disability, *N.O.D./Harris 2010 Survey of Americans with Disabilities*, Louis Harris & Associates, Washington, DC, 2010.
- Randolph, D., & Andresen, E. M. (2004). Disability, gender & unemployment relationships in the United States from the behavioral risk factor surveillance system. *Disability & Society*, 19(4), 403-414.
- Remington, A.M., Swettenham, J.G., & Lavie, N. (2012). Lightening the load: Perceptual load impairs visual detection in typical adults but not in autism. *Journal of Abnormal Psychology*, Advance online publication. doi: 10.1037/a0027670.
- Shriner, K., (2001). A disability studies perspective on employment issues and policies for disabled people: An international view. In G.L. Albrecht, K.D. Seelman, & M. Bury (Eds). *Handbook of Disability Studies* (pp.642-662). Thousand Oaks, California: Sage Publications.
- Smith-Randolph, D., & Andresen, E.M. (2004). Disability, gender and unemployment relationships in the United States from the behavioral risk factor surveillance system. *Disability & Society*, 19, 403-413.
- Taylor, J.L., & Seltzer, M.M. (2011). Employment and post-secondary educational activities for young adults with autism spectrum disorders during the transition to adulthood. *Journal of Autism and Developmental Disorders*, 41, 566-574.
- VanBergeijk, E., Klin, A., & Volkmar, F. (2008). Supporting more able students on the autism

spectrum: College and beyond. *Journal of Autism and Developmental Disorders*, 38, 1359-1370.