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Social, Emotional, and Behavioral Functioning for Transitional-Aged Youth with Autism

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Social, Emotional, and Behavioral Functioning for Transitional-Aged Youth with Autism

by

Tyson Dee William Payne

Presented to the Faculty of the
Graduate Department of Clinical Psychology

George Fox University

in partial fulfillment

of the requirements for the degree of

Doctor of Psychology

in Clinical Psychology

Newberg, Oregon

November, 2016

Approval Page

Depression, Anxiety, and Occupational Functioning for Transitional-Aged Youth with

Autism by

Tyson Dee William Payne

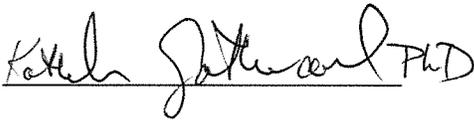
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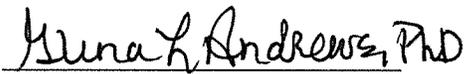
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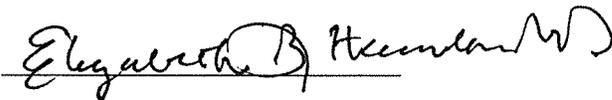


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Social, Emotional, and Behavioral Functioning for Transitional-Aged Youth with Autism

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Abstract

There is mounting evidence to suggest that higher numbers of individuals with Autism Spectrum Disorder (ASD) are being identified, including a wide range of severity and outcome (Eaves & Ho, 2008). As identification of ASD has improved, there is a larger proportion of identified young adults with ASD (YA-ASD) in the transition to adulthood (Centers for Disease Control and Prevention, 2010). Though exceptionally talented in many cases, a large proportion YA-ASD have difficulty establishing independence and navigating the complex social nuances of a workplace, many end up “homebound” with difficulty finding employment (Daley, Weisner, & Singhal, 2014; Shattuck, Wagner, Narendorf, Sterzing, & Hensley, 2011; Taylor & Seltzer, 2011). It is quite likely that remaining homebound has far-reaching effects on the development of self-efficacy and mood functioning. In response to this challenge parents, advocates, and individuals with ASD have developed a technology-training program to help teach skills that will allow individuals with ASD to be independent: increasing skills and kindling hope for the future. The current study sought to explore the impact of the training program components on anxiety, depression, and friendships, specific to YA-ASD in the transition to adulthood. YA-

ASD ($n = 23$) from vocational training program were given Achenbach System of Empirically Based Assessment - Adult Self-Report (ASR) before and after an 8-week period in a vocational program. Group and individual difference were measured for significant change. Few group significance was observed across the scales of the ASR. Some individual significance was observed, however no patterns of individual significance was found.

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Chapter 1

Introduction

Challenges Involved in Transition to Adulthood

Early adulthood is a pivotal time filled with struggles and challenges. Most of the body's physical growth milestones have been met, however growth must continue on psychological and social fronts (Siegler, DeLoache, & Eisenberg, 2003). In addition, frontal lobe development continues until the mid 20s. Erikson (1982) defined the theme of challenges during young adult years in his psychosocial stages as intimacy versus isolation. Individuals must form their sense of identity based on their experiences, beliefs, and values to “fuse” them together (Erikson, 1982, p. 70). Much of this is learned through social experiences such as friendships, romantic relationships, work, and education.

Development for Transitional Age Youth

Mood functioning. The period of transition to adulthood and entry to the work force also involves mood difficulty. Young adults and adolescents report less favorable moods than school-age children and individuals in middle- and late-adulthood (Larson, Moneta, Richards, & Wilson, 2002). Mood at this developmental stage is influenced by negative life events such as parent-child conflict, academic problems, and difficulties in social relationships. In addition, the formation of early-adulthood plans (educational or work trajectory) is an added stress in young adulthood. A final risk factor for mood functioning is level of alcohol consumption, which is at its peak during the transition to adulthood (Van Der Deen, Carter, McKenzie, & Blakely, 2014).

Social functioning. Regarding social functioning in young adulthood, individuals form meaningful romantic relationships and become sexually active (Berk, 2013). As they work toward individuation, young adults report the lowest level of closeness to parents. Instead, individuals in this period report feeling better understood by and having closer relationships with friends (Siegler et al., 2003). These findings suggest a high need for social connectedness during this developmental stage.

Occupational/Educational functioning. In many cultures, work is a rite of passage. Some have described it as a central role in human existence (Van Hasselt & Hersen, 1992). Further, one's occupation is strongly connected with their sense of identity (Huot & Rudman, 2010; Merton, 1957). However, for a variety of reasons, many individuals have difficulty securing employment. According to the United States Bureau of Labor Statistics (Bureau of Labor Statistics, 2014a), there is a positive correlation between years of education and rate of unemployment.

Neurological development. During late adolescence several major changes are occurring neurologically and with the brain (Stahl, 2013). The brain is continuously processing of pruning synapses, specifically in the cerebral cortex. Myelination continues to occur throughout the brain. Connections between hemispheres and between frontal lobes and other parts of the brain are strengthened. This provides increase in processing speed, attention, memory, planning, the capacity to integrate information, and self-regulation (Berk, 2013). Casey, Getz, and Galvan (2008) explain that there are also chemical changes going on in the brain, which cause excitatory neurotransmitters to be more responsive. This can lead to feeling emotions more intensely, both

stress and pleasure. Many adolescents have not yet learned to control these more powerful emotions (Casey et al., 2008).

Specific Transitional Challenges for Adults with Clinical Populations

During childhood years, individuals in clinical populations are more likely to receive community-based supportive services (education, healthcare, mental health, and social services) as parents and school are more accessible and able to advocate for them (Lindgren, Söderberg, & Skär, 2013). However, the transition from childhood to adulthood services is challenging for vulnerable populations. For instance, young adults diagnosed with cancer were less likely to access services they previously received and experienced decreased communication with providers (McInally, 2013). In addition, young adults with Type I Diabetes have similar challenges accessing appropriate health care services (Garvey, 2012).

Mood functioning. Young adults with mental health concerns reported elevated rates of depression during the transition to adulthood. Further, individuals who do not overcome the depression during the transition are more likely to experience depression throughout their lives and are also more likely to have other chronic illnesses (Paradis, Reinherz, Giaconia, & Fitzmaurice, 2006). Stahl (2013) describes that once a person is in a Major Depressive Episode (MDE), if there is no treatment, dopamine ratios change. At the same time, there is a final push in frontal lobe development (also involving dopamine levels). This affects the likelihood of depression becoming more long-term. Also, if there are two MDEs, the chances of a third are 90%. So, if the first MDE occurs in adolescence (which is a high risk time), and second occurs in transition to adulthood (another high risk time), the chances of a third episode occurring at some point are 90%.

As would be expected, anxiety is more prevalent during this time period for individuals with mental health concerns (Berk, 2013). Further, if individuals experience high levels of anxiety during this transition period, they are more likely to experience high levels of anxiety throughout their life. It is during this time period that suicide rates are the highest (Berk, 2013). Finally, research suggests that the transition to young adulthood is a crucial point in determining how anxiety will affect individuals throughout their life (Copeland, Angold, Shanahan, & Costello, 2014).

Social functioning. Young adults with a history of maladaptive behavior during childhood years had a lower peer status (in terms of number of friends and closeness) in adolescent and young adult years (Siegler et al., 2003). For those who struggle with depression, anxiety, and other mood disorders, they are more likely to isolate and withdrawal from social settings (Timpano, Çek, Rubenstein, Murphy, & Schmidt, 2014).

Occupational/Educational functioning. Individuals with disabilities, major health concerns, and mental health diagnoses have an unemployment rate twice that of individuals without a disability or mental health diagnosis (Bureau of Labor Statistics, 2014b), highlighting the need for early adulthood supports for these populations in particular. In a qualitative study, Gobbo and Shmulsky (2014) found that individuals with ASD enrolled in college struggled with understanding the audience in a lecture setting, executive functioning, weak coherence in cognitive processing, and difficulties with theory of mind. Many of these abilities are vitally important for college success.

Neurological development. Neurological development can be different for those who experience some type of pathology during adolescent and young adult years. Using

neuroimaging, Whittle et al. (2014) discovered that individuals who experienced a major depressive episode also experienced a reduction in volumetric change in the hippocampus, amygdala, and putamen.

Specific Transitional Challenges for Individuals with High-Functioning ASD

A majority of YA-ASD are dependent on their caregivers for residential, educational and occupational needs (Billstedt, Gillberg & Gillberg, 2011). Supporting a child with ASD is a significant financial obligation for families. The Center for Disease Control (2010) estimates the expenditures related to having a child with ASD are \$17,000 more than having a typically-developing child. In addition, children and adolescents with ASD have medical costs that average four to six times greater than an individual without ASD. This does not include intensive behavioral interventions, which can cost from \$40,000.00 to \$60,000.00 per year (Centers for Disease Control, 2010).

In addition to the financial pressure involved, YA-ASD who do not have intellectual impairment are unlikely to qualify for public services such as case management to help with the transition to adulthood (New Jersey Center for Outreach and Services for the Autism Community, 2006). A consistent daily routine is key to the function of an individual with ASD and their family (Harkness et al., 2011). Schools and other child services help parents provide this vital daily structure. Once high school is finished and child services are no longer available the now YA-ASD and their family are left in a transition of chaos as the structure is no longer in place (Daley, Weisner, & Singhal, 2014). Billstedt et al. (2011) found that after children with ASD finished their academic career, parents reported longing for the same structure that the

school system had provided. The lack of options was reported as the main reason YA-ASD end up staying being homebound by parents and caregivers (Daley et al., 2014).

Mood functioning. In regard to mood functioning in individuals with ASD, Sterling, Dawson, Estes and Greenon, (2008) reported that there is a higher risk for depression and social isolation. Individuals with lower levels of social impairment, higher cognitive ability, and higher levels of other psychotic symptoms were more likely to report depression when screened (Sterling et al., 2008). This same study suggested that as an individual with ASD ages, greater depressive symptoms are experienced. Even among high-functioning college students with ASD, a high correlation of depressive symptoms, and aggression has been found (White, Ollendick, & Bray, 2011). Individuals from the lower socioeconomic status or those who struggled with other the mental health or medical disorders more likely to report higher levels of depression when compared to individuals of similar demographics (Post et al., 2013).

Social functioning. Despite the deficits in social behaviors for YA-ASD, many still desire friendships and closeness to others. However, individuals with ASD reported higher rates of loneliness and lower rates of satisfaction with friendships when compared to individuals without ASD. This same study explains, the more aware they are of their own social deficits, the greater depression and anxiety they experience (Mazurek, 2014). Among college students, YA-ASD reported significantly high rates of social anxiety (White et al., 2011). In considering best supports for the transition to adulthood for individuals with ASD, the risks for social isolation and depression must be taken into account.

Neurological development. Research has shown that individuals with ASD experience alterations in brain connectivity (Dajani & Uddin, 2016). There is evidence to suggest that some

of these alterations in brain connectivity are due to the abnormal development of white matter in the brain during childhood and adolescence (Mak-Fan, et al., 2013). Inhibitory control is often impaired in individuals with ASD. This is believed to be due to the differences in the development of the neural substrates of inhibitory control of individual with ASD (Padmanabhan, et al., 2015).

Challenges in occupational and educational functioning. Research is growing in the area of employment for YA-ASD (Burgess & Cimera, 2014; Vogeley, Kirchner, Gawronski, Elst, & Dziobek 2013). With supports in goal-setting, successive internships in local business, and collaboration between schools and adult service staff, YA-ASD were found to attain significantly higher rates of employment (Wehman et al., 2013). This research is timely, currently shaping and informing federal support of these needs in many countries (Burgess & Cimera, 2014; Lee & Carter, 2012; Vogeley et al., 2013).

Regarding financial support and employment opportunities for YA-ASD after high school, most rely on a national or a state plan as their primary source of income (National Housing and Residential Supports Survey, 2013). Further, employment attainment for individuals with ASD has been found to be a difficulty. One survey reported that 42% of individuals with ASD had never been employed, and most YA-ASD had remained in their childhood home (Howlin, Moss, Savage, & Rutter, 2013). This rate is not unique to America, as other western countries report about the same rate (Vogeley et al., 2013). Individuals with ASD who also struggle with intellectual deficits are even more likely be unemployed (Taylor & Seltzer, 2011). In most employment, it is requisite that an individual navigate the social aspects the job. Being flexible, learning from others, communicating effectively can be barriers and

challenging in finding employment to meet their specific needs (Watson, Hayes, Radford-Paz, & Coons, 2013). Of those employed, most report that their jobs are menial (Taylor & Seltzer, 2011). Shattuck et al. (2011) explored competitive employment (education-appropriate), which is work performed by a person with a disability in an integrated setting at minimum wage or higher, and at a rate comparable to workers without disabilities who were performing the same tasks. Their study found that only 6% of YA-ASD retained competitive employment. Many individuals with ASD struggle with social cognition and executive functioning, both of which are essential for maintaining a job as most jobs require some level of social interactions and problems solving.

Regarding educational challenges, many individuals with YA-ASD have difficulty discovering their full academic potential in postsecondary education. Research has described specific challenges including the navigation of postsecondary systems (applying, registering, etc.), planning and organizing schedules, responsibilities of independent living, and general lack of guidance (Jobe & White, 2007). Opportunities in post secondary educational programs have been traditionally limited for individuals with ASD (Hendricks, 2010). Post secondary educational programs lack the sensitivity to meet the needs of individuals with ASD (Taylor & Seltzer, 2011).

Where all colleges appear to have programs designed to help individuals with ASD successfully navigate a college career, none have published data on outcome results. Table 1 outlines postgraduate programs that have been noted to be particularly successful at supporting students with ASD, and particular supportive components of their programs (Best Colleges Online. (n.d.).

Table 1.

Current Programs Available

Institution	Services Offered
Drexel University Autism Support Program	Mentoring, case management, workshops, and social events
Rutgers Developmental Disabilities Center	Mentoring, case management, workshops, and social events
Mercyhurst University AIM Program	Mentoring, workshops, social events, and referrals
Midwestern State University	Counseling and referrals
St. Joseph's University Kinney Center for Autism Education and Support	Workshops and social events
Boston University Supported Education Services	Workshops
University of Alabama College Transition and Support Program	Mentoring, case management, social events, and supervision
Autism Collaborative Center at Eastern Michigan University	Workshops and counseling
University of Connecticut SEAD Program	Mentoring and residential care
Marshall University Autism Training Center	Mentoring, workshops, social events, and case management

Teaching career skills to individuals with autism has been shown to reduce anxiety and depression (Hillier, Fish, Siegel, & Beversdorf, 2011). Hamilton, Stevens, and Girders (2016) studied a mentoring program at Curtin University (Australia), in which mentors sought to help adults with autism ease into the challenges of university life. They found that mentors reported increased awareness about autism, but research was not done on participant perspective or

outcomes. This study was also limited in its size. The University of Wisconsin implemented an intervention with potential college students with ASD (Retherford & Schreiber, 2015). YA-ASD were invited to the university for a week to introduce them to the experience of college life. Although a small sample size, this method was found to be effective in improving parent-reported social skills and parent-reported frequency of daily activities. While these studies show some promise, overall, there is a clear need for ongoing exploration of effective means in which to support career development for YA-ASD.

Protective Factors and Direction of Intervention

To inform intervention supports, research has uncovered several protective factors in improving the quality of life for individuals with ASD. For instance, recreational activity is positively correlated with quality of life (Billstedt et al., 2011). Research in residential treatment centers found that behavioral challenges are negatively correlated with quality of life for adults with ASD (Gerber et al., 2011). Regarding quality of life for students with ASD who are enrolled in a university, protective factors include strategic housing assignments, allowing the individual to arrive early for special programs, professional training, and education for all students with ASD, and individual coaching (Ackles, Fields, & Skinner, 2013).

Desire for Transitional Support

Further informing potential intervention, research has explored what level of support YA-ASD desire. In an online survey reported by Autism Speaks and SIS International Research (2013), over 400 individuals with ASD responded to what their ideal level of support would be in the transition to adulthood independence. Thirty six percent responded that they would prefer support only as needed as opposed to support all the time or even a few hours a week, and 15%

indicated that they would only require a few hours per week of support. Fifty eight percent of participants reported that they would prefer to live in a single family home with roommates in a suburban area, and Thirty seven percent endorsed living on their own in a home loudly expressing their desire to be self sufficient.

Key Program Components

For an intervention to be successful seven important elements were highlighted by Lee and Carter (2012). These are individualized, strengths-based transition services and supports, positive career development and early work experiences, meaningful collaboration and interagency involvement, family supports and expectations, fostering self-determination and independence, social and employment-related skill instruction and establishing job-related supports. No interventions were found to have reported all these components. Individuals with ASD are generally familiar and drawn to video games and computers. Kulman (2014) believes this is because there are almost no social factors, persistent play with predictable outcomes, individual pace, challenge, and perceived popularity.

nonPareil Institute

This study will be completed through nonPareil, a vocational training program tailored for individuals with ASD that focuses on video game and app development. Training program components during these eight weeks included structured computer programming training specific to the individual's level. Features of this individualized training include self-paced instruction, self-paced project completion, community involvement (regular social involvement with others in the program), and participation in 8 weeks of group therapy seeking to address emotional, behavioral, and social areas of difficulty.

nonPareil is a nonprofit company. In addition to computer programming training and experience, they seek to instill hope in individuals with ASD and their families in transition to adulthood. At nonPareil, YA-ASD are trained on teamwork in designing software and apps. They are trained individually and at their own pace, building on their strengths and facilitating the development of new strengths. The mission at nonPareil circumscribes this effort by stating "nonPareil Institute is dedicated to providing technical training, employment and housing to individuals who have been diagnosed with Autism Spectrum Disorder" (NonPareil Institute - About Us, n.d.). Specifically, YA-ASD are taught technical skills to build and maintain software programs, apps, books, videogames, and more, further learning to use these skills in a professional setting. Many have produced products that are currently available on the market (e.g., Soroban, an interactive app that teaches math skills, and "Secret of Delta Pavonis", a fictional book about two teenagers exploring new planets (McCullough, 2014)). nonPareil currently relies heavily on donations, they are working to develop products that will help the crewmembers and nonPareil become self-sustaining from the sales of these products. nonPareil's hope is to create products that produce millions of dollars, such as Angry Birds (Frazier, 2012) and become completely self sustaining. With the growing need for employment of individuals with ASD, nonPareil is looking to expand to other cities such as Portland, Oregon, Fort Worth, Texas, and Houston, Texas.

Currently, nonPareil accepts individual who are at least 17 years old and at least a senior in high school. They must have a medical diagnosis (from a doctor or psychologist evaluation), and IQ or Achievement test results from the past two years. Individuals with a diagnoses of intellectual disability are not encouraged to apply. Applicants are given emotional and behavioral

screeners to determine if the applicant is able to work successfully in the setting. This is to screen for initiative and self-regulation and to assess if they are a risk to themselves or others.

Current Study

As stated above, there are currently no published outcome studies on the social, emotional, and psychological benefits of a postsecondary training program tailored for individuals with ASD. The current study seeks to explore the impact of an autism-specific vocational training program on anxiety, depression, and friendships over an 8-week period. With this information this study hopes to inform the community as a whole about creative and effective ways to navigate transition to adulthood for YA-ASD, supporting emotional and social concerns. The hypothesis is that after eight weeks of participation in a vocational training program, improvements will be demonstrated in emotional, and social functioning.

Chapter 2

Methods

Participants

Participants were 23 YA-ASD enrolled in a postsecondary training program tailored for individuals with ASD. Mean age of the participants was 22.9 ($SD = 4.1$). Gender of the sample was 68.2% young men and 31.8% were young women (consistent with autism prevalence estimates). In regard to race/ethnicity, 86.3% of the sample were Caucasian, 9% were of Asian descent, and 4.5% were of Latino descent.

Measures

Demographics. Demographic information from initial the program intake was collected, including variables such as age, race/ethnicity, gender, diagnostic comorbidities, involvement in social activities, school/work involvement, and current living situation.

Achenbach System of Empirically Based Assessment- Adult Self-Report (ASR) (Achenbach, et al., 2004). The ASR is a self-report multi-informant measure that has been normed for ages 18-59. Item are rated on a 3-point Likert scale of 0 = *Not true*, 1 = *Somewhat true*, and 2 = *Very true or often true*. Some items require descriptions from the participant such as, “*Can’t get mind off certain thoughts; obsessions (describe)*.” It also requires the participant to describe items such as problems, illnesses, and strengths. Items are categorized into the following scales: Adaptive Functioning, Syndrome, DSM-oriented, and Substance Use Scales. Results are scored on a T score into Normal (below T = 65 or 93rd percentile), Borderline (in-

between T = 65 and T = 69, or 93rd to 97th percentile), and Clinical (above T = 69 or 97th percentile). Results also yield a list of “Critical Items” the participant endorsed (Maruish, 2004).

Significant correlations were found with the Minnesota Multiphasic Personality Inventory-2, Beck Depression Inventory, Beck Anxiety Inventory, The *Diagnostic and Statistical Manual of Mental Disorders* (2013) diagnosing, and Global Assessment of Functioning scores and the ARS. Cross informant Q correlation of the ASR and the Adult Behavior Check List (observer report) is .69. Reliability ranges on the different scales is .79 to .96 on test retest studies (Maruish, 2004). The ASR is reliable and valid assessment of pathology in adults ranging on the four scales from 0.70 to 0.85 reliability and 0.49 to 0.84 validity (Zasepa & Wolanczyk, 2011). Participants were offered support filling out assessments (i.e. participants may have assessment read to him or her via phone or live video).

Procedure

Data were drawn from nonPareil database, including broadband self-report measures of emotional and behavioral functioning. This measure was taken both pre- and post- an 8 week session of the training program. Participants were asked to complete the questionnaire independently, but were read the questions aloud by a research assistant when they reported or were perceived to have difficulty completing the questionnaire independently.

Ethical guidelines set forth by the American Psychological Association were followed. Consent was acquired and participants were informed that their participation is voluntary and that they were allowed to withdraw their participation at any time prior to data analysis. Approval for this study was obtained from the George Fox University Human Subjects Research Committee.

Chapter 3

Results

Descriptive results are presented in Table 2.

Table 2

Results and Descriptive Statistics for Key Study Indexes

Indexes	<i>M (SD)</i>	Skewness	Kurtosis	Kolmogorov-Smirnov Test of Normality
AnxDep1	59.27 (9.55)	1.36	1.29	.06
AnxDep2	58.27 (8.36)	.89	-.01	.03*
Somatic1	57.91 (7.10)	.57	-.80	.14
Somatic2	56.73 (7.17)	1.18*	.84	.08
Internalizing1	57.05 (12.23)	-.74	1.03*	.01*
Internalizing2	55.14 (12.15)	-.42	.24	.20
Externalizing1	53.36 (8.67)	.12	-1.22*	.20
Externalizing2	52.59 (10.14)	-.51	-.39	.20
Withdrawal1	57.14 (7.91)	1.24*	1.65*	<.01*
Withdrawal2	56.05 (7.57)	1.45*	1.43*	<.01*
Aggression1	56.05 (5.68)	.68	-.99	.02*
Aggression2	55.64 (5.33)	.64	-.88	.01*
Friends1	45.27 (11.31)	-.44	-.50	.11
Friends2	42.45 (12.16)	-.20	-.92	.20
Family1	46.59 (7.68)	-.46	-.24	.05*
Family2	48.27 (7.86)	-.49	-.30	.05*
Attention1	60.27 (7.72)	1.00*	1.15*	.20
Attention2	60.55 (9.49)	.70	-.64	.18
RuleBreaking1	54.55 (5.78)	1.01*	-.48	<.01*
RuleBreaking2	55.45 (6.29)	.93	-.44	<.01*

Notes follow

Notes. AnxDep1 = Anxiety and Depression time one; AnxDep2 = Anxiety and Depression time two; Somatic1 = Somatic time one; Somatic2 = Somatic time two; Internalizing1 = Internalizing time one; Internalizing2 = Internalizing time two; Externalizing1 = Externalizing time one; Externalizing2 = Externalizing time two; Withdrawal1 = Withdrawal time one; Withdrawal2 = Withdrawal time two; Aggression1 = Aggression time one; Aggression2 = Aggression time two; Friends1 = Friends time one; Friends2 = Friends time two; Family1 = Family time one; Family2 = Family time two; Attention1 = Attention time one; Attention2 = Attention time two; RuleBreaking1 = Rule Breaking time one; RuleBreaking2 = Rule Breaking time two; * = significant

Norm Group Comparisons at Time 1 and Time 2.

At Time 1, in comparison to the norm group sample (T-score = 50, $SD = 10$), this sample of YA-ASD had the highest mean scores on the indexes of Anxiety/Depression (T-score = 59.27, $SD = 9.55$) and Attention (T-score = 60.27, $SD = 7.72$), with the latter falling in the Borderline Clinical range. At Time 2, Anxiety/Depression decreased slightly (T-score = 58.27, $SD = 8.36$), and Attention stayed nearly the same (T-score = 60.55, $SD = 9.49$). The Kolmogorov-Smirnov Test was used to explore normality. Several of the indices met normality assumptions (Somatic, Externalizing, Friends, and Attention), in which cases significant differences between Time 1 and Time 2 were explored using repeated measures T-test and calculation of effect size (Cohen's D). These results are listed in Table 3. The other indices did not meet normality assumptions (Anxiety/Depression, Internalizing, Withdrawal, Aggression, Family, Rule Breaking), so significant differences between Time 1 and Time 2 were explored using Wilcoxon Signed Ranks Test (see Table 4).

Findings in Table 3 indicate that there were not significant differences between Time 1 and Time 2 on Somatic, Externalizing, Friends, or Attention indices. Power analyses on these scales suggest that these findings are likely to be replicated, even with a larger sample size, lending confidence to these findings.

Table 3

Results of repeated measures T test

Indexes	<i>T score</i>	<i>p-value</i>	Cohen's D	Power
Somatic1- Somatic2	1.30	.21	.57	.91
Externalizing1- Externalizing2	.52	.61	.23	.77
Friends1- Friends2	1.78	.09	.78	.97
Attention1- Attention2	-.20	.84	-.09	.85

Notes. Somatic1 = Somatic time one; Somatic2 = Somatic time two; Externalizing1 = Externalizing time one; Externalizing2 = Externalizing time two; Friends1 = Friends time one; Friends2 = Friends time two; Attention1 = Attention time one; Attention2 = Attention time two

Findings in Table 4 indicate that there were not significant differences between Time 1 and Time 2 on Anxiety/Depression, Internalizing, Withdrawal, Aggression, Family, or Rule-Breaking indices.

Table 4

Wilcoxon Signed Ranks Test

Indexes	Z Assumption Significance (2- tailed)
AnxDep1- AnxDep2	-.62 ^a (.54)
Internalizing1- Internalizing2	-1.01 ^a (.31)
Withdrawal1- Withdrawal2	-.37 ^a (.71)
Aggression1- Aggression2	-.47 ^a (.64)
Family1- Family2	-1.03 ^b (.30)
RuleBreaking1- RuleBreaking2	-1.27 ^b (.21)

Notes. AnxDep1 = Anxiety and Depression time one; AnxDep2 = Anxiety and Depression time two; Internalizing1 = Internalizing time one; Internalizing2 = Internalizing time two; Withdrawal1 = Withdrawal time one; Withdrawal2 = Withdrawal time two; Aggression1 = Aggression time one; Aggression2 = Aggression time two; Family1 = Family time one; Family2 = Family time two; RuleBreaking1 = Rule Breaking time one; RuleBreaking2 = Rule Breaking time two;

^a = positive ranks

^b = negative ranks

Individual Differences

Individual differences were also measured for significance. In Table 5, the reliable change index (Jacobson & Truax, 1991) was used to evaluate for individual improvement.

Significance, indicated by bolded text and an asterisk in the table, was found for a variety of variables, however no patterns were apparent.

Table 5

Reliable Change Index

Participant	Anx/Dep	Somatic	Internal	External	Withdrawal	Aggress	Friend	Family	Attention	Rule
1	-0.59	1.84	0.78	-2.54	2.3	-2.59	2.46*	2.02*	-1.41	-1.41
2	1.33	-0.92	1.75	2.59*	1.55	3.17*	0.84	-0.19	2.08*	1.63
3	0.05	0.12	0.06	1.31	0.06	0.55	-1.95	-0.19	0.68	-0.1
4	0.05	0.12	0.06	3.23*	0.06	0.55	0.14	-2.08	-0.01	-0.1
5	-2.2	-0.92	-1.15	-2.54	0.43	-3.63	-0.78	-2.08	-1.75	-0.1
6	3.26*	1.15	2.96*	2.59*	0.06	4.22*	-0.78	-0.19	1.73	-0.1
7	-3.48	-0.58	-3.81	-0.94	-1.43	-0.49	1.3	5.48*	0.66	-1.41
8	2.94*	0.81	2.72*	-3.5	0.05	-1.54	4.31	-5.86	0.66	-0.97
9	-3.48	1.5	-0.91	0.02	0.06	-1.02	-1.95	-0.19	-4.89	-1.41
10	3.26*	1.84	1.51	0.02	0.06	3.7	0.84	-0.19	2.78*	4.67
11	-2.2	-2.65	-1.39	0.02	-2.18	0.55	2.46*	-4.91	0.34	-2.27
12	3.26*	0.46	2.48*	0.35	-0.31	2.65*	0.14	-0.19	2.43*	-1.84
13	-1.24	-0.92	-1.15	1.31	-1.06	0.55	-1.95	-0.19	3.13*	-0.1
14	1.65	0.12	0.78	0.02	1.18	2.13*	2.23*	-0.19	-4.54	-1.41
15	2.94*	1.84	1.27	-2.22	-0.31	-1.02	1.3	-2.08	-0.36	-0.1
16	2.62*	1.5	2.72*	0.67	6.03*	1.08	-1.95	-0.19	0.66	0.33
17	1.01	2.88*	4.89*	4.19*	5.66*	1.08	2.92*	1.7	0.34	-0.1
18	-1.24	0.12	-1.64	-2.54	-1.06	-3.11	-2.64	-2.08	-0.71	-0.1
19	1.01	2.53*	1.02	-0.94	0.06	0.03	-1.95	-1.13	0.34	-2.71
20	0.37	-0.23	-1.15	3.23*	-1.43	0.55	2.23*	-0.19	0.34	-0.1
21	-1.24	2.53*	-0.18	0.02	-0.69	-2.59	-1.95	-2.71	-3.85	1.2
22	-0.59	0.12	-0.18	-1.58	0.06	0.55	2	-0.19	-1.75	-4.45
23	-0.59	1.84	0.78	-2.54	2.3	-2.59	2.46*	2.02	-1.41	-1.41

Notes. AnxDep = Anxiety and Depression; Internal = Internalizing; Extern = Externalizing; Withdra = Withdrawal; Aggress = Aggression; Rule = Rule Breaking

*= *reliable improvement* > 1.96.

Chapter 4

Discussion

There is a growing need for individuals with ASD to find meaningful work, a need that is recognized by social activists, government bodies, and researchers. YA-ASD struggle in academic and career environments as many of these environments require social skills that are generally more difficult for YA- ASD, despite their capability. With mood, social, educational, and neurological barriers, individuals with ASD often require specialized training to meet their needs. However, when these specific needs are met, benefits are seen in social, emotional, and behavioral functioning. This outcome study explored the impact of an 8 week section of one such program on these areas of functioning. The program explored was a technology-training vocational program specifically tailored to the needs of YA-ASD.

While no significant differences were found over the 8 week period of the study, several considerations were uncovered which will benefit future research in this area. One limitation of the study was the sample size. Power estimates were small for the Anxiety/Depression scale, Internalizing scale, Withdrawal scale, Aggression scale, Family scale, and Rule Breaking scale, indicating that a larger sample size may have changed the results of the scales. The sample size was small, convenient, and relatively homogeneous. Secondly, this study did not use a control group of YA-ASD with which to compare the experimental group. Thus, it is unclear how these findings might be the same or different from YA-ASD who are not enrolled in a program like this. Third, measurement tools with more sensitivity to mood, social skills, and general

functioning should be used (e.g., BDI-II, STAI: State-Trait Anxiety Inventory; Spielberger et al. 1983; Index of Peer Relations (IPR: Hudson et al. 1990). However, finding assessments that are designed for and normed for an ASD population is also important, considering differences in language use, language comprehension, and social cognition that often occur. Next, having an additional observer to report on participant behavior in the workplace would control for potential limitations in social cognition and insight. Sixth, it is likely that a span of eight weeks was not enough time to capture significant program impact on social and emotional functioning. Significant results may be better detected with more time given between measurements.

When individual differences were evaluated, significance was found with some individuals on a variety of scales. However, no pattern was evident in explaining the improvement for individuals who did experience some type of improvement. This may be due the lack of sensitivity of the measure. It is suggested that future research use a different measurement tool.

Compared to the norm group, participants in this study demonstrated higher syndrome scale and diagnostic scale scores across the board, as well as lower adaptive scores. In addition, attention problems fell in the Borderline Clinical range at both Time 1 and Time 2. These differences from the norm group highlight the risk-level of the sample, and further support the need for ongoing research on supports in transition to adulthood for this group.

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Appendix A**Curriculum Vitae**

TYSON DEE WILLIAM PAYNE

EDUCATION

- 5/2014 M.A. Clinical Psychology
George Fox University Graduate Department of Clinical Psychology (APA-
Approved),
Newberg, OR
- 5/2011 B.A. Family Consumer Human Development
Utah State University
Logan, UT
Graduated Cum Laude

SUPERVISED CLINICAL EXPERIENCE

George Fox University Integrated Care Internship, Portland, OR - 8/2016 to present
Primarily worked as a behavioral health consultation in a primary care medical setting using a warm hand-off and co-visit model. Clinical populations served included children, families, and adults with a variety of emotional and behavioral health concerns. Provided collaboration and consultation with medical staff. Supervised a practicum student at a community mental health clinic.

Supervisor: Heidi Joshi, PhD

Willamette Family Medical Center, Salem, OR - 7/2015 to 6/2016

Behavioral health consultation in an integrated care medical setting using a warm hand-off and co-visit model. Clinical populations served included children, families, and adults with a variety of emotional and behavioral health concerns. Provided intervention and assessment (ADHD, LD) as well as collaboration and consultation with medical staff. Also assisted with program development of the integrated care model and a mental health clinic on site.

Supervisor: Martha Wang, PhD

Childhood Health Associates of Salem, Salem, OR - 7/2014 to 6/2015

Integrated behavioral health consultation in a pediatric primary care clinic, using a co-visit model. Concerns addressed included childhood anxiety, disruptive behavior, adjustment, obesity, and health-related concerns. Also created and implemented curriculum for ADHD and weight

management psycho-educational groups.

Supervisor: Joy Mauldin, PsyD

St. Paul Elementary School, St. Paul, or - 9/2014 to 11/2014

Provided parent training in a 6-week group format, with a particular focus on management of disruptive behavior and improvement in parent-child relationships. Group was conducted in Spanish.

Supervisor: Elizabeth Hamilton, PhD

George Fox University Behavioral Health Crisis Consultation Team, Newberg, or - 2/2014 to Present

Provided behavioral health consultation/liaison services and conducted risk evaluations and crisis management in several local hospitals, with consultations occurring in emergency departments, intensive care units, and medical/surgery units. Primary concerns were risk of harm to self or others, and inability to care for self related to significant mental illness. Also provided care coordination, including placement in psychiatric hospitalizations, respite, residential treatment, detoxification centers, homeless shelters, and community mental health centers.

Supervisors: Mary Peterson, PhD, Bill Buhrow, PsyD, & Joel Gregor, PsyD

George Fox University Palliative Care Consultation Team, Newberg, or - 2/2014 to 2/2015

Provided consultation to patients in palliative care. Also assisted in program development.

Supervisors: Marie Christine Goodworth, PhD & Jeri Turegsen, PsyD.

Portland Community College Counseling Clinic, Portland, OR - 10/2013 to 6/2014

Provided individual therapy and career counseling for college students. Primary concerns addressed included anxiety, depression, homelessness, career and academic choices, and adjustment-related concerns. Also conducted a support group for homeless students.

Supervisor: Tera Hoffman, PhD

George Fox University Behavioral Health Clinic, Newberg, OR- 8/2012 to 7/2013

Provided individual therapy and assessment for children, families, adults, and couples presenting with depression, anger, anxiety, adjustment, personality disorders, and trauma. Assessments completed explored concerns of learning disorders and neurocognitive/memory assessments.

Supervisor: Joel Gregor, PsyD

George Fox University Graduate Department of Clinical Psychology, Newberg, OR- 1/2012 to 4/2012

Provided individual therapy for college students with adjustment concerns. Supervision included review of 30+ hours of recorded therapy sessions in individual and group supervision settings.

Supervisor: Mary Peterson, PhD

SUPERVISION EXPERIENCE

Advanced Counseling Teaching Assistant - 9/2014 to present

George Fox University Department of Psychology, Newberg, OR

Instructed undergraduate students on counseling skills, providing supervision and feedback and implementing class assignments.

Supervisor: Kris Kays, PsyD

Graduate Psychology Peer Mentor 8/2014 to 5/2015

George Fox University Graduate Department of Clinical Psychology, Newberg, OR

Supervised a Practicum I student, providing clinical and feedback on cases and case presentations as well as mentoring on professional development.

Supervisor: Elizabeth Hamilton, PhD

RESEARCH EXPERIENCE

- 2015 **Payne, T.**, Dean, C., Lam, P., Flachsbart, C., Feuerbacher, S. *Emotional Functioning in Transitional-Aged Youth with Autism Spectrum Disorder*. Poster Presented at the Oregon Psychological Association 2015 Convention. Eugene, OR.
- 2014 Holt, J., Green, C., **Payne, T.**, Theye, A. *Child and Family Risk and Protective Factor Screener for Head Start of Yamhill County*. Poster Presented at the Oregon Psychological Association 2014 Convention. Portland, OR.
- 2013 Snider, J, Gregor, J, Satterlee, M, **Payne, T.** Effects of Strength-Based Feedback at Intake on Therapy Outcome Measures. Poster Presented at the American Psychological Association 2013 Convention. Honolulu, HI.
- 2013 Taloyo, C, **Payne, T.**, Satterlee, M, Nelson, A. *The Real Relationship in Training Pre-Practicum Students*. Poster Presented at the National Council of Schools and Programs of Professional Psychology. Nassau, Bahamas.

PROFESSIONAL PRESENTATIONS AND TEACHING EXPERIENCES

Graduate Teaching Experience

Teaching Assistant for PSYD 591: Consultation, Education, and Program Evaluation - 9/2015-Present

George Fox University

Teaching Assistant for PSYD 525: Neuropsychological Assessment - 1/2015-4/2015

George Fox University

Undergraduate Teaching Experience

“Common Myths About Depression on College Campuses” - 2/2015

Community presentation and Q&A for undergraduates

George Fox University

Undergraduate Guest Lecturer - 11/2013-11/2014

George Fox University

“Commonly Treated Disorders in Primary Care” in Abnormal Psychology course (presented twice)

“Cultural Diversity” in Introduction to Psychology course

“Commonly Treated Disorders on College Campuses” in Abnormal Psychology course

Guest Lecture- **“Stress Management for Students”** - 5/2014

Career Guidance Course

Portland Community College

Guest Lecture- **“Introduction to Short Sales”** - 4/2010

Family Finance Course

Utah State University

Presentation to Medical Professionals

Presentation on **“Motivational Interviewing in Primary Care”** - 1/2015

Presentation to primary care providers, included research and basic techniques of Motivational Interviewing in primary care.

Childhood Health Associates of Salem

Presentations to Families

Co-Presenter on **“Healthy Lifestyles”** - 3/2014

Presentation to families of children struggling with obesity.
Salem Hospital (Community Health Education Center)

Co-Presenter on “**Attention Deficit Hyperactive Disorder**” - 3/2014

Facilitated a 6-week psychoeducational/support group to parents of children with ADHD.
Included review common presentations and interventions.
Salem Hospital (Community Health Education Center)

UNIVERSITY INVOLVEMENT

Clinical Health Psychology Network - 2014-present

George Fox University Graduate Department of Clinical Psychology
Newberg, OR

A student interest group designed to provide network and coaching for students interested in health psychology. This group holds online discussions to share resources and to seek support.

Multicultural Committee - 2011-present

George Fox University Graduate Department of Clinical Psychology
Newberg, OR

Supervisor: Winston Seegobin, Ph.D.

Committee designed to provide training and resources for students who wish to seek additional training and education to be competent in treating individuals from diverse cultures.

Vice President of Service: Phi Upsilon Omicron Honor Society - 2010- 2011

Utah State University

Supervisor: Teresa Bodrero

President of the Association of Student Family Consumer Human and Development- 2009- 2011

Utah State University

Logan, UT

Supervisor: Victor Harris, PhD

Member, Marriage and Family Therapy Student Association - 2009-2011

Utah State University

Logan, UT

RELEVANT WORK EXPERIENCE

Cedar Hill Hospital

Therapist PRN – 5/2016 to present

Portland, OR

Facilitated group therapy for inpatient patients at a psychiatric facility. Provided milieu therapy. Performed intake and discharge assessments and consultation.

Co-Owner of The Good Life Preschool - 8/2012 to present

Dundee, OR

Collaborated on establishment of a local preschool that implements evidence-based curriculum, becoming fully licensed and certified by the State of Oregon.

Program Support Specialist - 5/2011 to 8/2013

Portland Veteran Affairs Medical Center

Portland, OR

Education and training coordination for psychologists, social workers, primary care physicians, nurses, pharmacologists, and occupational therapists. Assisted with consult evaluation programs.
Supervisor: Sarah Goodlin, MD

Relief Youth Specialist - 6/2011 to 9/2011

Chehalem Youth and Family Services

Newberg, OR

Milieu-based child and adolescent treatment support in residential care facility for children and adolescents with emotional and behavioral dysregulation.

Supervisor: Tara Sanderson PsyD, MBA

Department Head of Real Estate - 3/2008 to 7/2011

Bridgerland Applied Technology College

Logan, UT

Developed over 500 hours of curriculum and managed instruction delivered by licensed real estate instructors to meet regulation standards.

Supervisor: Kyle Saunders, MA

VOLUNTEER EXPERIENCE

Head Start of Yamhill County - 1/2013 to 11/2014

Vice Chair of Parent Policy Council

Provides input to Board of Directors for important Head Start business such as policy change, new employee approval, curriculum, finances, etc. Resolved employee and parent concerns regarding policy

Chairperson: Angela Shaw

National Alliance on Mental Illness (NAMI) - 4/2011 to 5/2011

Volunteer

Helped conduct group training to family members of individuals with mental illnesses. Co-lead group training for individuals with mental illnesses.

Supervisor: Gail Bartholomew

Bear River Head Start - 1/2011 to 5/2011

Volunteer

6-10 hours/week Coordinated activities to help males become involved in the lives of children enrolled in the Head Start program. Presented trainings to employees of Head Start about male involvement. Worked in classroom with teachers and students.

Supervisor: Ernesto Lopez

Cub Scouts of America - 6/2009 to 10/2015

Cub Master, Committee Chair, Den Leader

Responsible for Pack Meetings, Rank Advancement, and Den Meetings of Cub Scouts. Eagle Scout (1994)

Vasa Previa Foundation of Utah - 1/2005 to 5/2007

Board of Directors

Responsible for fund raising with large corporations. Assisted in coordinating awareness events.

The Church of Jesus Christ of Latter Day Saints - 6/1999 to 6/2001

Full Time Missionary

Lived in Sao Paulo Brazil for two years. Learned and spoke Portuguese. Provided service and teaching.

Supervisor: Elder Stanley Ellis

RELEVANT TRAININGS ATTENDED

PRIMARY CARE/ HEALTH PSYCHOLOGY

“Integrated Primary Care” - 9/2013 - Brian Sandoval, PsyD & Juliette Cutts, PsyD, George Fox University Graduate Department of Clinical Psychology full-day training

“Motivational Interviewing Training Workshop” - 2/2013 - Michael Fulop, PsyD Michael Fulop MI Training at George Fox University 2 day work shop

“Oregon Health Science University Pain Day: Why do so many drugs fail?” - 2/2013 - Tim Brennan, MD, PhD, Stephen Arneric, PhD Oregon Health State University full-day conference

“Dementia Training for Primary Care” - 12/2011 - Sarah Goodlin, MD, Jeffery Kays, MD, David Mansoor, MD Portland VA Medical Center

CHILD and ADOLESCENT POPULATIONS TRAINING

“Let’s Talk About Sex: Sex and Sexuality Applications for Clinical Work” - 10/2015 - Dr. Joy Mauldin, PsyD George Fox University Graduate Department of Clinical Psychology half-day training

“Facetime” in an Age of Technological Attachment” - 11/2014 - Doreen Dodgen-Magee, PsyD George Fox University Graduate Department of Clinical Psychology half-day training

“Learning Disabilities DSM 5 and Understanding and Treating ADHD” - 10/2014 - Tabitha Becker, PsyD and Erika Doty, PsyD George Fox University Graduate Department of Clinical Psychology full-day training

ASSESSMENT TRAINING

“WISC-V: Overview and demonstration of the upcoming revision” - 6/2014 - Patrick Moran, PhD, Annual Northwest Psychological Assessment Conference at George Fox University half-day training

“Woodcock Johnson-IV: A new era of assessment and interpretation” - 6/2014 - Stephanie Rodriguez, EdS. Annual Northwest Psychological Assessment Conference at George Fox University half-day training

“Assessing Therapeutic Outcomes: Improving your Effectiveness (and Satisfaction?) in Clinical practice” - 6/2014- Carlos Taloyo, PhD Annual Northwest Psychological Assessment Conference at George Fox University half-day training

“Assessment and Treatment of Anger, Aggression & Bullying in Children and Adults” - 6/2012- Ray DiGiuseppe, PhD Annual Northwest Psychological Assessment Conference at George Fox University half-day training

“The Mini-Mental State Examination – 2nd Edition” - 6/2012 - Joel Gregor, PsyD Annual Northwest Psychological Assessment Conference at George Fox University half-day training

DIVERSITY TRAINING

“Afrocentric Approaches to Clinical Practice,” - 1/2013 - Danette C. Haynes, LCSW and Marcus Sharpe, PsyD George Fox University Graduate Department of Clinical Psychology full-day training

“Sexual Identity,” - 11/2012 - Erica Tan, PsyD George Fox University Graduate Department of Clinical Psychology full-day training

“Treating Gender Variant Clients: Christian Integration,” - 10/2012 - Erica Tan, PsyD George Fox University Graduate Department of Clinical Psychology full-day training

OTHER RELATED TRAINING

Clinical Teams - 2012 to present

George Fox University

Weekly faculty led clinical training

Rotate clinical teams throughout graduate studies

Case presentations, diagnostic and treatment planning, theoretical discussion, and report writing training

Supervisors: Paul Stoltzfus, PsyD; William Buhrow, PsyD; Kris Kays, PsyD; Elizabeth Hamilton PhD; Kriste Knows His Gun PsyD

Annual Conference of the Oregon Psychological Association - 5/2015 - Oregon Psychological Association full-day training

“Spiritual Formation and Psychotherapy” - 3/2015 - Barrett McRay, PsyD George Fox University Graduate Department of Clinical Psychology full-day training

“National Register of Health Service Psychologists” - 2/2015 - Morgan Sammons PhD, George Fox University Graduate Department of Clinical Psychology half-day training

Annual Conference of the Oregon Psychological Association - 5/2014 - Oregon Psychological Association full-day conference

“The Diagnostic and Statistical Manual of Mental Disorders Five” - 1/2014 - Jeri Turgesen, PsyD and Mary Peterson, PhD George Fox University Graduate Department of Clinical Psychology full-day training

Annual Convention of the American Psychological Association - 7/2013 - American Psychological Association week-long conference

“The Person of the Therapist: How Spiritual Practice Weaves with Therapeutic Encounter” - 7/2013 - Brooke Kuhnhausen, PhD George Fox University Graduate Department of Clinical Psychology full-day training

AWARDS

Multicultural Scholarship - 8/2011 to 5/2013

George Fox University Graduate Department of Clinical Psychology
Newberg, OR

Awarded for an outstanding graduate seeking advanced education in the mental health field, with interest in diverse populations.

PROFESSIONAL AFFILIATIONS

2015 to present Student Member, APA Division 53- Society of Clinical Child and Adolescent Psychology

2015 to present American Board of Professional Psychology, Early Entry Member

2014 to present Oregon Psychological Association, Student Affiliate

2011 to present American Psychological Association, Student Affiliate

REFERENCES

Dr. Joel Gregor, PsyD
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